



Seva Shikshan Prasarak Mandal's

Dr. N. J. Paulbudhe College of Pharmacy

Shaneshwar Nagar, Vasant Tekadi, Savedi, Ahmednagar, Pin: 414003



Mobile. No: 7774036749, Ph. No. (0241) 2423640 | E-mail: bpharmacydnjp@gmail.com | www.bpharmacy.sspmonline.org | DTE Code: 5451 | AISHE Code C-59365 | PCI 2002

CRITERIA-1

CURRICULAR ASPECTS

1.1: Curricular Planning and Implementation



Approved By: P. C. I, New Delhi, Ref No: F.No.02.297/2018-PCI, AICTE: F.No. Western/2017-1-3359523301,
Affiliated to Savitribai Phule Pune University – Ref. No. PU/AN/PHARM/145/2017



Seva Shikshan Prasarak Mandal's



Dr. N. J. Paulbudhe College of Pharmacy

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1.1.1 The Institution ensures effective curriculum planning and delivery through a well – planned and documented process including academic Calendar and conduct of continuous internal Assessment

CONTENTS

Sr. No.	Particulars	Details
1.	SPPU affiliation letters	View document
2.	AICTE approval letters	View document
3.	PCI approval letters	View document
4.	Course structure	View document
5.	PCI course regulation	View document
6.	SPPU academic calendar	View document
7.	Institute academic calendar	View document
8.	Institute academic planner	View document
9.	Course file Index	View document
10.	Summary of Industrial Visits	View document
11.	Continuous Assessment	View document
12.	Internal examination time table	View document



[Signature]
PRINCIPAL
Dr. N. J. Paulbudhe College Of Pharmacy
Shaneshwar Nagar, A'Nagar- 414003

Approved By: P. C. I, New Delhi, Ref No: F.No.02.297/2018-PCI, AICTE: F.No. Western/2017-1-3359523301,
Affiliated to Savitribai Phule Pune University – Ref. No. PU/AN/PHARM/145/2017



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SPPU AFFILIATION LETTERS



[Signature]
PRINCIPAL

Dr. N. J. Paulbudhe College Of Pharmacy
Shaneshwar Nagar, A'Nagar- 414003

Approved By: P. C. I, New Delhi, Ref No: F.No.02.297/2018-PCI, AICTE: F.No. Western/2017-1-3359523301,
Affiliated to Savitribai Phule Pune University – Ref. No. PU/AN/PHARM/145/2017

Savitribai Phule Pune University
(formerly Pune University)

Telephone Number :
020-25691233
25601257
25601258
25601259

Academic Department
Ganeshkhind, Pune-411007.
Telegraph: 'unipune'
Fax: 020-25691233
Website: www.unipune.ac.in
e-mail
: affiliation@pun.unipune.ac.in
Date: July 10, 2023

Reference No.:CA/1527

To,
Principal,
Seva Shikshan Prasarak Mandal
Dr. N.J. Paulbudhe College Of Pharmacy
Address: 45/1B,Shaneshwarnagar,Vasantekdi,Savedi.
District: Ahmednagar 414003

Subject:- Academic year 2023 2024. or renewal of attachment for rain / natural increase
Respected Sir,

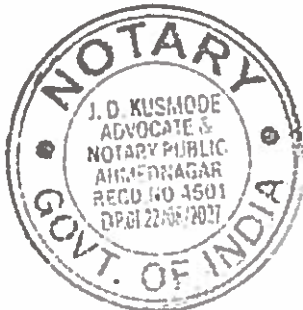
As per the decision taken by the Vidyapeetha Adhikari Mandal regarding the above subject, you are informed that your College's academic year 2023 2024. for the attachment of the following mentioned courses Upgradation / Naturalistic Maharashtra Public Schools Act 2016 as well as All India Tantra Shikshan Parishad (AICTE)/ National Council of Teacher Education (NCTE)/ Bar Council of India (BCI) / Pharmacy Council of India (PCI)/ Council of Architecture (COA)/ School Grants Commission/ Concerned Apex Institution/ Council/ Regulatory Board etc. as well as central government As may be prescribed from time to time by the Government of Maharashtra and Savitribai Phule Pune Vidyapith Rules/Orders/Guidelines/Statutes/Ordinances etc. As per the provisions as well as subject to recognition of related course and admission capacity Along with the fulfillment of the terms and conditions (if applicable) attached to the self-report, the university's letter was issued. Permission is granted for completion within three months from the date of occurrence.

Sr. No.	Particulars	No. of Students	1 st cycle/2 nd cycle (If Applicable)	Affiliation type
1	B.Pharm.	100	1 st to 4 th year Div. No. 1	Renewal

list of terms and conditions

Sr. No.	Terms and Conditions
1	Approved librarian not available Faculty not as per norms

Translated into English
from Marathi Version



J. D. KUSMODE
Advocate & Notary Public
Ish Kripa Plot No.148/A,
Biddhi-Siddhi Colony, Gulmohar Rd,
Savedi, Ahmednagar.(M.S.)

S. D. Davkhar

Deputy Secretary

PRINCIPAL

Dr. N. J. Paulbudhe College Of Pharma
Shaneshwar Nagar, A'Nagar- 414003

दूरध्वनी क्रमांक :
०२०-२५६२११८८
२५६२११९७

सावित्रीबाई फुले पुणे विद्यापीठ
(पूर्वीचे पुणे विद्यापीठ)



शैक्षणिक विभाग
(संलग्नता कक्ष)
गणेशखिंड, पुणे-४११००७.



240000253

टेलिग्राफ : 'युनिपुणे'
फॅक्स : ०२०-२५६९१२३३
वेबसाइट : www.unipune.ac.in
इ-मेल : affiliation@pun.unipune.ac.in

संदर्भ क्र.: सीए/१५२७

दि.: १०/०७/२०२३

प्रति,
मा. प्राचार्य,
सेवा शिक्षण प्रसारक मंडळ डॉ.एन.जे.पाऊलबुधे कॉलेज ऑफ
फार्मसी पत्ता:
४५/१ व, शनेश्वरनगर, वसंततेकदि, सवेदि, अहमदनगर ता.:
अहमदनगर जि: अहमदनगर पिनकोड: 414003
[CPHA020680]

विषय:- शैक्षणिक वर्ष २०२३-२०२४, या वर्षाकरिता संलग्नीकरणाचे नूतनीकरण / नैसर्गिकवाढीबाबत

महोदय,

वरील विषयासंदर्भात विद्यापीठ अधिकार मंडळाने घेतलेल्या निर्णयानुसार आपणास कळविण्यात येते की, आपल्या महाविद्यालयास शैक्षणिक वर्ष २०२३-२०२४, करिता खालील रकान्यात नमूद केलेल्या अभ्यासक्रमांच्या संलग्नीकरणाच्या नूतनीकरणास / नैसर्गिकवाढीस महाराष्ट्र सार्वजनिक विद्यापीठ अधिनियम २०१६ तसेच अखिल भारतीय तंत्रशिक्षण परिषद (AICTE)/ राष्ट्रीय शिक्षक शिक्षण परिषद (NCTE)/ बार कौन्सिल ऑफ इंडिया (BCI)/ फार्मसी कौन्सिल ऑफ इंडिया (PCI)/ कौन्सिल ऑफ आर्किटेक्चर (COA)/ विद्यापीठ अनुदान आयोग/संबंधित शिखर संस्था/परिषद/नियामक मंडळ इ.तसेच केंद्र शासन महाराष्ट्र शासन आणि सावित्रीबाई फुले पुणे विद्यापीठ, यांचेकडून वेळोवेळी विहित करण्यात आलेल्या आणि येणा-या नियम/आदेश/मार्गदर्शक तत्वे/परिनियम/अध्यादेश इ.तसेच तदनुसार तसेच संबंधित अभ्यासक्रम व प्रवेश क्षमता मान्यतेच्या अधीन राहून तसेच स्वयं मूल्यमापन अहवालातील सोवत जोडलेल्या यादीतील अटी व शर्तीची पूर्तता (लागू असल्यास) विद्यापीठाचे पत्र निर्गमित झाल्याच्या दिनांकापासून तीन महिन्यांच्या आत पूर्ण करण्याच्या अटीवर परवानगी देण्यात येत आहे.

अनु.क्र.	अभ्यासक्रमाचा तपशील	विद्यार्थी संख्या	वर्ष व तुकडी	संलग्नीकरणाचा प्रकार
1	बी.फार्म.	100	वर्ष पहिले ते चौथे- Div No.1,	नूतनीकरण

अटी व शर्तीची यादी	
अनु.क्र.	अटी व शर्ती
१	Approved librarian not available Faculty not as per norms



स. द. डावखर
उपकुलसचिव

PRINCIPAL

Dr. N. J. Paulbudhe College Of Pharmacy
Shaneswar Nagar, A' Nagar- 414003

Savitribai Phule Pune University
(formerly Pune University)

Telephone Number :
020-25691233
25601257
25601258
25601259

Academic Department
Ganeshkhind, Pune-411007.
Telegraph: 'unipune'
Fax: 020-25691233
Website: www.unipune.ac.in
e-mail
: affiliation@pun.unipune.ac.in
Date: December 02, 2022

Reference No.:CA/2247

To,
Principal,
Seva Shikshan Prasarak Mandal
Dr. N.J. Paulbudhe College Of Pharmacy
Address: 45/1B,Shaneshwarnagar,Vasantekdi,Savedi.
District: Ahmednagar 414003

Subject: Affiliation for academic year 2022-23

Respected Sir,

In the Academic Year 2021-2022, the Affiliation Letter was given to you by Savitribai Phule Pune University based on Pharmacy Council of India Approval Letter as below.

Academic Year 2021-22

Sr. No.	Course	Intake as per PCI approval
1	B.Pharm.	100

As per the Notifications by Pharmacy Council of India Ref.No.14-443/2022-PCI (appeal process 2022-2023)/14367 dated 22/10/2022 and Ref.No. 14-443/2022-PCI (appeal process 2022-2023)/ 14705-09 dated 03/11/2022 published by PCI on their Website, PCI has reinstated intake of all courses for Academic Year 2022-2023 as per sanctioned intake for the Academic Year 2021-2022. PCI has also marked copy of the notification to all respective admission and examining authorities. Hence, as per the above-mentioned Notifications by Pharmacy Council of India, the Affiliation is granted to your college for the Academic Year 2022-2023 for the following courses, subject to the submission of prescribed affidavit and appeal application as per the 2(b) clause of the above referred PCI notification dated 22nd October and 3rd November 2022.

Academic Year 2021-22

Sr. No.	Course	Intake as per PCI approval
1	B.Pharm.	100

Terms and Conditions:

1. PCI approval letter for A. Y. 2022-23 need to be submitted.
2. Appointment of a Regular Principal be made as soon as possible.
3. Unfilled sanctioned teachers posts be filled as soon as possible or if filled, same be uploaded on web

portal.

4. Institute should apply to NAAC/NBA for accreditation & Compliance report be submitted.

Translated into English
from Marathi version

J. D. KUSMODE
Advocate & Notary Public
Ish Krupa Plot No.148/A,
Riddhi-Siddhi Colony, Gulmohar Rd.,
Savedi, Ahmednagar.(M.S.)

PRINCIPAL
Dr. N. J. Paulbudhe College Of Pharmacy
Shaneshwar Nagar, A'Nagar- 414003

Deputy Registrar

(Academic Section, Affiliation Unit)



Savitribai Phule Pune University
(formerly Pune University)

Telephone Number :
020-25691233
25601257
25601258
25601259

Academic Department
Ganeshkhind, Pune-411007.
Telegraph: 'unipune'
Fax: 020-25691233
Website: www.unipune.ac.in
e-mail
: affiliation@pun.unipune.ac.in
Date: August 11, 2021

Reference No.:CA/1181

To,
Principal,
Seva Shikshan Prasarak Mandal's
Dr. N.J. Paulbudhe College Of Pharmacy
Address: 45/1B, Shaneshwarnagar, Vasantekdi, Savedi,
District: Ahmednagar 414003

Subject:- Academic year 2021-2022, or regarding renewal / natural increase of attachment for rain
Respected Sir.

As per the decision taken by the Vidyapeetha Adhikari Mandal regarding the above subject, you are informed that your Colleges academic year 2021 2022, for the attachment of the following mentioned courses Nutanikarnas / Naturalistic Maharashtra Public Schools Act, 2016 as well as All India Tantra Shikshan Parishad(AICTE)/ National Council of Teacher Education (NCTE)/ Bar Council of India (BCI)/ Pharmacy Council of India (PCI)/Council of Architecture (COA)/ School Grants Commission/ Concerned Apex Institution/ Council/ Regulatory Board etc. as well as the central government,As may be prescribed from time to time by the Government of Maharashtra and Savitribai Phule Pune Vidyapith Rules/Orders/Guidelines/Statutes/Ordinances etc. As per the provisions as well as subject to recognition of related course and admission capacity Along with the fulfillment of the terms and conditions (if applicable) attached to the self-report, the university's letter was issued. Permission is granted for completion within six months from the date of occurrence.

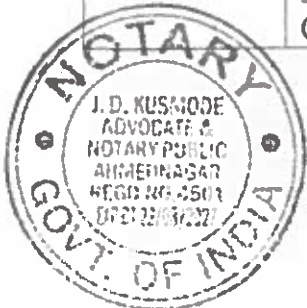
C	Particulars	No. of Students	1 st cycle/2 nd cycle (If Applicable)	Affiliation type
1	B.Pharm.	100	1 st to 4 th year Div. No. 1	Renewal

list of terms and conditions

Sr. No.	Terms and Conditions
1	1. Number of faculty required is significantly less than norms or if appointed, ad-hoc approvals have not been obtained. 2. Regular Librarian not available. 3. Regular Principal not available. Compliance report be submitted.

PRINCIPAL

Dr. N. J. Paulbudhe College Of Pharmacy
Shaneshwar Nagar, A'Nagar- 414003



Translated into English
from Marathi version
J. D. KUSMODE
Advocate & Notary Public
Ish Krina Plot No.148/A,
Riddhi-Sidhi Colony, Gulmohor Rd,
Savedi, Ahmednagar.(M.S.)

Munjaji Rsave
Dy. Registrar

दूरध्वनी क्रमांक :
०२०-२५६२११८८
२५६२११५६
२५६२११५७
२५६२११६१

सावित्रीबाई फुले पुणे विद्यापीठ
(पूर्वीचे पुणे विद्यापीठ)



शैक्षणिक विभाग
गणेशखिंड, पुणे-४११००७.

टेलिग्राफ : 'युनिपुणे'
फॅक्स : ०२०-२५६९१२३३
वेबसाइट : www.unipune.ac.in
ई-मेल : affiliation@pun.unipune.ac.in



210600351

संदर्भ क्र.:CA/११८१

दि.:११/०८/२०२१

प्रति,
मा. प्राचार्य,
सेवा शिक्षण प्रसारक मंडळ डॉ.एन.जे.पाऊलबुधे कॉलेज ऑफ
फार्मसी पत्ता:
४५/१ब,शनेश्वरनगर,वसंततेकदि,सवेदि,अहोद्वर ता.:
अहमदनगर जि: अहमदनगर पिनकोड: 414003
[CPHA020680]

विषय:- शैक्षणिक वर्ष २०२१-२०२२, या वर्षाकरिता संलग्नीकरणाचे नूतनीकरण / नैसर्गिकवाढीबाबत

महोदय,

वरील विषयासंदर्भात विद्यापीठ अधिकार मंडळाने घेतलेल्या निर्णयानुसार आपणास कळविण्यात येते की, आपल्या महाविद्यालयास शैक्षणिक वर्ष २०२१-२०२२, करिता खालील रकान्यात नमूद केलेल्या अभ्यासक्रमांच्या संलग्नीकरणाच्या नूतनीकरणास / नैसर्गिकवाढीस महाराष्ट्र सार्वजनिक विद्यापीठ अधिनियम, २०१६ तसेच अखिल भारतीय तंत्रशिक्षण परिषद (AICTE)/ राष्ट्रीय शिक्षण परिषद (NCTE)/ बार कौन्सिल ऑफ इंडिया (BCI)/ फार्मसी कौन्सिल ऑफ इंडिया (PCI)/ कौन्सिल ऑफ आर्किटेक्चर (COA)/ विद्यापीठ अनुदान आयोग/संबंधित शिखर संस्था/परिषद/नियामक मंडळ इ.तसेच केंद्र शासन, महाराष्ट्र शासन आणि सावित्रीबाई फुले पुणे विद्यापीठ यांचेकडून वेळोवेळी विहित करण्यात आलेल्या आणि येणाऱ्या नियम/आदेश/मार्गदर्शक तत्त्वे/परिनियम/अध्यादेश इ.तरतूदीनुसार तसेच संबंधित अभ्यासक्रम व प्रवेश क्षमता मान्यतेच्या अधीन राहून तसेच स्वयं मूल्यमापन अहवालातील सोबत जोडलेल्या यादीतील अटी व शर्तीची पूर्तता (लागू असल्यास) विद्यापीठाचे पत्र निर्गमित झाल्याच्या दिनांकापासून सहा महिन्यांच्या आत पूर्ण करण्याच्या अटीवर परवानगी देण्यात येत आहे.

अनु.क्र.	अभ्यासक्रमाचा तपशील	विद्यार्थी संख्या	प्रथमपाळी/द्वितीय पाळी (लागू असल्यास)	संलग्नीकरणाचा प्रकार
1	बी.फार्म.	100	वर्ष पहिले ते चौथे- Div No.1,	नूतनीकरण

अटी व शर्तीची यादी	
अनु.क्र.	अटी व शर्ती
१	1. Number of faculty required is significantly less than norms or if appointed, ad-hoc approvals have not been obtained. 2. Regular Librarian not available. 3. Regular Principal not available. Compliance report be submitted.



Paulbudhe

PRINCIPAL

1 of 2
Dr. N. J. Paulbudhe College Of Pharmacy
Shaneshwar Nagar, A' Nagar- 414003

(मुंजाजी रासवे)
उपकुलसचिव




PRINCIPAL
Dr. N. J. Paulbudhe College Of Pharmacy
Shaneshwar Nagar, A' Nagar- 414003

Savitribai Phule Pune University
(formerly Pune University)

Telephone Number :
020-25691233
25601257
25601258
25601259

Academic Department
Ganeshkhind, Pune-411007.
Telegraph: unipune
Fax: 020-25691233
Website: www.unipune.ac.in
e-mail
: affiliation@pun.unipune.ac.in
Date: August 5, 2020

Reference No.:CA/531

To,
Principal,
Seva Shikshan Prasarak Mandal's
Dr. N.J. Paulbudhe College Of
Pharmacy Address:
45/1B,Shaneshwarnagar,Vasantekdi,Savedi.
District: Ahmednagar 414003

Subject:- Regarding renewal/natural increase of attachment for the academic year 2020
2021 or Varsha
Respected Sir,

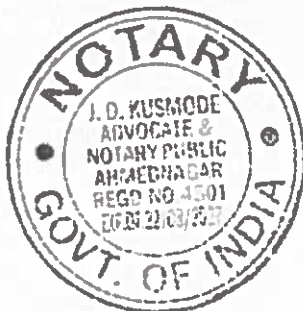
As per the decision taken by the Vidyapeetha Adhikari Mandal regarding the above
subject, you are informed that your for the academic year 2020 or 2021 or for the year of the
academic year, the following mentioned programs have been attached Nutanikarnas / Naturalistic
Maharashtrian Public Schools Act, 2016 as well as All India TantraShikshan Council/School Grants
Commission/Concerned Apex Institution/Council/Regulatory Board etc. Also Central Government,
Maharashtra Government andSavitribai Phule Pune Vidyapeeth and other rules/orders/guidelines
prescribed from time to time Elements/Statutes/Ordinances etc. According to the provisions, as well
as the recognition of the related course and admission capacity, the related self-
evaluationPermission subject to completion of the prescribed time-bound terms and conditions of
inspection and scrutiny of defect reports.It is given.

Sr. No.	Particulars	No. of Students	1 st cycle/2 nd cycle(If Applicable)	Affiliation type
1	B.Pharm.	100	1 st to 3 rd year Div. No. 1	Renewal
2	B.Pharm.	100	4 th year Div. No. 1	Natural Growth

Know that,

Yours Faithfully

Assistant Registrar
Affiliation Section



Translated into English
from Marathi Version

J. D. KUSMODE
Advocate & Notary Public
1st Kripa Plot No.146/A,
Biddhi-Siddhi Colony, (Imphor Rd,
Savedi, Ahmednagar.(M.S.)

PRINCIPAL

Dr. N. J. Paulbudhe College Of Pharmacy
Shaneshwar Nagar, A'Nagar- 41400

सावित्रीबाई फुले पुणे विद्यापीठ

(पूर्वीचे पुणे विद्यापीठ)

दूरध्वनी क्रमांक :

०२०-२५६९१२३३

२५६०१२५७

२५६०१२५८

२५६०१२५९



शैक्षणिक विभाग

गणेशखिंड, पुणे-४११००७.

टेलिग्राफ : 'युनिपुणे'

फॅक्स : ०२०-२५६९१२३३

वेबसाइट : www.unipune.ac.in

ई-मेल : affiliation@pun.unipune.ac.in



200800332

संदर्भ क्र.:सीए/५३१

दि.:५ ऑगस्ट, २०२०

प्रति,

मा. प्राचार्य,

सेवा शिक्षण प्रसारक मंडळ डॉ.एन.जे.पाऊलबुधे कॉलेज ऑफ

फार्मसी, ता.:

४५/४, शनिेश्वरनगर, वसंततेकदि, सवेदि, अहमदनगर ता.:

अहमदनगर जि: अहमदनगर पिनकोड: 414003

[CPHA020680]

विषय:- शैक्षणिक वर्ष २०२०-२०२१, या वर्षाकरिता संलग्नीकरणाचे नूतनीकरण / नैसर्गिकवाढीबाबत

मान्यता,

आपला विषयासंदर्भात विद्यापीठ अधिकार मंडळाने घेतलेल्या निर्णयानुसार आपणास कळविण्यात येते की, आपल्या महाविद्यालयास शैक्षणिक वर्ष २०२०-२०२१, या वर्षाकरिता खालील रकान्यात नमूद केलेल्या अभ्यासक्रमांच्या संलग्नीकरणाच्या नूतनीकरणास / नैसर्गिकवाढीस महाराष्ट्र सार्वजनिक विद्यापीठ अधिनियम, २०१६ तसेच अखिल भारतीय तंत्रशिक्षण परिषद/विद्यापीठ अनुदान आयोग/संबंधित शिखर संस्था/परिपद/नियामक मंडळ इ.तसेच केंद्र शासन, महाराष्ट्र शासन आणि सावित्रीबाई फुले पुणे विद्यापीठ यांचेकडून वेळोवेळी विहित करण्यात आलेल्या आणि येणाऱ्या नियम/आदेश/मार्गदर्शक तालिका/नियम/अध्यादेश इ.तरतूदीनुसार तसेच संबंधित अभ्यासक्रम व प्रवेश क्षमता मान्यतेच्या त्याचप्रमाणे संबंधित स्वयं मूल्यमापन व परीक्षा अहवालांच्या छाननी व तपासणीअंतीच्या अटी व शर्तीची विहित मुदतीत पूर्तता करण्याच्या अधीन राहून परवानगी देण्यात येत आहे.

अ.क्र.	अभ्यासक्रमाचा तपशील	विद्यार्थी संख्या	प्रथमपाळी/द्वितीय पाळी (लागू असल्यास)	संलग्नीकरणाचा प्रकार
१	भा.फार्म.	100	वर्ष पहिले ते तिसरे- Div No.1,	नूतनीकरण
२	भा.फार्म.	100	वर्ष चौथे- Div No. 1,	नैसर्गिकवाढ

आपला,

आपली,



सहायक कुलसचिव
(संलग्नता कक्ष)

PRINCIPAL

Dr. N. J. Paulbudhe College Of Pharmacy
Shaneswar Nagar, A'Nagar- 414003

Savitribai Phule Pune University
(Formerly Pune University)

Telephone Number :
020-25691233
25601257
25601258
25601250
190400173

Academic Department
Ganeshkhind. Pune- 41007.
Telegraph : 'Unipune'
Fax : 020-25691233
Website: www.unipune.ac.in
e-mail : affiliation@pun.unipune.ac.in

Reference No.: CA/ 535

Date :May 14, 2019

To,
Principal,
Seva Shikshan Prasarak Mandal's
Dr. N. J. Paalbudhe College Of Pharmacy
Address: 45/1b, shaneswar nagar, vastantekdi, savedi,
dist: ahmednagar 414003

Subject:- Regarding renewal of affiliation / natural increase for the academic year 2019-2020

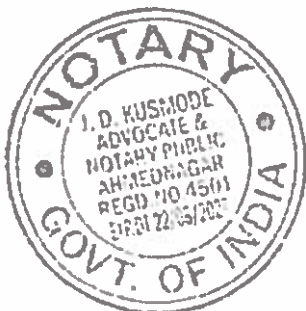
Respected sir,

As per the decision taken by the University Authority Board regarding the above matter, you are hereby informed that your For the academic year 2019-2020, the college has attached the courses mentioned in the following clause **Renewal / Natural Growth by All India Council for Technical Education, New Delhi and Directorate of Technical Education, Government of Maharashtra** Subject to approval of course and admission capacity as well as terms and conditions in the attached list of self evaluation report Dates of issue of Completion University letter

No.	Course Details	Number of students	First period / second period	Types of attachment
1	B. Farm.	100	First Year and Advanced - Div No. 1,	Renewal
2	B. Farm.	100	--- Third Year - Div No. 1,	Natural growth

To know,
Accompanying:
List of terms and conditions.

Yours,
Assistant Registrar
(Attachment Room)



Translated into English
from Marathi Version

J. D. KUSMODE
Advocate & Notary Public
Ish Kripa Plot No.148/A,
Riddhi-Siddhi Colony, Gulmohor Rd,
Savadi, Ahmednagar.(M.S.)


PRINCIPAL
Dr. N. J. Paulbudhe College Of Pharmacy
Shaneswar Nagar, A' Nagar- 414003

सावित्रीबाई फुले पुणे विद्यापीठ
(पूर्वीचे पुणे विद्यापीठ)

दूरदर्शन क्रमांक :

०२०-२५६९१२३३
२५६०१२५७
२५६०१२५८
२५६०१२५०



शैक्षणिक विभाग
गणेशखिंड, पुणे-४११००७.

टेलिग्राफ : 'युनिपुणे'
फॅक्स : ०२०-२५६९१२३३
वेबसाइट : www.unipune.ac.in
ई-मेल : affiliation@pun.unipune.ac.in



190400173

संदर्भ क्र.: CA/ 535

दि.: 14/05/2019

प्रति,
ग. प्राचार्य,
सेवा शिक्षण प्रसारक मंडळ डॉ. एन. जे. पाऊलबुधे कॉलेज ऑफ
फार्मसी पत्ता:
४५/१ व, शानेश्वरनगर, वसंततळेकदि, सवेदि, अहमदनगर ता.:
अहमदनगर जि: अहमदनगर पिनकोड: 414003

विषय:- शैक्षणिक वर्ष २०१९-२०२०, या वर्षाकरिता संलग्नीकरणाचे नूतनीकरण / नैसर्गिकवाढीबाबत


महोदय,

गरीम विपयासंदर्भात विद्यापीठ अधिकार मंडळाने घेतलेल्या निर्णयानुसार आपणास कळविण्यात येते की, आपल्या महाविद्यालयास शैक्षणिक वर्ष २०१९-२०२०, या वर्षाकरिता खालील रकान्यात नमूद केलेल्या अभ्यासक्रमांच्या संलग्नीकरणाच्या नूतनीकरणास / नैसर्गिकवाढीस अखिल भारतीय तंत्रशिक्षण परिषद, नवी दिल्ली व तंत्रशिक्षण संचालनालय, महाराष्ट्र शासन यांचे अनुमोदन व प्रवेश क्षमता मान्यतेच्या अधीन राहून तसेच स्वयं मूल्यमापन अहवालातील सोबत जोडलेल्या यादीतील अटी व शर्तीची पूर्तता विद्यापीठाचे पत्र निर्गमित झाल्याच्या दिनांकापासून सहा महिन्यांच्या आत पूर्ण करण्याच्या अटीवर परवानगी देण्यात येत आहे.

	अभ्यासक्रमाचा तपशील	विद्यार्थी संख्या	प्रथम पाळी/द्वितीय पाळी	संलग्नीकरणाचा प्रकार
1	वी.फार्म.	100	वर्ष प्रथम व द्वितीय- Div No.1,	नूतनीकरण
2	वी.फार्म.	100	—वर्ष तिसरे- Div No. 1,	नैसर्गिकवाढ

मळावे,

आपला,


सहायक कुलसचिव
(संलग्नता कक्ष)

सोबत : अटी व शर्तीची यादी.



PRINCIPAL

Dr. N. J. Paulbudhe College Of Pharmacy
Shaneshwar Nagar, A' Nagar- 414003

**Savitribai Phule Pune University
(Formerly Pune University)**

Telephone Number :
020-25691233
25601257
25601258
25601259

Education Department
Ganeshkhind, Pune-411007.
telegraph: 'Unipune'
Fax : 020-25691233
Website : www.unipune.ac.in
e-mail : affiliation@pun.unipune.ac.in
Date : 02/08/2018

Reference No.: CA/1726

To,
Principal,
Seva Shikshan Prasarak Mandal
Dr.N.J.Paulbudhe College Of Pharmacy
Address:45/1B, Shaneswarnagar, Vasantekadi, Savedi,
Dist: Ahmednagar 414003

Subject:- Regarding renewal of affiliation / natural increase for the academic year 2018-2019

Respected Sir,

As per the decision taken by the University Authority Board regarding the above matter, you are hereby informed that your For the academic year 2018-2019 to the college, for the academic year 2018-2019, the following courses are attached Renewal / Natural Growth by All India Council of Technical Education, New Delhi and Directorate of Technical Education, Government of Maharashtra Subject to approval of course and admission capacity as well as terms and conditions in the attached list of self evaluation report Completion is permitted on condition of completion within six months from the date of issue of University letter, Also if the said terms and conditions are not fulfilled subject to Section 110 (2) of the Maharashtra Public University Act, 2016 Action will be taken.

Sr. No.	Particulars	No. Of Students	1 st Cycle/2 nd Cycle	Affiliation Type
1	B.Pharm.	100	1 st Year Div. No. 1	Renewal
2	B.Pharm.	100	2 nd Year Div. No. 1	Natural Growth

Yours Faithfully
Asst. Registrar
(Affiliation Section)

Incl. : List of Terms and Conditions

Translated into English
from Marathi version



J. D. KUSMODE
Advocate & Notary Public
Ish Kripa Plot No.148/A,
Riddhi-Siddhi Colony, Gulmohor Rd,
Savedi, Ahmednagar.(M.S.)

Yashwantrao
PRINCIPAL

Dr. N. J. Paulbudhe College Of Pharmacy
Shaneswar Nagar, A' Nagar- 414003

सावित्रीबाई फुले पुणे विद्यापीठ

(पूर्वीचे पुणे विद्यापीठ)

दूरध्वनी क्रमांक :

०२०-२५६९१२३३

२५६०१२५७

२५६०१२५८

२५६०१२५९



शैक्षणिक विभाग

गणेशखिड, पुणे-४११००७.

टेलिग्राफ : 'युनिपुणे'

फॅक्स : ०२०-२५६९१२३३

वेबसाइट : www.unipune.ac.in

ई-मेल : affiliation@pun.unipune.ac.in



180400159

संदर्भ क्र. CA/9026

दि.: ०२/०८/२०१८

प्रति,

मा. प्राचार्य,

सेवा शिक्षण प्रसारक मंडळ डॉ.एन.जे.पाऊलबुधे कॉलेज ऑफ

फार्मसी पत्ता:

४५/१४, अहमदनगर, वसंततळेकदि, सवेदि, अहमदनगर ता.:

अहमदनगर जि: अहमदनगर पिनकोड: 414003

विषय:- शैक्षणिक वर्ष २०१८-२०१९, या वर्षाकरिता संलग्नीकरणाचे नूतनीकरण / नैसर्गिकवाढीबाबत

महोदय,

वर्गीत विषयासंदर्भात विद्यापीठ अधिकार मंडळाने घेतलेल्या निर्णयानुसार आपणास फळविण्यात येते की, आपल्या महाविद्यालयाने शैक्षणिक वर्ष २०१८-२०१९, या वर्षाकरिता झालील रकान्यात नमूद केलेल्या अभ्यासक्रमांच्या संलग्नीकरणाच्या नूतनीकरणामुळे / नैसर्गिकवाढीस अखिल भारतीय तंत्रशिक्षण परिषद, नवी दिल्ली व तंत्रशिक्षण संचालनालय, महाराष्ट्र शासन यांचे अभ्यासक्रम व प्रदेश क्षमता मान्यतेच्या अधीन राहून तसेच स्वयं मूल्यमापन अहवालातील सोबत जोडलेल्या यादीतील अटी व शर्तीची पूर्तता विद्यार्थ्यांचे पत्र निर्गमित झाल्याच्या दिनांकापासून सहा महिन्यांच्या आत पूर्ण करण्याच्या अटीवर परवानगी देण्यात येत आहे, तसेच अटी व शर्तीची पूर्तता न केल्यास महाराष्ट्र सार्वजनिक विद्यापीठ अधिनियम, २०१६ कलम ११०(२) च्या अधीन राहून कार्यनामांक पत्रे देईल.

अनु.क्र.	अभ्यासक्रमाचा तपशील	विद्यार्थी संख्या	प्रथमपाळी/द्वितीय पाळी	संलग्नीकरणाचा प्रकार
1	बी.फार्म.	100	वर्ष पहिले- Div No.1,,	नूतनीकरण
2	बी.फार्म.	100	---वर्ष दुसरे- Div No. 1,,	नैसर्गिकवाढ

आपला,



आपला,

सहायक कुलसचिव
(संलग्नीता वळ)

नोंदतः अटी व शर्तीची यादी.

PRINCIPAL

Dr. N. J. Paulbudhe College Of Pharmacy
Shaneswar Nagar, A' Nagar- 414003

Savitribai Phule Pune University
(Formerly Pune University)

Telephone No. :
020-25691233
25601258
25601259
REFERENCE NO. : ca / 1453

Academic Department
Ganeshkhind, Pune - 411 007
Telegraph : 'Unipune'
Fax : 020-25698007
Website : www.unipune.ac.in
E-mail : affiliation@pun.unipune.ac.in
Dated : 14 August, 2017

Ref. No. : CA/1453

To,
Hon. Chairman / Secretary,
Seva Shikshan Prasarak Mandal,
Shanaishwarnagar, Vasant Hill,
Savedi, Ahmednagar 414003

Subject : Permission to start a new college for the academic year 2017-18 Regarding giving...

Reference : Government Decision : TEM-2017/Pro.No. 227/Tanshi-4, dt. 23 May, 2017

Respected Sir,

Pursuant to the order received regarding the above subject, you are hereby informed that your institution For the academic year 2017-18 Dr. N. J. Paalbudhe College of Pharmacy, 45/1B, Shanaishwar Nagar, Vasant Tekadi, Sawedi, Ahmednagar 414003 at the address mentioned below. To start a new college of the course as well as grant or financial assistance by the institution in future An undertaking of such content that Hon. To be submitted to the Joint Director, Department of Technical Education On conditionally permanent non-subsidized basis and section 108 of the Maharashtra Public University Act 2016 And permission is being granted subject to compliance with the provisions of Section 110. , Further you are also informed that from time to time by Pune University and Government of Maharashtra Rules to come into existence and appointment of necessary principals, teachers and non-teaching staff to the college will remain binding. I. of your college. D. It may be noted that the number is (PU / AN / Pharm / 145/2017).

Sr.No.	Particulars	Students No.	Year	Affiliation Type
1.	B.Pharmacy	100	2017-18	New

Note : By All India Technical Education Council, New Delhi and Savitribai Phule Pune University, Pune To obtain approval of the University by appointing teachers as per the cadre ratio issued from time to time should come to know

**Translated into English
from Marathi Version**

**Translated into English
from Marathi Version**

Yours Faithfully,

Dy. Registrar
Academic Section

PRINCIPAL

Dr. N. J. Paulbudhe College Of Pharmacy
Shaneshwar Nagar, A' Nagar- 414003



J. D. KUSMODE
Advocate & Notary Public
Ish Kripa Plot No. 148/A,
Riddhi-Siddhi Colony, Gulmchor Rd,
Savedi, Ahmednagar.(M.S.)

सावित्रीबाई फुले पुणे विद्यापीठ
(पूर्वीचे पुणे विद्यापीठ)

दूरध्वनी क्रमांक :
०२०-२५६९१२३३
२५६०१२५८
२५६०१२५९



शैक्षणिक विभाग
गणेशखिंड, पुणे-४११ ००७
टेलिग्राफ : 'युनिपुणे'
फॅक्स : ०२०-२५६९८००७
वेबसाइट : www.unipune.ac.in
ई-मेल : affiliation@pun.unipune.ac.in

संदर्भ क्र. : सीए/१५५३

दिनांक : १४ ऑगस्ट, २०१७

प्रति,

मा. अध्यक्ष/सचिव,
सेवा शिक्षण प्रसारक मंडळ,
शनैश्वरनगर, वसंत टेकडी,
सावेडी, अहमदनगर ४१४ ००३

विषय : शैक्षणिक वर्ष २०१७-१८ या एका वर्षाकरिता नवीन महाविद्यालय सुरु करण्यास परवानगी देण्याबाबत....

संदर्भ : शासन निर्णय : टीईएम-२०१७/प्र.क्र. २२७/तांशि-४, दि. २३ मे, २०१७

महोदय,

वरील विषयासंदर्भात प्राप्त झालेल्या आदेशानुसार आपणास कळविण्यात येते की, आपल्या संस्थेस शैक्षणिक वर्ष २०१७-१८ या एका वर्षाकरिता डॉ.एन.जे.पाऊलबुधे कॉलेज ऑफ फार्मसी, ४५/१बी, शनैश्वरनगर, वसंत टेकडी, सावेडी, अहमदनगर ४१४००३ येथे खालील रकान्यात नमूद केलेल्या अभ्यासक्रमाचे नवीन महाविद्यालय सुरु करण्यास तसेच संस्थेने भविष्यात अनुदानाची किंवा आर्थिक मदतीची मागणी करणार नाही, अशा आशयाचे हमीपत्र मा. सहसंचालक, तंत्र शिक्षण विभाग यांना सादर करण्याच्या अटीवर कायम विना अनुदानित तत्त्वावर व महाराष्ट्र सार्वजनिक विद्यापीठ अधिनियम २०१६ कलम १०८ आणि कलम ११० मधील तरतुदींचे पालन करण्याच्या अटीवर परवानगी देण्यात येत आहे.

पुढे आपणास असेही कळविण्यात येते की, पुणे विद्यापीठ व महाराष्ट्र शासनाद्वारे वेळोवेळी अस्तित्वात येणारे नियम व आवश्यक प्राचार्य, शिक्षक व शिक्षकेतर सेवकांची नियुक्ती करणे महाविद्यालयावर बंधनकारक राहिल.

आपल्या महाविद्यालयाचा आय.डी.नंबर (PU/AN/Pharm/145/2017) हा आहे याची नोंद घ्यावी.


अनु. क्र.	अभ्यासक्रमाचा तपशील	विद्यार्थी संख्या	वर्ष (प्रथमपाळी/द्वितीय पाळी)	संलग्नीकरणाचा प्रकार
१	बी. फार्मसी	१००	प्रथम वर्ष	नवीन

टीप : अखिल भारतीय तंत्र शिक्षण परिषद, नवी दिल्ली आणि सावित्रीबाई फुले पुणे विद्यापीठ, पुणे यांनी वेळोवेळी निर्गमित केलेल्या केंद्र रेशोप्रमाणे शिक्षकांच्या नेमणूका करून विद्यापीठाची मान्यता घेण्यात यावी.

कळावे,

आपला,




उपकुलसचिव
(शैक्षणिक विभाग)

PRINCIPAL

Dr. N. J. Paulbudhe College Of Pharmacy
Shaneshwar Nagar, A'Nagar- 414003



Seva Shikshan Prasarak Mandal's



Dr. N. J. Paulbudhe College of Pharmacy

Shaneshwar Nagar, Vasant Tekadi, Savedi, Ahmednagar, Pin: 414003

Mobile: No: 7774036749, Ph. No: (0241) 2423640 | E – mail: bpharmacydnjp@gmail.com | www.bpharmacy.sspmonline.org | DTE Code: 5451 | AISHE Code C-59365 | PCI 2002

AICTE APPROVAL LETTERS


PRINCIPAL

Dr. N. J. Paulbudhe College Of Pharmacy
Shaneshwar Nagar, A' Nagar- 414003

Approved By: P. C. I, New Delhi, Ref No: F.No.02.297/2018-PCI, AICTE: F.No. Western/2017-1-3359523301,
Affiliated to Savitribai Phule Pune University – Ref. No. PU/AN/PHARM/145/2017



All India Council for Technical Education

(A Statutory body under Ministry of Education, Govt. of India)

Nelson Mandela Marg, Vasant Kunj, New Delhi-110070 Website: www.aicte-india.org



APPROVAL PROCESS 2021-22

Extension of Approval (EOA)

F.No. Western/1-9318398691/2021/EOA

Date: 25-Jun-2021

To,

The Secretary,
Tech. & Higher Education Deptt.
Govt. of Maharashtra, Mantralaya,
Annexe Building, Mumbai-400032

Sub: Extension of Approval for the Academic Year 2021-22

Ref: Application of the Institution for Extension of Approval for the Academic Year 2021-22

Sir/Madam,

In terms of the provisions under the All India Council for Technical Education (Grant of Approvals for Technical Education) (1st Amendment) Regulations, 2021 notified on 24th February 2021 and other notifications as applicable and published from time to time, I am directed to convey the approval to

Permanent Id	1-3359523301	Application Id	1-9318398691
Name of the Institution /University	DR. N.J.PAULBUDHE COLLEGE OF PHARMACY	Name of the Society/Trust	SEVA SHIKSHAN PRASARAK MANDAL
Institution /University Address	45/1B, SHANESHWAR NAGAR, VASANT TEKADI, SAVEDI, AHMEDNAGAR, 414003, AHMEDNAGAR, AHMEDNAGAR, Maharashtra, 414003	Society/Trust Address	45/1B, SHANESHWAR NAGAR, VASANT TEKADI, SAVEDI, AHMEDNAGAR, 414003, AHMEDNAGAR, AHMEDNAGAR, Maharashtra, 414003
Institution /University Type	Private-Self Financing	Region	Western

To conduct following Programs / Courses with the Intake indicated below for the Academic Year 2021-22

Program	Level	Course	Affiliating Body (University /Body)	Intake Approved for 2020-21	Intake Approved for 2021-22	NRI Approval Status	FN / Gulf quota/ OCI/ Approval Status
PHARMACY	UNDER GRADUATE	PHARMACY	Savitribai Phule Pune University	100	100	NA	NA

It is mandatory to comply with all the essential requirements as given in APH 2021-22 (Appendix 6)

PRINCIPAL

Dr. N. J. Paulbudhe College Of Pharmacy
Shaneshwar Nagar, A' Nagar- 414003



Important Instructions

1. The State Government/ UT/ Directorate of Technical Education/ Directorate of Medical Education shall ensure that 10% of reservation for Economically Weaker Section (EWS) as per the reservation policy for admission, operational from the Academic year 2019-20 is implemented without affecting the reservation percentages of SC/ ST/ OBC/ General. However, this would not be applicable in the case of Minority Institutions referred to the Clause (1) of Article 30 of Constitution of India. Such Institution shall be permitted to increase in annual permitted strength over a maximum period of two years.
2. The Institution offering courses earlier in the Regular Shift, First Shift, Second Shift/Part Time now amalgamated as total intake shall have to fulfil all facilities such as Infrastructure, Faculty and other requirements as per the norms specified in the Approval Process Handbook 2021-22 for the Total Approved Intake. Further, the Institutions Deemed to be Universities/ Institutions having Accreditation/ Autonomy status shall have to maintain the Faculty: Student ratio as specified in the Approval Process Handbook.
3. Strict compliance of Anti-Ragging Regulation, Establishment of Committee for SC/ ST, Establishment of Internal Complaint Committee (ICC), Establishment of Online Grievance Redressal Mechanism, Barrier Free Built Environment for disabled and elderly persons, Fire and Safety Certificate should be maintained as per the provisions made in Approval Process Handbook and AICTE Regulation notified from time to time.
4. In case of any differences in content in this Computer generated Extension of Approval Letter, the content/information as approved by the Executive Council / General Council as available on the record of AICTE shall be final and binding.

Prof.Rajive Kumar
Member Secretary, AICTE

Copy ** to:

1. **The Director of Technical Education**, Maharashtra**
2. **The Registrar**,
Savitribai Phule Pune University**
3. **The Principal / Director,
DR. N.J.PAULBUDHE COLLEGE OF PHAMACY
45/1B, Shaneshwar Nagar, Vasant Tekadi, Savedi, Ahmednagar, 414003,
Ahmednagar,Ahmednagar,
Maharashtra,414003**
4. **The Secretary / Chairman,
45/1B, SHANESHWAR NAGAR, VASANT TEKADI, SAVEDI, AHMEDNAGAR, 414003
AHMEDNAGAR,AHMEDNAGAR
Maharashtra,414003**
5. **The Regional Officer,
All India Council for Technical Education
Industrial Assurance Building
2nd Floor, Nariman Road
Mumbai - 400 020, Maharashtra**
6. **Guard File(AICTE)**

Note: Validity of the Course details may be verified at <http://www.aicte-india.org/>

** Individual Approval letter copy will not be communicated through Post/Email. However, consolidated list of Approved Institutions(bulk) will be shared through official Email Address to the concerned Authorities mentioned above.

This is a computer generated Statement. No signature Required

PRINCIPAL
Dr. N. J. Paulbudhe College of Pharmacy
Shaneshwar Nagar, A' Nagar- 414003



All India Council for Technical Education

(A Statutory body under Ministry of HRD, Govt. of India)

Nelson Mandela Marg, Vasant Kunj, New Delhi-110070 Website: www.aicte-india.org



APPROVAL PROCESS 2020-21

Extension of Approval (EOA)

F.No. Western/1-7014236234/2020/EOA

Date: 30-Apr-2020

To,

The Secretary,
Tech. & Higher Education Deptt.
Govt. of Maharashtra, Mantralaya,
Annexe Building, Mumbai-400032

Sub: Extension of Approval for the Academic Year 2020-21

Ref: Application of the Institution for Extension of Approval for the Academic Year 2020-21

Sir/Madam,

In terms of the provisions under the All India Council for Technical Education (Grant of Approvals for Technical Institutions) Regulations 2020 notified by the Council vide notification number F.No. AB/AICTE/REG/2020 dated 4th February 2020 and norms standards, procedures and conditions prescribed by the Council from time to time, I am directed to convey the approval to

Permanent Id	1-3359523301	Application Id	1-7014236234
Name of the Institute	DR. N. J. PAULBUDHE COLLEGE OF PHARMACY	Name of the Society/Trust	SEVA SHIKSHAN PRASARAK MANDAL
Institute Address	45/1B, SHANESHWAR NAGAR, VASANT TEKADI, SAVEDI, AHMEDNAGAR, 414003, AHMEDNAGAR, AHMEDNAGAR, Maharashtra, 414003	Society/Trust Address	45/1B, SHANESHWAR NAGAR, VASANT TEKADI, SAVEDI, AHMEDNAGAR, 414003, AHMEDNAGAR, AHMEDNAGAR, 414003
Institute Type	Private-Self Financing	Region	Western

To conduct following Courses with the Intake indicated below for the Academic Year 2020-21

Program	Level	Course	Affiliating Body (University /Body)	Intake Approved for 2019-20	Intake Approved for 2020-21	NRI Approval Status	PIO / FN / Gulf quota/ OCI/ Approval Status
PHARMACY	UNDER GRADUATE	PHARMACY	Savitribai Phule Pune University	100	100	NA	NA

It is mandatory to comply with all the essential requirements as given in APH 2020-21 (Appendix 6)

PRINCIPAL

Dr. N. J. Paulbudhe College Of Pharmacy
Shaneshwar Nagar, A' Nagar- 414003



Important Instructions

1. The State Government/ UT/ Directorate of Technical Education/ Directorate of Medical Education shall ensure that 10% of reservation for Economically Weaker Section (EWS) as per the reservation policy for admission, operational from the Academic year 2020-21 is implemented without affecting the reservation percentages of SC/ ST/ OBC/ General. However, this would not be applicable in the case of Minority Institutions referred to the Clause (1) of Article 30 of Constitution of India. Such Institution shall be permitted to increase in annual permitted strength over a maximum period of two years beginning with the Academic Year 2020-21
2. The Institution offering courses earlier in the Regular Shift, First Shift, *Second Shift*/Part Time now amalgamated as total intake shall have to fulfil all facilities such as Infrastructure, Faculty and other requirements as per the norms specified in the Approval Process Handbook 2020-21 for the Total Approved Intake. Further, the Institutions Deemed to be Universities/ Institutions having Accreditation/ Autonomy status shall have to maintain the Faculty: Student ratio as specified in the Approval Process Handbook. All such Institutions/ Universities shall have to create the necessary Faculty, Infrastructure and other facilities WITHIN 2 YEARS to fulfil the norms based on the Affidavit submitted to AICTE.
3. In case of any differences in content in this Computer generated Extension of Approval Letter, the content/information as approved by the Executive Council / General Council as available on the record of AICTE shall be final and binding.
4. Strict compliance of Anti-Ragging Regulation: - Approval is subject to strict compliance of provisions made in AICTE Regulation notified vide F. No. 373/Legal/AICTE/2009 dated July 1, 2009 for Prevention and Prohibition of Ragging in Technical Institutions. In case Institution fails to take adequate steps to Prevent Ragging or fails to act in accordance with AICTE Regulation or fails to punish perpetrators or incidents of Ragging, it will be liable to take any action as defined under clause 9(4) of the said Regulation.

Prof.Rajlve Kumar
Member Secretary, AICTE

Copy to:

1. The Director Of Technical Education**, Maharashtra
2. The Registrar**,
Savitribai Phule Pune University
3. The Principal / Director,
DR. N.J.PAULBUDHE COLLEGE OF PHAMACY
45/1B, Shaneshwar Nagar, Vasant Tekadi, Savedi, Ahmednagar, 414003,
Ahmednagar,Ahmednagar,
Maharashtra,414003
4. The Secretary / Chalmrman,
45/1B, SHANESHWAR NAGAR, VASANT TEKADI, SAVEDI, AHMEDNAGAR, 414003
AHMEDNAGAR,AHMEDNAGAR
,414003
5. The Regional Officer,
All India Council for Technical Education
Industrial Assurance Building
2nd Floor, Nariman Road
Mumbai - 400 020, Maharashtra
6. Guard File(AICTE)



Note: Validity of the Course details may be verified at <http://www.aicte-india.org/>

** Individual Approval letter copy will not be communicated through Post/Email. However, consolidated list of Approved Institutions(bulk) will be shared through official Email Address to the concerned Authorities mentioned above.

PRINCIPAL
Dr. N. J. Paulbudhe College Of Pharmacy
Shaneshwar Nagar, Ahmednagar- 414003

All India Council for Technical Education

(A Statutory body under Ministry of HRD, Govt. of India)

Nelson Mandela Marg, Vasant Kunj, New Delhi-110070 Website: www.aicte-india.org



APPROVAL PROCESS 2019-20

Extension of Approval (EoA)

F.No. Western/1-4259504338/2019/EOA

Date: 10-Apr-2019

To,

The Secretary,
Tech. & Higher Education Deptt.
Govt. of Maharashtra, Mantralaya,
Annexe Building, Mumbai-400032

Sub: Extension of Approval for the Academic Year 2019-20

Ref: Application of the Institution for Extension of approval for the Academic Year 2019-20

Sir/Madam,

In terms of the provisions under the All India Council for Technical Education (Grant of Approvals for Technical Institutions) Regulations 2018 notified by the Council vide notification number F.No.AB/AICTE/REG/2018 dated 31/12/2018 and norms standards, procedures and conditions prescribed by the Council from time to time, I am directed to convey the approval to

Permanent Id	1-3359523301	Application Id	1-4259504338
Name of the Institute	DR. N J PAULBUDHE COLLEGE OF PHARMACY	Name of the Society/Trust	SEVA SHIKSHAN PRASARAK MANDAL
Institute Address	45/1B, SHANESHWAR NAGAR, VASANT TEKADI, SAVEDI, AHMEDNAGAR, 414003, AHMEDNAGAR, AHMEDNAGAR, Maharashtra, 414003	Society/Trust Address	45/1B SHANESHWAR NAGAR, VASANT TEKADI, SAVEDI, AHMEDNAGAR, 414003, AHMEDNAGAR, AHMEDNAGAR, Maharashtra 414003
Institute Type	Unaided - Private	Region	Western

Opted for Change from Women to Co-Ed and vice versa	No	Change from Women to Co-Ed and vice versa Approved or Not	NA
Opted for Change of Name	No	Change of Name Approved or Not	NA
Opted for Change of Site/Location	No	Change of Site/Location Approved or Not	NA
Opted for Conversion from Degree to Diploma or vice versa	No	Conversion for Degree to Diploma or vice versa Approved or Not	NA
Opted for Organization Name Change	No	Change of Organization Name Approved or Not	NA
Opted for Merger of Institution	No	Merger of Institution Approved or Not	NA
Opted for introduction of New Program/Level	No	Introduction of Program/Level Approved or Not	NA

To conduct following Courses with the Intake indicated below for the Academic Year 2019-20

Program	Shift	Level	Course	FT/PT+	Affiliating Body (Univ/Body)	Intake Approved for 2019-20	NRI Approval Status	PIO / FN / Quota / OCY Approval Status
Pharmacy	1st	UNDER GRADUATE	Pharmacy	FT	Savitribai Prasthute Pune University	100	NA	NA

+FT -Full Time, PT-Part Time

Application No: 1-4259504338

Note: This is a Computer generated Report. No signature is required.
Printed By : aict10517



Page 1 of 2

Letter No. DR/24/April/2019

PRINCIPAL

Dr. N. J. Paulbudhe College Of Pharmacy
Shaneshwar Nagar, A'Nagar- 414003

In case of any differences in content in this Computer generated Extension of Approval Letter, the content/information as approved by the Executive Council / General Council as available on the record of AICTE shall be final and binding.

Strict compliance of Anti-Ragging Regulation: - Approval is subject to strict compliance of provisions made in AICTE Regulation notified vide F. No. 37-3/Legal/AICTE/2009 dated July 1, 2009 for Prevention and Prohibition of Ragging in Technical Institutions. In case Institution fails to take adequate steps to Prevent Ragging or fails to act in accordance with AICTE Regulation or fails to punish perpetrators or incidents of Ragging, it will be liable to take any action as defined under clause 9(4) of the said Regulation.

It is mandatory to comply all the essential requirements as given in APH 2019-20(appendix 6)

NOTE: If the State Government / UT / DTE / DME has a reservation policy for admission in Technical Education Institutes and the same is applicable to Private & Self-financing Technical Institutions, then the State Government / UT/ DTE / DME shall ensure that 10 % of Reservation for EWS would be operational from the Academic year 2019-20 without affecting the percentage reservations of SC/ST/OBC/General . However, this would not be applicable in the case of Minority Institutions referred to the clause (1) of Article 30 of Constitution of India.

Prof. A.P Mittal
Member Secretary, AICTE

Copy to:

1. The Director Of Technical Education**, Maharashtra
2. The Registrar**,
Savitribai Phule Pune University
3. The Principal / Director,
Dr. N.J.Paulbudhe College Of Pharmacy
45/1B, Shaneshwar Nagar, Vasant Tokadi, Savadi, Ahmednagar, 414003
Ahmednagar,Ahmednagar,
Maharashtra,414003
4. The Secretary / Chairman,
Seva Shikshan Prasarak Mandal
45/1B, Shaneshwar Nagar, Vasant Tekadi, Savadi, Ahmednagar. 414003.
Ahmednagar,Ahmednagar,
Maharashtra,414003
5. The Regional Officer,
All India Council for Technical Education
Industrial Assurance Building
2nd Floor, Nariman Road
Mumbai - 400 020, Maharashtra
6. Guard File(AICTE)



Note: Validity of the Course details may be verified at <http://www.aicte-india.org/>

** Individual Approval letter copy will not be communicated through Post/Email. However, consolidated list of Approved Institutions(bulk) will be shared through official Email Address to the concerned Authorities mentioned above.

Yes

PRINCIPAL

Dr. N. J. Paulbudhe College Of Pharmacy
Shaneshwar Nagar, Ahmednagar- 414003

S.No	Institute Name	State	File Number	Institution ID	Course	Decisions of the 106 CC meeting of the PCI held on 9th & 10th April, 2019 (under Item No. 763)
643	Sanjivani Institute of Pharmacy and Research Kopargaon At Sahajanandnagar Post Shinganapur Tal Kopargaon Distt Ahmednagar	Maharashtra	17-627	PCI - 1878	D.Pharm	Extension of approval upto 2019-2020 for 60 intake (D.Pharm). Also to inspect
646	Seva Shikshan Prasarak Mandals Dr N J Paulbudhe College of Pharmacy Diploma	Maharashtra	17-1122	PCI - 3322	D.Pharm	Extension of approval upto 2019-2020 for 60 intake (D.Pharm). Also to inspect
647	Seva Shikshan Prasarak Mandals Dr N J Paulbudhe College of Pharmacy Shaneshwar Nagar Vasant Tekadi Savedi Ahmednagar	Maharashtra	32-1488	PCI - 2002	B.Pharm	Approved for conduct of 3rd year course for 2019-2020 for 100 intake (B.Pharm). Allowed 100 admission in 2019-2020 in 1st year (B.Pharm). Also to inspect
648	Shastri Foundation Shastri Institute of Pharmacy Near Angam Madhyam Prakalpa At Post Palasda Tal Prantol Dist Jalgaon	Maharashtra	17-1621	PCI - 2034	D.Pharm	Approved for conduct of 2nd year course for 2019-2020 for 60 intake (D.Pharm) Allowed 60 admission in 2019-2020 in 1st year (D.Pharm). Also to inspect



[Signature]
PRINCIPAL
Dr. N. J. Paulbudhe College of Pharmacy
Shaneshwar Nagar, A'Nagar-414003

[Signature]
PRINCIPAL

Dr. N. J. Paulbudhe College Of Pharmacy
Shaneshwar Nagar, A'Nagar- 414003

All India Council for Technical Education

(A Statutory body under Ministry of HRD, Govt. of India)

Nelson Mandela Marg, Vasant Kunj, New Delhi-110070 Website: www.aicte-india.org



APPROVAL PROCESS 2018-19

Extension of Approval (EoA)

F.No. Western/1-3508829126/2018/EOA

Date 04-Apr-2018

To,

The Secretary,
Tech. & Higher Education Deptt.
Govt. of Maharashtra, Mantralaya,
Annexe Building, Mumbai-400032

Sub: Extension of Approval for the Academic Year 2018-19

Ref: Application of the Institution for Extension of approval for the Academic Year 2018-19

Sir/Madam,

In terms of the provisions under the All India Council for Technical Education (Grant of Approvals for Technical Institutions) Regulations 2016 notified by the Council vide notification number F.No.AB/AICTE/REG/2016 dated 30/11/2016 and amended on December 5, 2017 and norms standards, procedures and conditions prescribed by the Council from time to time, I am directed to convey the approval to

Permanent Id	1-3359523301	Application Id	1-3508829126
Name of the Institute	DR. N.J.PAULBUDHE COLLEGE OF PHARMACY	Name of the Society/Trust	SEVA SHIKSHAN PRASARAK MANDAL
Institute Address	45/1B, SHANESHWAR NAGAR, VASANT TEKADI, SAVEDI, AHMEDNAGAR, 414003, AHMEDNAGAR, AHMEDNAGAR, Maharashtra, 414003	Society/Trust Address	45/1B, SHANESHWAR NAGAR, VASANT TEKADI, SAVEDI, AHMEDNAGAR, 414003, AHMEDNAGAR, AHMEDNAGAR, Maharashtra, 414003
Institute Type	Unaided - Private	Region	Western

Opted for Change from Women to Co-Ed and vice versa	No	Change from Women to Co-Ed and vice versa Approved or Not	NA
Opted for Change of Name	No	Change of Name Approved or Not	NA
Opted for Change of Site	No	Change of Site Approved or Not	NA
Opted for Conversion from Degree to Diploma or vice versa	No	Conversion for Degree to Diploma or vice versa Approved or Not	NA
Opted for Organization Name Change	No	Change of Organization Name Approved or Not	NA

To conduct following Courses with the Intake Indicated below for the Academic Year 2018-19

Program	Shift	Level	Course	FT/PT+	Affiliating Body (Univ/Body)	Intake Approved for 2018-19	NRI Approval Status	PIO / FN / Gulf quota/ OCI/ Approval Status	Foreign Collaboration /Twinning Program Approval Status*
PHARMACY	1st	UNDER GRADUATE	PHARMACY	FT	Savitribai Phule Pune University	100	NA	NA	NA

+FT -Full Time, PT-Part Time



PRINCIPAL
Dr. N. J. Paulbudhe College Of Pharmacy
Shaneshwar Nagar, A'Nagar- 414003

In case of any differences in content in this Computer generated Extension of Approval Letter, the content/information as approved by the Executive Council / General Council as available on the record of AICTE shall be final and binding.

Strict compliance of Anti-Ragging Regulation: - Approval is subject to strict compliance of provisions made in AICTE Regulation notified vide F. No. 37-3/Legal/AICTE/2009 dated July 1, 2009 for Prevention and Prohibition of Ragging in Technical Institutions. In case Institution fails to take adequate steps to Prevent Ragging or fails to act in accordance with AICTE Regulation or fails to punish perpetrators or incidents of Ragging, it will be liable to take any action as defined under clause 9(4) of the said Regulation.

Prof. A.P Mittal
Member Secretary, AICTE

Copy to:

1. The Regional Officer,
All India Council for Technical Education
Industrial Assurance Building
2nd Floor, Nariman Road
Mumbai - 400 020, Maharashtra
2. The Director Of Technical Education**,
Maharashtra
3. The Registrar**,
Savitribai Phule Pune University
4. The Principal / Director,
DR. N.J.PAULBUDHE COLLEGE OF PHAMACY
45/1B, SHANESHWAR NAGAR, VASANT TEKADI, SAVEDI, AHMEDNAGAR, 414003,
AHMEDNAGAR,AHMEDNAGAR,
Maharashtra,414003
5. The Secretary / Chairman,
SEVA SHIKSHAN PRASARAK MANDAL
45/1B, SHANESHWAR NAGAR, VASANT TEKADI, SAVEDI, AHMEDNAGAR, 414003,
AHMEDNAGAR,AHMEDNAGAR,
Maharashtra,414003
6. Guard File(AICTE)

Note: Validity of the Course details may be verified at <http://www.aicte-india.org/>

** Individual Approval letter copy will not be communicated through Post/Email. However, consolidated list of Approved Institutions(bulk) will be shared through official Email Address to the concerned Authorities mentioned above.



PRINCIPAL

Dr. N. J. Paulbudhe College Of Pharmacy
Shaneshwar Nagar, A' Nagar- 414003



All India Council for Technical Education

(A Statutory body under Ministry of HRD, Govt. of India)

Nelson Mandela Marg Vasant Kunj, New Delhi-110067

PHONE: 23724151/52/53/54/55/56/57 FAX: 011-23724183 www.aicte-India.org

F.No. Western/2017/1-3359523301

Date: 30-Apr-2017

To,
The Secretary,
Tech. & Higher Education Deptt.
Govt. of Maharashtra, Mantralaya,
Annexe Building, Mumbai-400032

Sub: Letter of Approval for New Institute 2017-18

Sir/Madam,

In terms of the provisions under the All India Council for Technical Education (Grant of Approvals for Technical Institutions) Regulations 2016 notified by the Council vide notification number F.No.AB/AICTE/REG/2016 dated 30/11/2016 and other notifications, as applicable and published from time to time, I am directed to convey the approval to

Permanent Id	1-3359523301	Application Id	1-3359523301
Name of the Institute	DR. N.J.PAULBUDHE COLLEGE OF PHARMACY	Institute Address	45/1B, SHANESHWAR NAGAR, VASANT TEKADI, SAVEDI, AHMEDNAGAR, 414003, AHMEDNAGAR, AHMEDNAGAR, Maharashtra, 414003
Name of the Society/Trust	SEVA SHIKSHAN PRASARAK MANDAL	Society/Trust Address	45/1B, SHANESHWAR NAGAR, VASANT TEKADI, SAVEDI, AHMEDNAGAR, 414003, AHMEDNAGAR, AHMEDNAGAR, Maharashtra, 414003
Institute Type	Unaided - Private	Region	Western

to conduct following courses with the intake indicated below for the academic year 2017-2018

Application id : 1-3359523301									
S. No.	Programme	Shift	Level	Course	Full/Part Time	Affiliating Body	Intake approved for 2017-18	PIO/F N/Gulf Quota	NRI
1	PHARMACY	1st Shift	UNDER GRADUATE	PHARMACY	FULL TIME	Savitribal Phule Pune University	100	No	No

Note: The approval is valid for two years from the date of issue of this letter only for getting affiliation with respective University/ Board of Technical Education (BTE)/ Board of Technical Education & Training (BTET) (as applicable) and fulfilling State Govt. requirements for admission. If institution is unable to start in the academic session 2017-18 due to reason mentioned above, the institution will have to apply On-line on AICTE web portal in next academic session for continuation of approval.

The Society/Trust/Institution shall obtain necessary affiliation / permission from the concerned affiliating University/ Board of Technical Education (BTE)/ Board of Technical Education & Training (BTET)(as applicable) as per the prescribed schedule of the University/ Board of Technical Education (BTE)/ Board of Technical Education & Training (BTET)(as applicable) Admission authority etc. The Applicant Society/Trust/Institution shall send information about commencement of the above courses to AICTE. In case the Institution is not in a position to commence the above mentioned courses for whatever reason during the two years period from the date of issue of this letter, the approval becomes invalid and the applicant Society/Trust/Institution shall make fresh application to AICTE for grant of approval as per the norms prevailing at that time.

Application Number: 1-3359523301

Note: This is a Computer generated Report. No signature is required.

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Page 1 of 4
Letter Printed On: 5 May 2017

PRINCIPAL

Dr. N. J. Paulbudhe College Of Pharmacy
Shaneshwar Nagar, Ahmednagar- 414003



All India Council for Technical Education

(A Statutory body under Ministry of HRD, Govt. of India)

Nelson Mandela Marg Vasant Kunj, New Delhi-110067
PHONE: 23724151/52/53/54/55/56/57 FAX: 011-23724183 www.aicte-india.org

All Institutions shall fulfill the following general conditions:

1. The management shall provide adequate funds for development of land and for providing related infrastructural, instructional and other facilities as per norms and standards laid down by the Council from time to time and for meeting recurring expenditure.
2. The admission shall be made only after adequate infrastructure and all other facilities, including the availability / recruitment of the required faculty are provided as per norms and guidelines of the AICTE.
3. The admissions shall be made in accordance with the regulations notified by the Council from time to time.
4. The curriculum of the course, the procedure for evaluation / assessment of students shall be in accordance with the norms prescribed by the AICTE and concerned affiliating university/ Board of Technical Education (BTE)/ Board of Technical Education & Training (BTET) (as applicable) wherever applicable.
5. The management of the Institution shall not close the Institution or the institution shall not discontinue any course(s) or start any new course(s) or alter intake capacity of seats without the prior approval of the Council.
6. No excess admission shall be made by the Institution over and above the approved intake under any circumstances. In case any excess admission is reported to the Council, appropriate action as per the notified regulations shall be initiated against the Institution.
7. The institutions shall not have any collaborative arrangements with any Indian and / or Foreign Universities for conduct of technical courses other than those approved by AICTE without obtaining prior approval from AICTE. In case any violation is reported to the Council, appropriate action as per the notified regulations shall be initiated against the Institution.
8. The Institution shall not conduct any course(s) in the field of technical education in the same premises / campus and / or in the name of the Institution without prior permission / approval of AICTE. If found so, appropriate action as per the notified regulations shall be initiated against the Institution.
9. The institution shall not conduct any non-technical course (s) in the same premises under any circumstances. In case any violation is reported to the Council, appropriate action as per the notified regulations shall be initiated against the Institution.
10. The institution shall operate only from the approved location, and that the institution shall not open any off campus study centers / extension centers directly or in collaboration with any other institution / university / organization for the purpose of imparting technical education without obtaining prior approval from the AICTE. If found so, appropriate action as per the notified regulations shall be initiated against the Institution.
11. The tuition and other fees shall be charged as prescribed by the Competent Authority within the overall criteria prescribed by the Council from time to time. No capitation fee shall be charged from the students / guardians of students in any form. If found so, appropriate action as per the notified regulations shall be initiated against the Institution.
12. The accounts of the Institution shall be audited annually by a certified Chartered Accountant and shall be open for inspection by the Council or anybody or persons authorized by it.
13. The Director / Principal and the teaching and other staff shall be appointed in given time frame and selection





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shall be done according to procedures, qualifications and experience prescribed by the Council from time to time and pay scales are as per the norms prescribed by the Council from time to time.

14. The technical institution shall publish an information booklet before commencement of the academic year giving details regarding the institution and courses / programs being conducted and details of infrastructural facilities including faculty etc. in the form of mandatory disclosure. The information booklet may be made available to the stakeholders of the technical education. The mandatory disclosure information, as per directions in the AICTE website / Approval Process Handbook, shall be put on the Institution Website. The information shall be revised every year with updated information about all aspects of the institution.
15. It shall be mandatory for the technical institution to maintain a Website providing the prescribed information. The Website information must be continuously updated as and when changes take place.
16. If a technical Institution fails to disclose the information or suppress and / or misrepresent the information, appropriate action as per the notified regulations shall be initiated against the Institution.
17. AICTE may carry out random inspections round the year for verifying the status of the Institutions to ensure maintenance of norms and standards.
18. AICTE may also conduct inspections with or without notifying the dates to verify specific complaints, to verify adherence to AICTE norms & standards, and to verify any mis-representation, violation of norms & standards, mal-practices etc.
19. The Institution by virtue of the approval given by Council shall not automatically become claimant to any grant-in-aid from the Central or State Government.
20. In the event of a student / candidate withdrawing before the starting of the course, the wait listed candidates should be given admission against the vacant seat. The entire fee collected from the student, after a deduction of the processing fee of not more than Rs. 1000/- (Rupees one thousand only) shall be refunded and returned by the Institution / University/ Board of Technical Education (BTE)/ Board of Technical Education & Training (BTET)(as applicable) to the student / candidate withdrawing from the program. It would not be permissible for Institutions and Universities to retain the School / Institution Leaving Certificates in original to force retention of admitted students.
21. The Institute shall take appropriate measures for prevention of ragging in any form, in the light of AICTE regulation "Prevention and Prohibition of Ragging in Technical Institutions, Universities including Deemed to Universities imparting technical education" Regulation 2009 (F.No. 37-3/Legal/AICTE/2009 dated 01/07/2009). In case of failure to prevent the instances of ragging by the Institutions, the Council shall take appropriate action as per the notified regulations.

The Management of the Institute shall strictly follow further conditions as may be specified by the Council from time to time. The Council may withdraw the approval, in case it observe any violation of the above conditions and / or non-adherence to the norms and standards prescribed by the Council, mis-representation of facts and submitting factually in correct information to it.

Prof. Alok Prakash Mittal
Member Secretary, AICTE

Copy to:

1. The Regional Officer,
All India Council for Technical Education



Application Number: 1-3359523301

Note: This is a Computer generated Report, No signature is required.

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Page 3 of 4
Letter Printed On 5 May 2017



All India Council for Technical Education

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PHONE: 23724 151/52/53/54/55/56/57 FAX: 011-23724 183 www.aicte-India.org

Industrial Assurance Building
2nd Floor, Nariman Road
Mumbai - 400 020, Maharashtra

2. **The Director Of Technical Education****,
Maharashtra
3. **The Registrar****,
Savitribai Phule Pune University
4. **The Principal / Director**,
DR. N.J.PAULBUDHE COLLEGE OF PHARMACY
45/1B, SHANESHWAR NAGAR, VASANT TEKADI, SAVEDI, AHMEDNAGAR, 414003,
AHMEDNAGAR, AHMEDNAGAR,
Maharashtra, 414003
5. **The Secretary / Chairman**,
SEVA SHIKSHAN PRASARAK MANDAL
45/1B, SHANESHWAR NAGAR, VASANT TEKADI, SAVEDI, AHMEDNAGAR, 414003,
AHMEDNAGAR, AHMEDNAGAR,
Maharashtra, 414003
6. **Guard File(AICTE)**

Note: ** - Approval letter copy will not be communicated through post/email. However, provision is made in the portal for downloading Approval letter through Authorized login credentials allotted to concerned DTE/Registrar.



Dr. N. J. Paulbudhe
PRINCIPAL

Dr. N. J. Paulbudhe College Of Pharmacy
Shaneshwar Nagar, A' Nagar- 414003



Seva Shikshan Prasarak Mandal's

Dr. N. J. Paulbudhe College of Pharmacy

Shaneshwar Nagar, Vasant Tekadi, Savedi, Ahmednagar, Pin: 414003



Mobile. No: 7774036749, Ph. No: (0241) 2423640 | E – mail: bpharmacydnjp@gmail.com | www.bpharmacy.sspmonline.org | DTE Code: 5451 | AISHE Code C-59365 | PCI 2002

PCI APPROVAL LETTERS



Approved By: P. C. I, New Delhi, Ref No: F.No.02.297/2018-PCI, AICTE: F.No. Western/2017-1-3359523301,
Affiliated to Savitribai Phule Pune University – Ref. No. PU/AN/PHARM/145/2017

<u>297 EC Item No. Course IR No.</u>	<u>State/ File No. Name of institutions</u>	<u>For adms. Limited to</u>	<u>Approved for conduct of course/ u/s 12 / extension upto academic session</u>	<u>Name of the Examining Authority</u>
297 EC Item No.135 Diploma IR No.10th Surprise (June, 2018)	MAHARASHTRA 17-430/2015-PCI Shikshan Prasark Mandal's College of Pharmacy, AKLUJ, Tal. Malshiras, Distt. Solapur-413 101.	60	Extension upto 2020-2021	The Secretary Maharashtra State Board of Technical Education Govt. Polytechnic Building, III Floor, 49, Kherwadi, Ali Yawar Jung Marg, Bandra (E), Mumbai – 400 051.

<u>297 EC Item No. Course IR No.</u>	<u>State/ File No. Name of institutions</u>	<u>For adms. Limited to</u>	<u>Approved for conduct of course/ u/s 12 / extension upto academic session</u>	<u>Name of the Examining Authority</u>
297 EC Item No.136 Degree IR No.1st (March, 2018)	MAHARASHTRA 32-1488/2018-PCI Seva Shikshan Prasark Mandals, Dr. N.J. Paulbudhe College of Pharmacy, Survey No.45/1B, Shaneshwar Nagar, Vasant Tekadi, Savedi Ahmednagar-414003.	100	For 2017-2018 & 2018-2019 for conduct of 1 st & 2 nd year Allow 100 admissions for 2017-2018 & 2018- 2019 in 1 st year	The Registrar Savitribai Phule Pune University Ganeshkhind Pune – 411 007.

Other decision

- The latest information on record including institution's request & court directions was placed and considered.
- **Regarding B.Pharm course -**
 1. It was further decided that -
 - a) above approval is subject to submission of consent of affiliation of Examining Authority and NOC/Approval of the State Govt. for starting of the B.Pharm course before making admission.
 - b) no admission shall be made without submission of above documents to PCI.
 - c) in case the above document/(s) are not obtained and submitted to PCI before making admissions, the above approval granted by the PCI shall be deemed to be withdrawn and the consequences thereof shall rest on the institution and PCI in no way shall be responsible for it.
 2. The decision of 290th EC (April, 2018) was reviewed and above approval was granted based on information on record.




PRINCIPAL
 Dr. N. J. Paulbudhe College of Pharmacy
 Shaneshwar Nagar, A.nagar-414003



PHARMACY COUNCIL OF INDIA

A Statutory body under Ministry of Health and Family Welfare
Government of India

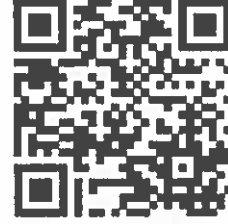
E - MAIL : registrar@pci.nic.in
WEBSITE : www.pci.nic.in
Telephone : 011-61299900
011 - 61299901, 011 - 61299902
011-61299903

NBCC Centre, 3rd Floor
Plot No.2, Community Centre
Maa Anandamal Marg
Okhla Phase I
NEW DELHI - 110020

DECISION LETTER

Institute Name / Inst ID Seva Shikshan Prasarak Mandals Dr N J
Paulbudhe College Of Pharmacy Shaineshwar
Nagar Vasant Tekadi Savedi Ahmednagar / PCI-
2002

State MAHARASHTRA
District AHMEDNAGAR
Sub-District Nagar
Village/Town/City savedi
Pin Code 414003



Sir / Madam

With reference to the subject cited above I am directed to convey the approval of PCI as per Following Details

Course	Name of Affiliation body/University	Decision	Approval Status	Approval Upto	Approval Intake
B.Pharm	The Registrar Savitribai Phule Pune University Ganeshkhind Road Pune	B.Pharm Extend approval upto 2023-2024 academic session for 100 admissions for B.Pharm course. The last approval for 2022-23 academic session is restored and vide notification dt. 22.10.2022 read with 3.11.2022 instructed the institutions to submit affidavit. In view of above, it was decided to verify the said affidavit during the inspection process of 2023-2024 academic session.	Approved	2023-2024	100

Date 04th May 2023



Copy to

- Registrar of the University
- Principal of the college
- Secretary/Chairman of the Trust/Society
- Guard File (PCI)

Note: Validity of the course details may be verified at www.pci.nic.in

For
(IC) Registrar-cum-Secretary
PCI

PRINCIPAL

Dr. N. J. Paulbudhe College Of Pharmacy
Shaineshwar Nagar, A'Nagar- 414003



PHARMACY COUNCIL OF INDIA

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State MAHARASHTRA
District AHMEDNAGAR
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Village/Town/City savedi
Pin Code 414003



Sir / Madam

With reference to the subject cited above i am directed to convey the approval of PCI as per Following Details

Course	Name of Affiliation body/University	Decision	Approval Status	Approval Upto	Approval Intake
B.Pharm	The Registrar Savitribal Phule Pune University Ganeshkhind Road Pune	B.Pharm Extend approval up to 2022-2023 academic session for B.Pharm course. Reduce intake from 100 to 40 from 2022-2023 academic session for B.Pharm course as the institution has failed to appoint Principal and qualified teaching staff as per statutory provisions of - " Minimum Qualification for Teachers in Pharmacy Institutions Regulations, 2014. " The Bachelor of Pharmacy (B.Pharm) Course Regulations, 2014. PCI vide circular dt.22.10.2022 and 3.11.2022 has already restored the intake for 2022-2023 academic session as approved in previous year.	Approved	2022-2023	100

Date 18th Jan 2023



For
(I/C) Registrar-cum-Secretary
PCI

Copy to

- Registrar of the University
- Principal of the college
- Secretary/Chairman of the Trust/Society
- Guard File (PCI)

PRINCIPAL

Dr. N. J. Paulbudhe College Of Pharmacy
Shaineshwar Nagar, A'Nagar- 414003

Note: Validity of the course details may be verified at www.pci.nic.in



PHARMACY COUNCIL OF INDIA

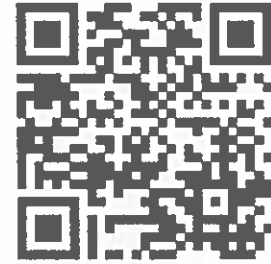
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DECISION LETTER

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Paulbudhe College Of Pharmacy Shaineshwar
Nagar Vasant Tekadi Savedi Ahmednagar / PCI-
2002
State MAHARASHTRA
District AHMEDNAGAR
Sub-District Nagar
Village/Town/City savedi
Pin Code 414003



Sir / Madam

With reference to the subject cited above i am directed to convey the approval of PCI as per Following Details

Course	Name of Affiliation body/University	Decision	Approval Status	Approval Upto
B.Pharm	The Registrar Savitribai Phule Pune University Ganeshkhind Road Pune	111 CC (6 & 7 April, 2021) Granted approval from 2017-2018 to 2021-2022 academic session for 100 admissions u/s 12 for B.Pharm course.	Approved	2021-2022

Date 16th Jul 2021



For Archana Mudgal
Registrar-cum-Secretary
PCI

Copy to

- Registrar of the University
- Principal of the college
- Secretary/Chairman of the Trust/Society
- Guard File (PCI)

PRINCIPAL
Dr. N. J. Paulbudhe College Of Pharmacy
Shaineshwar Nagar, A' Nagar- 414003

Note: Validity of the course details may be verified at www.pci.nic.in



PHARMACY COUNCIL OF INDIA

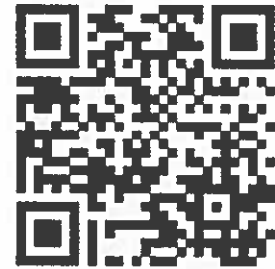
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DECISION LETTER

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State MAHARASHTRA
District AHMEDNAGAR
Sub-District Nagar
Village/Town/City savedi
Pin Code 414003



Sir / Madam

With reference to the subject cited above i am directed to convey the approval of PCI as per Following Details

Course	Name of Affiliation body/University	Decision	Approval Status	Approval Upto
B.Pharm	The Registrar Savitribai Phule Pune University Ganeshkhind Road Pune	For 2020-2021 for conduct of 4th year Allow 100 admissions for 2020-2021 in 1st year	Approved	2020-2021

Date 10th April 2020

[Handwritten Signature]

For Archana Mudgal
Registrar-cum-Secretary
PCI



Copy to

- i) Registrar of the University
- ii) Principal of the college
- iii) Secretary/Chairman of the Trust/Society
- iv) Guard File (PCI)

[Handwritten Signature]
PRINCIPAL

Dr. N. J. Paulbudhe College Of Pharmacy
Shaineshwar Nagar, A' Nagar- 414003

Note: Validity of the course details may be verified at www.pci.nic.in



PHARMACY COUNCIL OF INDIA

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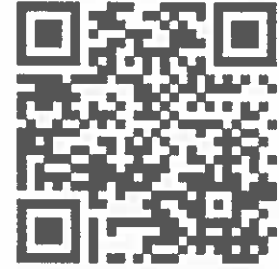
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DECISION LETTER

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Paulbudhe College Of Pharmacy Shaineshwar
Nagar Vasant Tekadi Savedi Ahmednagar / PCI-
2002

State MAHARASHTRA
District AHMEDNAGAR
Sub-District Nagar
Village/Town/City savedi
Pin Code 414003



Sir / Madam

With reference to the subject cited above i am directed to convey the approval of PCI as per Following Details

Course	Name of Affiliation body/University	Decision
B.Pharm	The Registrar Savitribai Phule Pune University Ganeshkhind Road Pune	Approved for conduct of 3rd year course for 2019-2020 for 100 intake (B.Pharm)Allowed 100 admission in 2019-2020 in 1st year (B.Pharm). Also to inspect

Date 10th June 2019



For Archana Mudgal
Registrar-cum-Secretary
PCI

Copy to

- Registrar of the University
- Principal of the college
- Secretary/Chairman of the Trust/Society
- Guard File (PCI)


PRINCIPAL
Dr. N. J. Paulbudhe College Of Pharmacy
Shaineshwar Nagar, A' Nagar- 414003

Note: Validity of the course details may be verified at www.pci.nic.in



Seva Shikshan Prasarak Mandal's

Dr. N. J. Paulbudhe College of Pharmacy



Shaneshwar Nagar, Vasant Tekadi, Savedi, Ahmednagar, Pin: 414003

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COURSE STRUCTURE



Approved By: P. C. I, New Delhi, Ref No: F.No.02.297/2018-PCI, AICTE: F.No. Western/2017-1-3359523301,
Affiliated to Savitribai Phule Pune University – Ref. No. PU/AN/PHARM/145/2017



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SUMMARY OF COURSE STRUCTURE

A.Y.Year	Class	Course structure
2021-22	First Year B.Pharm	2019
	Second Year B.Pharm	2019
	Third Year B.Pharm	2019
	Final Year B.Pharm	2018
2020-21	First Year B.Pharm	2019
	Second Year B.Pharm	2019
	Third Year B.Pharm	2018
	Final Year B.Pharm	2015
2019-2020	First Year B.Pharm	2019
	Second Year B.Pharm	2018
	Third Year B.Pharm	2015
2018-2019	First Year B.Pharm	2018
	Second Year B.Pharm	2015
2017-18	First Year B.Pharm	2015




PRINCIPAL
Dr. N. J. Paulbudhe College of Pharmacy
Shaneshwar nagar, A.nagar-414003

Approved By: P. C. I, New Delhi, Ref No: F.No.02.297/2018-PCI, AICTE: F.No. Western/2017-1-3359523301,
Affiliated to Savitribai Phule Pune University – Ref. No. PU/AN/PHARM/145/2017



Seva Shikshan Prasarak Mandal's



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COURSE STRUCTURE 2019 PATTERN



Approved By: P. C. I, New Delhi, Ref No: F.No.02.297/2018-PCI, AICTE: F.No. Western/2017-1-3359523301,
Affiliated to Savitribai Phule Pune University – Ref. No. PU/AN/PHARM/145/2017

SAVITRIBAI PHULE PUNE UNIVERSITY

FACULTY OF SCIENCE AND TECHNOLOGY



RULES & SYLLABUS

**FIRST YEAR BACHELOR OF PHARMACY (B. Pharm.) COURSE –
2019 pattern (EFFECTIVE FROM ACADEMIC YEAR 2019-2020)**



N. J.
PRINCIPAL

Dr. N. J. Paulbudhe College of Pharmacy
Shaneshwarnagar, Ahmednagar-414003



CHAPTER- I: REGULATIONS

1. **Short Title and Commencement** These regulations shall be called as “The Revised Regulations for the B. Pharm. Degree Program (CBCS) of the Pharmacy Council of India, New Delhi”. They shall come into effect from the Academic Year 2016-17. The regulations framed are subject to modifications from time to time by Pharmacy Council of India.
2. **Minimum qualification for admission**
 - 2.1 **First year B. Pharm:** Candidate shall have passed 10+2 examination conducted by the respective state/central government authorities recognized as equivalent to 10+2 examination by the Association of Indian Universities (AIU) with English as one of the subjects and Physics, Chemistry, Mathematics (P.C.M) and or Biology (P.C.B / P.C.M.B.) as optional subjects individually. Any other qualification approved by the Pharmacy Council of India as equivalent to any of the above examinations.
 - 2.2 **B. Pharm lateral entry (to third semester):** A pass in D. Pharm. course from an institution approved by the Pharmacy Council of India under section 12 of the Pharmacy Act.
3. **Duration of the program** The course of study for B.Pharm shall extend over a period of eight semesters (four academic years) and six semesters (three academic years) for lateral entry students. The curricula and syllabi for the program shall be prescribed from time to time by Pharmacy Council of India, New Delhi.
4. **Medium of instruction and examinations** Medium of instruction and examination shall be in English.
5. **Working days in each semester** Each semester shall consist of not less than 90 working days. The odd semesters shall be conducted from the month of June/July to November/December and the even semesters shall be conducted from December/January to May/June in every calendar year.
6. **Attendance and progress** A candidate is required to put in at least 80% attendance in individual courses considering theory and practical separately. The candidate shall complete the prescribed course satisfactorily to be eligible to appear for the respective examinations.
7. **Program/Course credit structure** As per the philosophy of Credit Based Semester System, certain quantum of academic work viz. theory classes, tutorial hours, practical classes, etc. are measured in terms of credits. On satisfactory completion of the courses, a candidate earns credits.



The amount of credit associated with a course is dependent upon the number of hours of instruction per week in that course. Similarly, the credit associated with any of the other academic, co/extra-curricular activities is dependent upon the quantum of work expected to be put in for each of these activities per week.

7.1. Credit assignment

7.1.1. Theory and Laboratory courses Courses are broadly classified as Theory and Practical. Theory courses consist of lecture (L) and /or tutorial (T) hours, and Practical (P) courses consist of hours spent in the laboratory. Credits (C) for a course is dependent on the number of hours of instruction per week in that course, and is obtained by using a multiplier of one (1) for lecture and tutorial hours, and a multiplier of half (1/2) for practical (laboratory) hours. Thus, for example, a theory course having three lectures and one tutorial per week throughout the semester carries a credit of 4. Similarly, a practical having four laboratory hours per week throughout semester carries a credit of 2.

7.2. Minimum credit requirements The minimum credit points required for award of a B. Pharm. degree is 208. These credits are divided into Theory courses, Tutorials, Practical, Practice School and Project over the duration of eight semesters. The credits are distributed semester-wise as shown in Table IX. Courses generally progress in sequences, building competencies and their positioning indicates certain academic maturity on the part of the learners. Learners are expected to follow the semester-wise schedule of courses given in the syllabus. The lateral entry students shall get 52 credit points transferred from their D. Pharm program. Such students shall take up additional remedial courses of 'Communication Skills' (Theory and Practical) and 'Computer Applications in Pharmacy' (Theory and Practical) equivalent to 3 and 4 credit points respectively, a total of 7 credit points to attain 59 credit points, the maximum of I and II semesters.

8. Academic work A regular record of attendance both in Theory and Practical shall be maintained by the teaching staff of respective courses.

9. Course of study The course of study for B. Pharm shall include Semester Wise Theory & Practical as given in Table – I to VIII. The number of hours to be devoted to each theory, tutorial and practical course in any semester shall not be less than that shown in Table – I to VIII.



Table-I: Course of study for semester I

Course code	Name of the course	No. of Hours per week/Total no of hours	Tutorial	Credit points
BP101T	Human Anatomy and Physiology I-Theory	3/45	1	4
BP102T	Pharmaceutical Analysis I – Theory	3/45	1	4
BP103T	Pharmaceutics I – Theory	3/45	1	4
BP104T	Pharmaceutical Inorganic Chemistry – Theory	3/45	1	4
BP105T	Communication skills – Theory *	2/30	-	2
BP106RBT BP106RMT	Remedial Biology/ Remedial Mathematics – Theory*	2/30	-	D
BP107P	Human Anatomy and Physiology – Practical	4/60	-	2
BP108P	Pharmaceutical Analysis I – Practical	4/60	-	2
BP109P	Pharmaceutics I – Practical	4/60	-	2
BP110P	Pharmaceutical Inorganic Chemistry – Practical	4/60	-	2
BP111P	Communication skills – Practical*	2/30	-	1
BP112RBP	Remedial Biology – Practical*	2/30	-	D
Total		32/34^S/36[#]/4 80/510^S/540[#]	4	27

#Applicable ONLY for the students who have studied Mathematics / Physics / Chemistry at HSC and appearing for Remedial Biology (RB) course. However for Remedial biology and Mathematics no credits to be allotted only 50 % passing i.e D grade will be prerequisite.

\$Applicable ONLY for the students who have studied Physics / Chemistry / Botany / Zoology at HSC and appearing for Remedial Mathematics (RM) course.

* Non University Examination (NUE)



Table-II: Course of study for semester II

Course Code	Name of the course	No. of Hours per week/Total no of hours	Tutorial	Credit points
BP201T	Human Anatomy and Physiology II – Theory	3/45	1	4
BP202T	Pharmaceutical Organic Chemistry I – Theory	3/45	1	4
BP203T	Biochemistry – Theory	3/45	1	4
BP204T	Pathophysiology – Theory	3/45	1	4
BP205T	Computer Applications in Pharmacy – Theory *	3/45	-	3
BP206T	Environmental sciences – Theory *	3/45	-	3
BP207P	Human Anatomy and Physiology II – Practical	4/60	-	2
BP208P	Pharmaceutical Organic Chemistry I – Practical	4/60	-	2
BP209P	Biochemistry – Practical	4/60	-	2
BP210P	Computer Applications in Pharmacy – Practical*	4/60	-	1
Total		32/480	4	29

*Non University Examination (NUE)

Table-III: Course of study for semester III

Course code	Name of the course	No. of Hours per week/Total no of hours	Tutorial	Credit points
BP301T	Pharmaceutical Organic Chemistry II – Theory	3/45	1	4
BP302T	Physical Pharmaceutics I – Theory	3/45	1	4
BP303T	Pharmaceutical Microbiology – Theory	3/45	1	4
BP304T	Pharmaceutical Engineering – Theory	3/45	1	4
BP305P	Pharmaceutical Organic Chemistry II – Practical	4/60	-	2
BP306P	Physical Pharmaceutics I – Practical	4/60	-	2
BP307P	Pharmaceutical Microbiology – Practical	4/60	-	2
BP 308P	Pharmaceutical Engineering – Practical	4/60	-	2
Total		28/420	4	24



Table-IV: Course of study for semester IV

Course code	Name of the course	No. of Hours per week/Total no of hours	Tutorial	Credit points
BP401T	Pharmaceutical Organic Chemistry III– Theory	3/45	1	4
BP402T	Medicinal Chemistry I – Theory	3/45	1	4
BP403T	Physical Pharmaceutics II – Theory	3/45	1	4
BP404T	Pharmacology I – Theory	3/45	1	4
BP405T	Pharmacognosy and Phytochemistry I– Theory	3/45	1	4
BP406P	Medicinal Chemistry I – Practical	4/60	-	2
BP407P	Physical Pharmaceutics II – Practical	4/60	-	2
BP408P	Pharmacology I – Practical	4/60	-	2
BP409P	Pharmacognosy and Phytochemistry I – Practical	4/60	-	2
Total		31/465	5	28

Table-V: Course of study for semester V

Course code	Name of the course	No. of Hours per week/Total no of hours	Tutorial	Credit points
BP501T	Medicinal Chemistry II – Theory	3/45	1	4
BP502T	Formulative Pharmacy– Theory	3/45	1	4
BP503T	Pharmacology II – Theory	3/45	1	4
BP504T	Pharmacognosy and Phytochemistry II– Theory	3/45	1	4
BP505T	Pharmaceutical Jurisprudence – Theory	3/45	1	4
BP506P	Formulative Pharmacy – Practical	4/60	-	2
BP507P	Pharmacology II – Practical	4/60	-	2
BP508P	Pharmacognosy and Phytochemistry II – Practical	4/60	-	2
Total		27/405	5	26



Table-VI: Course of study for semester VI

Course code	Name of the course	No. of Hours per week/Total no of hours	Tutorial	Credit points
BP601T	Medicinal Chemistry III – Theory	3/45	1	4
BP602T	Pharmacology III – Theory	3/45	1	4
BP603T	Herbal Drug Technology – Theory	3/45	1	4
BP604T	Biopharmaceutics and Pharmacokinetics – Theory	3/45	1	4
BP605T	Pharmaceutical Biotechnology – Theory	3/45	1	4
BP606T	Quality Assurance – Theory	3/45	1	4
BP607P	Medicinal chemistry III – Practical	4/60	-	2
BP608P	Pharmacology III – Practical	4/60	-	2
BP609P	Herbal Drug Technology – Practical	4/60	-	2
Total		30/450	6	30

Table-VII: Course of study for semester VII

Course code	Name of the course	No. of Hours per week/Total no of hours	Tutorial	Credit points
BP701T	Instrumental Methods of Analysis – Theory	3/45	1	4
BP702T	Industrial Pharmacy – Theory	3/45	1	4
BP703T	Pharmacy Practice – Theory	3/45	1	4
BP704T	Novel Drug Delivery System – Theory	3/45	1	4
BP705P	Instrumental Methods of Analysis – Practical	4/60	-	2
BP706PS	Practice School*	12/180	-	6
Total		28/420	5	24

* Non University Examination (NUE)



Table-VIII: Course of study for semester VIII

Course code	Name of the course	No. of Hours per week/Total no of hours	Tutorial	Credit points
BP801T	Biostatistics and Research Methodology	3/45	1	4
BP802T	Social and Preventive Pharmacy	3/45	1	4
BP803ET	Pharmaceutical Marketing	3 + 3 = 6/90	1 + 1 = 2	4 + 4 = 8
BP804ET	Pharmaceutical Regulatory Science			
BP805ET	Pharmacovigilance			
BP806ET	Quality Control and Standardizations of Herbals			
BP807ET	Computer Aided Drug Design			
BP808ET	Cell and Molecular Biology			
BP809ET	Cosmetic Science			
BP810ET	Experimental Pharmacology			
BP811ET	Advanced Instrumentation Techniques			
BP812PW	Project Work	12/180	-	6
Total		24/360	4	22

Table-IX: Semester wise credits distribution

Semester	Credit Points
I	27
II	29
III	26
IV	28
V	26
VI	26
VII	24
VIII	22
Extracurricular/ Co curricular activities	01*
Total credit points for the program	209

* The credit points assigned for extracurricular and or co-curricular activities shall be given by the Principals of the colleges and the same shall be submitted to the University. The criteria to acquire this credit point shall be defined by the colleges from time to time.

^SApplicable ONLY for the students studied Physics / Chemistry / Botany / Zoology at HSC and appearing for Remedial Mathematics course.

[#]Applicable ONLY for the students studied Mathematics / Physics / Chemistry at HSC and appearing for Remedial Biology course.



1. Program Committee

1. The B. Pharm. program shall have a Program Committee constituted by the Head of the institution in consultation with all the Heads of the departments.

2. The composition of the Program Committee shall be as follows:

A senior teacher shall be the Chairperson; One Teacher from each department handling B.Pharm courses; and four student representatives of the program (one from each academic year), nominated by the Head of the institution.

3. Duties of the Program Committee:

- i. Periodically reviewing the progress of the classes.
- ii. Discussing the problems concerning curriculum, syllabus and the conduct of classes.
- iii. Discussing with the course teachers on the nature and scope of assessment for the course and the same shall be announced to the students at the beginning of respective semesters.
- iv. Communicating its recommendation to the Head of the institution on academic matters.
- v. The Program Committee shall meet at least thrice in a semester preferably at the end of each Sessionalexam (Internal Assessment) and before the end semester exam.

2. Examinations/Assessments

The scheme for internal assessment and end semester examinations is given in Table - X.

2.1. End semester examinations

The End Semester Examinations for each theory and practical course through semesters I to VIII shall be conducted by the university except for the subjects with asterix symbol (*) in table I and II for which examinations shall be conducted by the subject experts at college level and the marks/grades shall be submitted to the university.



Semester I
Tables-X: Schemes for internal assessments and end semester examinations semester wise

Course code	Name of the course	Continuous Mode			Internal Assessment			End Semester Exams			Total Marks	
		10	10	10	Marks	Duration	Total	Marks	Duration	Marks		Duration
BP101T	Human Anatomy and Physiology I – Theory	10	10	10	15	1 Hr	25	75	3 Hrs	75	100	
BP102T	Pharmaceutical Analysis I – Theory	10	10	10	15	1 Hr	25	75	3 Hrs	75	100	
BP103T	Pharmaceutics I – Theory	10	10	10	15	1 Hr	25	75	3 Hrs	75	100	
BP104T	Pharmaceutical Inorganic Chemistry – Theory	10	10	10	15	1 Hr	25	75	3 Hrs	75	100	
BP105T	Communication skills – Theory *	5	5	5	10	1 Hr	15	35	1.5 Hrs	35	50	
BP106RBT	Remedial Biology/ Mathematics – Theory*	5	5	5	10	1 Hr	15	35	1.5 Hrs	35	50	
BP107P	Human Anatomy and Physiology – Practical	5	5	5	10	4 Hrs	15	35	4 Hrs	35	50	
BP108P	Pharmaceutical Analysis I – Practical	5	5	5	10	4 Hrs	15	35	4 Hrs	35	50	
BP109P	Pharmaceutics I – Practical	5	5	5	10	4 Hrs	15	35	4 Hrs	35	50	
BP110P	Pharmaceutical Inorganic Chemistry – Practical	5	5	5	10	4 Hrs	15	35	4 Hrs	35	50	
BP111P	Communication skills – Practical*	5	5	5	10	2 Hrs	10	15	2 Hrs	15	25	
BP112RBP	Remedial Biology – Practical*	5	5	5	10	2 Hrs	10	15	2 Hrs	15	25	
Total		70/75[#]/80[#]	115/125[#]/130[#]	23/24[#]/26[#]	185/200[#]/210[#]	Hrs	490/525[#]/540[#]	31.5/33[#]/35[#]	Hrs	675/725[#]/750[#]	25	

Applicable ONLY for the students studied Mathematics / Physics / Chemistry at HSC and appearing for Remedial Biology (RB)course.
 \$ Applicable ONLY for the students studied Physics / Chemistry / Botany / Zoology at HSC and appearing for Remedial Mathematics (RM)course.

* Non University Examination (NUE)



Semester II

Course code	Name of the course	Internal Assessment			End Semester Exams		Total Marks
		Continuous Mode	Sessional Exams Marks	Duration	Marks	Duration	
BP201T	Human Anatomy and Physiology II – Theory	10	15	1 Hr	75	3 Hrs	100
BP202T	Pharmaceutical Organic Chemistry I – Theory	10	15	1 Hr	75	3 Hrs	100
BP203T	Biochemistry – Theory	10	15	1 Hr	75	3 Hrs	100
BP204T	Pathophysiology – Theory	10	15	1 Hr	75	3 Hrs	100
BP205T	Computer Applications in Pharmacy – Theory*	10	15	1 Hr	50	2 Hrs	75
BP206T	Environmental sciences – Theory*	10	15	1 Hr	50	2 Hrs	75
BP207P	Human Anatomy and Physiology II – Practical	5	10	4 Hrs	35	4 Hrs	50
BP208P	Pharmaceutical Organic Chemistry I – Practical	5	10	4 Hrs	35	4 Hrs	50
BP209P	Biochemistry – Practical	5	10	4 Hrs	35	4 Hrs	50
BP210P	Computer Applications in Pharmacy – Practical*	5	5	2 Hrs	15	2 Hrs	25
Total		80	125	20 Hrs	520	30 Hrs	725

* The subject experts at college level shall conduct examinations



Semester III

Course code	Name of the course	Continuous Mode	Internal Assessment			End Semester Exams		Total Marks
			Sessional Exams Marks	Sessional Exams Duration	Total	Marks	Duration	
BP301T	Pharmaceutical Organic Chemistry II – Theory	10	15	1 Hr	25	75	3 Hrs	100
BP302T	PhysicalPharmaceuticsI –Theory	10	15	1 Hr	25	75	3 Hrs	100
BP303T	Pharmaceutical Microbiology – Theory	10	15	1 Hr	25	75	3 Hrs	100
BP304T	Pharmaceutical Engineering – Theory	10	15	1 Hr	25	75	3 Hrs	100
BP305P	Pharmaceutical Organic Chemistry II – Practical	5	10	4 Hr	15	35	4 Hrs	50
BP306P	Physical Pharmaceutics I – Practical	5	10	4 Hr	15	35	4 Hrs	50
BP307P	Pharmaceutical Microbiology – Practical	5	10	4 Hr	15	35	4 Hrs	50
BP308P	Pharmaceutical Engineering – Practical	5	10	4 Hr	15	35	4 Hrs	50
Total		60	100	20	160	440	28Hrs	600



Semester IV

Course code	Name of the course	Internal Assessment			End Semester Exams		Total Marks
		Continuous Mode	Sessional Exams		Marks	Duration	
			Marks	Duration			
BP401T	Pharmaceutical Organic Chemistry III – Theory	10	15	1 Hr	75	3 Hrs	100
BP402T	Medicinal Chemistry I – Theory	10	15	1 Hr	75	3 Hrs	100
BP403T	Physical Pharmaceutics II – Theory	10	15	1 Hr	75	3 Hrs	100
BP404T	Pharmacology I – Theory	10	15	1 Hr	75	3 Hrs	100
BP405T	Pharmacognosy I – Theory	10	15	1 Hr	75	3 Hrs	100
BP406P	Medicinal Chemistry I – Practical	5	10	4 Hr	35	4 Hrs	50
BP407P	Physical Pharmaceutics II – Practical	5	10	4 Hrs	35	4 Hrs	50
BP408P	Pharmacology I – Practical	5	10	4 Hrs	35	4 Hrs	50
BP409P	Pharmacognosy I – Practical	5	10	4 Hrs	35	4 Hrs	50
Total		70	115	21 Hrs	515	31 Hrs	700



Semester V

Course code	Name of the course	Internal Assessment			End Semester Exams		Total Marks
		Continuous Mode	Sessional Exams Marks	Duration	Marks	Duration	
BP501T	Medicinal Chemistry II – Theory	10	15	1 Hr	25	75	100
BP502T	Formulative Pharmacy– Theory	10	15	1 Hr	25	75	100
BP503T	Pharmacology II – Theory	10	15	1 Hr	25	75	100
BP504T	Pharmacognosy II – Theory	10	15	1 Hr	25	75	100
BP505T	Pharmaceutical Jurisprudence – Theory	10	15	1 Hr	25	75	100
BP506P	Formulative Pharmacy – Practical	5	10	4 Hr	15	35	50
BP507P	Pharmacology II – Practical	5	10	4 Hr	15	35	50
BP508P	Pharmacognosy II – Practical	5	10	4 Hr	15	35	50
	Total	65	105	17 Hr	170	480	650



Semester VI

Course code	Name of the course	Internal Assessment			End Semester Exams		Total Marks
		Continuous Mode	Sessional Exams Marks	Duration	Marks	Duration	
BP601T	Medicinal Chemistry III – Theory	10	15	1 Hr	75	3 Hrs	100
BP602T	Pharmacology III – Theory	10	15	1 Hr	75	3 Hrs	100
BP603T	Herbal Drug Technology – Theory	10	15	1 Hr	75	3 Hrs	100
BP604T	Biopharmaceutics and Pharmacokinetics – Theory	10	15	1 Hr	75	3 Hrs	100
BP605T	Pharmaceutical Biotechnology – Theory	10	15	1 Hr	75	3 Hrs	100
BP606T	Quality Assurance – Theory	10	15	1 Hr	75	3 Hrs	100
BP607P	Medicinal chemistry III – Practical	5	10	4 Hrs	35	4 Hrs	50
BP608P	Pharmacology III – Practical	5	10	4 Hrs	35	4 Hrs	50
BP609P	Herbal Drug Technology – Practical	5	10	4 Hrs	35	4 Hrs	50
Total		75	120	18 Hrs	555	30 Hrs	750



Semester VII

Course code	Name of the course	Internal Assessment				End Semester Exams		Total Marks
		Continuous Mode	Sessional Exams		Total	Marks	Duration	
			Marks	Duration				
BP701T	Instrumental Methods of Analysis – Theory	10	15	1 Hr	25	75	3 Hrs	100
BP702T	Industrial Pharmacy – Theory	10	15	1 Hr	25	75	3 Hrs	100
BP703T	Pharmacy Practice – Theory	10	15	1 Hr	25	75	3 Hrs	100
BP704T	Novel Drug Delivery System – Theory	10	15	1 Hr	25	75	3 Hrs	100
BP705 P	Instrumental Methods of Analysis – Practical	5	10	4 Hrs	15	35	4 Hrs	50
BP706 PS	Practice School*	25	-	-	25	125	5 Hrs	150
	Total	70	70	8Hrs	140	460	21 Hrs	600

* The subject experts at college level shall conduct examinations

h:



Semester VIII

Course code	Name of the course	Internal Assessment			End Semester Exams		Total Marks	
		Continuous Mode	Sessional Exams		Marks	Duration		
			Marks	Duration				Total
BP801T	Biostatistics and Research Methodology – Theory	10	15	1 Hr	25	75	3 Hrs	100
BP802T	Social and Preventive Pharmacy – Theory	10	15	1 Hr	25	75	3 Hrs	100
BP803ET	Pharmaceutical Marketing – Theory							
BP804ET*	Pharmaceutical Regulatory Science – Theory							
BP805ET	Pharmacovigilance – Theory							
BP806ET	Quality Control and Standardizations of Herbals – Theory							
BP807ET	Computer Aided Drug Design – Theory							
BP808ET	Cell and Molecular Biology – Theory	10 + 10 = 20	15 + 15 = 30	1 + 1 = 2 Hrs	25 + 25 = 50	75 + 75 = 150	3 + 3 = 6 Hrs	100 + 100 = 200
BP809ET	Cosmetic Science – Theory							
BP810ET	Experimental Pharmacology – Theory							
BP811ET	Advanced Instrumentation Techniques – Theory							
BP812PW	Project Work	-	-	-	-	150	4 Hrs	150
Total		40	60	4 Hrs	100	450	16 Hrs	550



11.2 Internal assessment: Continuous mode

The marks allocated for Continuous mode of Internal Assessment shall be awarded as per the scheme given below.

Table-XI: Scheme for awarding internal assessment: Continuous mode

Theory		
Criteria	Maximum Marks	
Attendance (Refer Table – XII)	4	2
Academic activities (Average of any 2 activities e.g. quiz, assignment, open book test, field work, group discussion and seminar)	4	03
Student – Teacher interaction	2	
Total	10	5
Practical		
Attendance (Refer Table – XII)	2	
Based on Practical Records, Regular viva voce, etc.	3	
Total	5	

Table- XII: Guidelines for the allotment of marks for attendance

Percentage of Attendance	Theory	Practical
95 – 100	4	2
90 – 94	3	1.5
85 – 89	2	1
80 – 84	1	0.5
Less than 80	0	0

11.2.1. Sessional Exams

Two Sessional exams shall be conducted for each theory / practical course as per the schedule fixed by the college(s). The scheme of question paper for theory and practical Sessional examinations is given below. The average marks of two Sessional exams shall be computed for internal assessment as per the requirements given in tables – X.

Sessional exam shall be conducted for 30 marks for theory and shall be computed for 15 marks. Similarly Sessional exam for practical shall be conducted for 40 marks and shall be computed for 10 marks. The duration for the conduct of the exam is as below

Exam Type	Marks allotted	Duration
Theory	30	1.5 Hr
Practical	40	04 Hr



Question paper pattern for theory Sessional

For subjects having University exams

I. Objective Type Questions (Answer 05 out of 7)	=5 x 2 = 10
II. Long Answers (Answer 1 out of 2)	=1 x 10 = 10
III. Short Answers (Answer 2 out of 3)	=2 x 5 = 10
Total	30 marks

For subjects having Non University Examination

I. Long Answers (Answer 1 out of 2)	=1 x 10 = 10
II. Short Answers (Answer 4 out of 6)	=4 x 5 = 20
Total	30 marks

Question paper pattern for practical sessional examinations

I. Synopsis	= 10
II. Experiments	= 25
III. Viva voce	= 05
Total	40 marks

12 . Promotion and award of grades

A student shall be declared PASS and eligible for getting grade in a course of B.Pharm.program if he/she secures at least 50% marks in that particular course including internal assessment. For example, to be declared as PASS and to get grade, the student has to secure a minimum of 50 marks for the total of 100 including continuous mode of assessment and end semester theory examination and has to secure a minimum of 25 marks for the total 50 including internal assessment and end semester practical examination.

13. Carry forward of marks

In case a student fails to secure the minimum 50% in any Theory or Practical course as specified in 12, then he/she shall reappear for the end semester examination of that course. However his/her marks of the Internal Assessment shall be carried over and he/she shall be entitled for grade obtained by him/her on passing.



14. Improvement of internal assessment

A student shall have the opportunity to improve his/her performance in the Sessional exam component of the internal assessment. The re-conduct of the Sessional exam shall be completed before the commencement of next end semester theory examinations.

15. Re-examination of end semester examinations

Reexamination of end semester examinations shall be conducted as per the schedule given in table XIII. The exact dates of examinations shall be notified from time to time.

Table-XIII: Tentative schedule of end semester examinations

Semester	For Regular Candidates	For Failed Candidates
I, III, V and VII	November / December	May / June
II, IV, VI and VIII	May / June	November / December

Question paper pattern for end semester theory examinations

For 75 marks paper

I. Objective Type Questions (Answer 5 out of 7)	= 5 x 3 = 15
II. Long Answers (Answer 2 out of 4)	= 2 x 10 = 20
III. Short Answers (Answer 8 out of 10)	= 8 x 5 = 40
Total	= 75 marks

For 50 marks paper

I. Long Answers (Answer 2 out of 3)	= 2 x 10 = 20
II. Short Answers (Answer 6 out of 8)	= 6 x 5 = 30
Total	= 50 marks

For 35 marks paper

I. Long Answers (Answer 1 out of 2)	= 1 x 10 = 10
II. Short Answers (Answer 5 out of 7)	= 5 x 5 = 25
Total	= 35 marks



Question paper pattern for end semester practical examinations

I. Synopsis	= 05
II. Experiments	= 25
III. Viva voce	= 05
Total	= 35marks

16. Academic Progression:

No student shall be admitted to any examination unless he/she fulfills the norms given in

6. Academic progression rules are applicable as follows:

A student shall be eligible to carry forward all the courses of I, II and III semesters till the IV semester examinations. However, he/she shall not be eligible to attend the courses of V semester until all the courses of I and II semesters are successfully completed.

A student shall be eligible to carry forward all the courses of III, IV and V semesters till the VI semester examinations. However, he/she shall not be eligible to attend the courses of VII semester until all the courses of I, II, III and IV semesters are successfully completed.

A student shall be eligible to carry forward all the courses of V, VI and VII semesters till the VIII semester examinations. However, he/she shall not be eligible to get the course completion certificate until all the courses of I, II, III, IV, V and VI semesters are successfully completed.

A student shall be eligible to get his/her CGPA upon successful completion of the courses of I to VIII semesters within the stipulated time period as per the norms specified in 26.

A lateral entry student shall be eligible to carry forward all the courses of III, IV and V semesters till the VI semester examinations. However, he/she shall not be eligible to attend the courses of VII semester until all the courses of III and IV semesters are successfully completed.

A lateral entry student shall be eligible to carry forward all the courses of V, VI and VII semesters till the VIII semester examinations. However, he/she shall not be eligible to get the course completion certificate until all the courses of III, IV, V and VI semesters are successfully completed.

A lateral entry student shall be eligible to get his/her CGPA upon successful completion of the courses of III to VIII semesters within the stipulated time period as per the norms



specified in 26.

Any student who has given more than 4 chances for successful completion of I / III semester courses and more than 3 chances for successful completion of II / IV semester courses shall be permitted to attend V / VII semester classes ONLY during the subsequent academic year as the case may be. In simpler terms there shall NOT be any ODD BATCH for any semester.

Note: Grade AB should be considered as failed and treated as one head for deciding academic progression. Such rules are also applicable for those students who fail to register for examination(s) of any course in any semester.

Rules for Carry Forward:

The curriculum (including regulations, structure and syllabi) is in force from academic year 2018-19 and onwards for First Year B. Pharm, for academic year 2019- 20 onwards for Second Year B. Pharm., for academic year 2020-21 and onwards for Third Year B. Pharm., and for academic year 2021-22 and onwards for Final Year B. Pharm.

The learners who were admitted to First Year B. Pharm. of 2015 pattern during the academic year 2017-18 or before & failed in the First Year B.Pharm. of 2015 pattern examination will have to take admission to Semester-III of Second Year B. Pharm. of

2018 pattern in academic year 2019-20 or onwards, provided that

a. Their result of F. Y. B. Pharm of 2015 pattern is either pass or fails with A. T. K. T.

The said students will have to take up additional remedial courses as follows.

b) The learners who were admitted to S.Y B. Pharm. of 2015 pattern during the academic year 2018-19 or before and fail in the S.Y B.Pharm. of 2015 pattern examination will have to take admission to Semester-V of Third Year B. Pharm. of 2018 pattern in academic year 2020-21 or onwards, provided that Their result of S. Y. B. Pharm of 2015 pattern is either pass or fails with A. T. K. T. The said students will have to take up additional remedial course as follows.

Sr. No	Remedial courses for admission to S.Y.B.Pharm in Academic Year 2019-20 (Cleared F.Y. B. Pharm as per 2015 Pattern)		
	(Non University Examination)	Semester	Passing Criteria
1.	Biochemistry – Theory/Practicals	Semester III	Minimum 50% marks with D grade
2.	Pathophysiology- Theory		Minimum 50% marks with D grade
3.	Computer Applications in	Semester IV	Minimum 50% marks with D



	Pharmacy – Theory/Practicals	grade
4.	Environmental sciences – Theory	Minimum 50% marks with D grade

Sr. No	Remedial courses for admission to T.Y. B.Pharm in Academic Year 2020-21 (Cleared S. Y.B. Pharm as per 2015 Pattern)		
	(Non University Examination with 50% passing.)	Semester	Passing Criteria
1.	Medicinal Chemistry I – Theory/ Practical	Semester V	Minimum 50% marks with D grade

17. Grading of performances

17.1. Letter grades and grade points allocations:

Based on the performances, each student shall be awarded a final letter grade at the end of the semester for each course. The letter grades and their corresponding grade points are given in Table – XII.

Table – XII: Letter grades and grade points equivalent to Percentage of marks and performances

Percentage of Marks Obtained	Letter Grade	Grade Point	Performance
90.00 – 100	O	10	Outstanding
80.00 – 89.99	A	9	Excellent
70.00 – 79.99	B	8	Good
60.00 – 69.99	C	7	Fair
50.00 – 59.99	D	6	Average
Less than 50	F	0	Fail
Absent	AB	0	Fail

A learner who remains absent for any end semester examination shall be assigned a letter grade of AB and a corresponding grade point of zero. He/she should reappear for the said evaluation/examination in due course.

18. The Semester grade point average (SGPA)

The performance of a student in a semester is indicated by a number called 'Semester



Grade Point Average' (SGPA). The SGPA is the weighted average of the grade points obtained in all the courses by the student during the semester. For example, if a student takes five courses(Theory/Practical) in a semester with credits C1, C2, C3, C4 and C5 and the student's grade points in these courses are G1, G2, G3, G4 and G5, respectively, and then students' SGPA is equal to:

$$\text{SGPA} = \frac{C_1G_1 + C_2G_2 + C_3G_3 + C_4G_4 + C_5G_5}{C_1 + C_2 + C_3 + C_4 + C_5}$$

The SGPA is calculated to two decimal points. It should be noted that, the SGPA for any semester shall take into consideration the F and ABS grade awarded in that semester. For example if a learner has a F or ABS grade in course 4, the SGPA shall then be computed as:

$$\text{SGPA} = \frac{C_1G_1 + C_2G_2 + C_3G_3 + C_4 * \text{ZERO} + C_5G_5}{C_1 + C_2 + C_3 + C_4 + C_5}$$

19. Cumulative Grade Point Average (CGPA)

The CGPA is calculated with the SGPA of all the VIII semesters to two decimal points and is indicated in final grade report card/final transcript showing the grades of all VIII semesters and their courses. The CGPA shall reflect the failed status in case of F grade(s), till the course(s) is/are passed. When the course(s) is/are passed by obtaining a pass grade on subsequent examination(s) the CGPA shall only reflect the new grade and not the fail grades earned earlier. The CGPA is calculated as:

$$\text{CGPA} = \frac{C_1S_1 + C_2S_2 + C_3S_3 + C_4S_4 + C_5S_5 + C_6S_6 + C_7S_7 + C_8S_8}{C_1 + C_2 + C_3 + C_4 + C_5 + C_6 + C_7 + C_8}$$

where C₁, C₂, C₃,... is the total number of credits for semester I, II, III,.... and S₁, S₂, S₃,... is the SGPA of semester I, II, III,....



20. Declaration of class

The class shall be awarded on the basis of CGPA as follows

First Class with Distinction	= CGPA of. 7.50 and above
First Class	= CGPA of. 6.00 to 7.49
Second Class	= CGPA of. 5.00 to 5.99

21. Project work

All the students shall undertake a project under the supervision of a teacher and submit a report. The area of the project shall directly relate any one of the elective subject opted by the student in semester VIII. The project shall be carried out in group not exceeding 5 in number. The project report shall be submitted in triplicate (typed & bound copy not less than 25 pages).

The internal and external examiner appointed by the University shall evaluate the project at the time of the Practical examinations of other semester(s). Students shall be evaluated in groups for four hours (i.e., about half an hour for a group of five students). The projects shall be evaluated as per the criteria given below

Evaluation of Dissertation Book:

Objective(s) of the work done	15 Marks
Methodology adopted	20 Marks
Results and Discussions	20 Marks
Conclusions and Outcomes	20 Marks
Total	75 Marks

Evaluation of Presentation:

Presentation of work	25 Marks
Communication skills	20 Marks
Question and answer skills	30 Marks
Total	75 Marks

Explanation: The 75 marks assigned to the dissertation book shall be same for all the students in a group. However, the 75 marks assigned for presentation shall be awarded based on the performance of individual students in the given criteria.



22. Industrial training (Desirable)

Every candidate shall be required to work for at least 150 hours spread over four weeks in a Pharmaceutical Industry/Hospital. It includes Production unit, Quality Control department, Quality Assurance department, Analytical laboratory, Chemical manufacturing unit, Pharmaceutical R&D, Hospital (Clinical Pharmacy), Clinical Research Organization, Community Pharmacy, etc. After the Semester – VI and before the commencement of Semester – VII, and shall submit satisfactory report of such work and certificate duly signed by the authority of training organization to the head of the institute.

AND/OR

Every candidate shall be required to undergo any one of the Skill development modules mentioned below (Duration – Min. 04 weeks)

- a) Hands on Training (Central instrumentation lab/Machine room etc)
- b) UGC/AICTE recognized online courses (SWAYAM/NPTEL etc)

After the successful completion of the module the candidate shall submit satisfactory report and certificate duly signed by the authority of training organization/Head of the institute

23. Practice School

In the VII semester, every candidate shall undergo practice school for a period of 150 hours evenly distributed throughout the semester. The student shall opt any one of the domains for practice school declared by the program committee from time to time.

At the end of the practice school, every student shall submit a printed report (in triplicate) on the practice school he/she attended (not more than 25 pages). Along with the exams of semester VII, the report submitted by the student, knowledge and skills acquired by the student through practice school shall be evaluated by the subject experts at college level and grade point shall be awarded.

24. Award of Ranks

Ranks and Medals shall be awarded on the basis of final CGPA. However, candidates who fail in one or more courses during the B.Pharm program shall not be eligible for award of ranks. Moreover, the candidates should have completed the B. Pharm program in minimum prescribed number of years, (four years) for the award of Ranks.

25. Award of degree

Candidates who fulfill the requirements mentioned above shall be eligible for award of degree during the ensuing convocation.



26. Duration for completion of the program of study

The duration for the completion of the program shall be fixed as double the actual duration of the program and the students have to pass within the said period, otherwise they have to get fresh Registration.

27. Re-admission after break of study

Candidate who seeks re-admission to the program after break of study has to get the approval from the university by paying a condonation fee.

No condonation is allowed for the candidate who has more than 2 years of break up period and he/she has to rejoin the program by paying the required fees.



Chapter-II: Syllabus



Semester-I



BP101T. HUMAN ANATOMY AND PHYSIOLOGY-I (Theory)**45 Hours**

Scope: This subject is designed to impart fundamental knowledge on the structure and functions of the various systems of the human body. It also helps in understanding both homeostatic mechanisms. The subject provides the basic knowledge required to understand the various disciplines of pharmacy.

Objectives: Upon completion of this course the student should be able to

1. Explain the gross morphology, structure and functions of various organs of the human body.
2. Describe the various homeostatic mechanisms and their imbalances.
3. Identify the various tissues and organs of different systems of human body.
4. Perform the various experiments related to special senses and nervous system.
5. Appreciate coordinated working pattern of different organs of each system

Course Content:**Unit-I****10 hours****a) Introduction to human body****3 hours**

Definition and scope of anatomy and physiology, levels of structural organization and body systems, basic life processes, homeostasis, basic anatomical terminology.

b) Cellular level of organization**3 hours**

Structure and functions of cell, transport across cell membrane, cell division, cell junctions. General principles of cell communication, intracellular signalling pathway activation by extracellular signal

molecule, Forms of intracellular signalling: a) Contact-dependent b) Paracrine c) Synaptic d) Endocrine

c) Tissue level of organization**4 hours**

Classification of tissues, structure, location and functions of epithelial,



muscular and nervous and connective tissues.

Unit -II **10 hours**

a) Integumentary system 4 hours

Structure and functions of skin

b) Skeletal system 4 hours

Divisions of skeletal system, types of bone, salient features and functions of bones of axial and appendicular skeletal system Organization of skeletal muscle, physiology of muscle contraction, neuromuscular junction.

c) Joints 2 hours

Structural and functional classification, types of joints movements and its articulation

Unit-III **10 hours**

a) Body fluids and blood 7 hours

Body fluids, composition and functions of blood, blood cells, hemopoiesis, formation of hemoglobin, anaemia, mechanisms of coagulation, blood grouping, Rh factors, transfusion, its significance and disorders of blood, Reticulo endothelial system.

b) Lymphatic system 3 hours

Lymphatic organs and tissues, lymphatic vessels, lymph circulation and functions of lymphatic system.

Unit-IV **08 hours**

a) Peripheral nervous system: 3 Hours

Classification of peripheral nervous system: Structure and functions of sympathetic and parasympathetic nervous system. Origin and functions of spinal and cranial nerves.

b) Special senses 5 Hours

Structure and functions of eye, ear, nose, tongue, and their disorders.

Unit-V **07 hours**

Cardiovascular system

Heart – anatomy of heart, blood circulation, blood vessels, structure and functions of artery, vein and capillaries, elements of conduction system of heart and heart beat, its regulation by autonomic nervous system, cardiac output, cardiac cycle. Regulation of blood pressure, pulse, electrocardiogram and disorders of heart.



Recommended Books:

1. Chatterjee, C.C., Human Physiology. Medical Allied Agency, Kolkata.
2. Ganong, W.F., Review of Medical Physiology. Prentice-Hall International, London.
3. Guyton, A.C., Textbook of Medical Physiology. W. B. Saunders Co., Philadelphia, USA.
4. Tortora, G.J. and Grabowski, S.R., 2005. Principles of Anatomy and Physiology. Harper Collins College Publishers, New York.
5. Vander, A.J., Sherman, J.H. and Luciano, D.S., Human Physiology. McGraw-Hill Publishing Co., USA.
6. Waugh, A. and Grant, A., Ross and Wilson's Anatomy and Physiology in Health and Illness. Churchill-Livingstone, London.
7. West, J.B., Best and Taylor's Physiological Basis of Medical Practice. Williams and Wilkins, Baltimore, USA.
8. Warwick, R. and Williams, P., Gray's Anatomy. Longman, London.
9. Chaudhari S K. Concise Medical Physiology. New Central Book Agency (P) Ltd., Calcutta.
10. Godkar P.B and Godkar D.P., Textbook of Medical Laboratory Technology. Bhalani Publishing House, Mumbai.
11. Joshi V.D. Practical Physiology. Vora Medical Publications, Mumbai.
12. DiFiore-Mariano S.H., Atlas of Human Histology. Lea and Febiger, Philadelphia.
13. Garg K., Bahel I. and Kaul M., A Textbook of Histology. CBS Publishers and Distributors, New Delhi.
14. Goyal, R.K., Patel, N.M. and Shah, S.A., Practical Anatomy, Physiology and Biochemistry. B. S. Shah Prakashan, Ahmedabad.
15. Ranade, V.G., Joshi, P.N. and Pradhan, S., Textbook of Practical Physiology. Pune Vidyarthi Griha Prakashan, Pune.
16. Singh, I., BD., Chaurasia's Human Anatomy. CBS Publisher and Distributors, New Delhi.
17. Singh, I., Textbook of Human Histology. Jaypee brothers Medical Publishers, New Delhi.
18. Mukherjee, K.L., Medical Laboratory Technology. Tata McGraw Hill Publishing Company Ltd. New Delhi.
19. Beck, W.S., Human Design: Molecular, Cellular and Systemic Physiology. Harcourt Brace Jovanovich Inc. New York.
20. Essentials of Medical Physiology by K. Sembulingam and P. Sembulingam. Jaypee Brothers medical publishers, New Delhi.
21. Anatomy and Physiology in Health and Illness by Kathleen J.W. Wilson, Churchill Livingstone, New York
22. Physiological basis of Medical Practice-Best and Tailor. Williams & Wilkins Co, Riverview, MI USA
23. Textbook of Human Histology by Inderbir Singh, Jaypee brother's medical publishers, New Delhi.
24. Textbook of Practical Physiology by C.L. Ghai, Jaypee brother's medical publishers, New Delhi.



BP107P. HUMAN ANATOMY AND PHYSIOLOGY (Practical)

4 Hours/week

Practical physiology is complimentary to the theoretical discussions in physiology. Practicals allow the verification of physiological processes discussed in theory classes through experiments on living tissue, intact animals or normal human beings. This is helpful for developing an insight on the subject.

1. Study of compound microscope.
2. Microscopic study of epithelial and connective tissue
3. Microscopic study of muscular and nervous tissue
4. Identification of axial bones
5. Identification of appendicular bones
6. Introduction to haemocytometer.
7. Enumeration of white blood cell (WBC) count
8. Enumeration of total red blood corpuscles (RBC) count
9. Determination of bleeding time
10. Determination of clotting time
11. Estimation of haemoglobin content
12. Determination of blood group.
13. Determination of erythrocyte sedimentation rate (ESR).
14. Determination of heart rate and pulse rate.
15. Recording of blood pressure.
16. Visit to Blood bank.

Recommended Books:

1. Godkar P.B and Godkar D.P., Textbook of Medical Laboratory Technology. Bhalani Publishing House, Mumbai.
2. Joshi V.D. Practical Physiology. Vora Medical Publications, Mumbai.
3. DiFiore-Mariano S.H., Atlas of Human Histology. Lea and Febiger, Philadelphia.



4. Mukherjee, K.L., Medical Laboratory Technology. Tata McGraw Hill Publishing Company Ltd. New Delhi.
5. Beck, W.S., Human Desigh: Molecular, Cellular and Systemic Physiology. Harcourt Brace Jovanovich Inc. New York.
6. Chatterjee, C.C., Human Physiology. Medical Allied Agency, Kolkata.
7. Ganong, W.F., Review of Medical Physiology. Prentice-Hall International, London.
8. Guyton, A.C., Textbook of Medical Physiology. W. B. Saunders Co., Philadelphia, USA.
9. Tortora, G.J. and Grabowski, S.R., 2005.
10. Principals of Anatomy and Physiology. Harper Collins College Publishers, New York.
11. Vander, A.J., Sherman, J.H. and Luciano, D.S., Human Physiology. McGraw-Hill Publishing Co., USA.
12. Garg K., Bahel I. and Kaul M., A Textbook of Histology. CBS Publishers and Distributors, New Delhi.
13. Practical workbook of Human Physiology by K. Srinageswari and Rajeev Sharma, Jaypee Brother's medical publishers, New Delhi.



BP102T. PHARMACEUTICAL ANALYSIS (Theory)

45 hours

Scope

This course deals with the fundamentals of analytical chemistry and principles of electrochemical analysis of drugs.

Objectives

Upon completion of the course a student shall be able to understand -

- The principles of volumetric and electrochemical analysis.
- Carry out various volumetric and electrochemical titrations.
- Develop analytical skills.

COURSE CONTENT

UNIT-I

a) **Pharmaceutical analysis** - Definition and scope

- i. Different techniques of analysis
- ii. Methods of expressing concentration
- iii. Primary and Secondary standards.

05 hours

b) **Errors** : Sources of errors, types of errors, methods of minimizing errors, accuracy, precision and significant figures

UNIT-II

a) **Acid base titration**: Theories of acid base indicators, classification of acid base titrations and theory involved in titrations of strong, weak, and very weak acids and bases, neutralization curves. Preparation and standardization of sodium hydroxide, hydrochloric acid, sulphuric acid, Estimation of ammonium chloride

10 hours

b) **Non aqueous titration**: Solvents, acidimetry and alkalimetry titrations, and estimation of sodium benzoate.

UNIT-III

a) **Precipitation titrations**: Mohr's method, Volhard's method, Modified Volhard's method, Fajans method, and estimation of Sodium Chloride I.P.

b) **Complexometric titration**: Classification, metal ion indicators, masking and demasking reagents, and estimation of Calcium gluconate I.P.

12 hours

c) **Gravimetry**: Principle and steps involved in gravimetric analysis. Purity of the precipitate: co-precipitation and post precipitation, and estimation of Barium sulphate I. P.

UNIT-IV

Redox titrations

- i. Concepts of oxidation and reduction
- ii. Preparation and standardization of Potassium Permanganate I. P., Ceric Ammonium Sulphate I. P./B. P. and Sodium Thiosulphate I. P./B. P.
- iii. Types of redox titrations (Principles and applications) : Permanganometry,

08 Hours



Cerimetry, Iodimetry, Iodometry, Bromatometry, Dichrometry, Titrations with Potassium Iodate I. P.

UNIT-V

- a) **Electrochemical methods of analysis**
- i. **Conductometry** - Introduction, Conductivity cell, Conductometric titrations, applications.
 - ii. **Potentiometry** - Electrochemical cell, construction and working of reference (Standard Hydrogen Electrode, Silver Chloride Electrode and Calomel Electrode) and Indicator Electrodes (Metal electrodes and Glass Electrode), methods to determine end point of potentiometric titration and applications.
 - iii. **Polarography** - Principle and Ilkovic Equation.
- b) **Refractometry** - Introduction, refractive index, specific and molar refraction, measurement of RI, Abbe's refractometer and applications.

10 hours



BP108P. PHARMACEUTICAL ANALYSIS (Practical)

4 Hours/week

I. Preparation and standardization of

- (1) Aq. Sodium Hydroxide I. P.
- (2) Aq. Sulphuric Acid I. P./ Aq. Hydrochloric Acid I. P.
- (3) Aq. Sodium Thiosulfate I. P.
- (4) Aq. Potassium Permanganate I. P.
- (5) Aq. Ceric Ammonium Sulphate I. P.

3 turns

II. Assay of the following compounds along with Standardization of Titrant

- (1) Ammonium chloride by acid-base titration
- (2) Sodium benzoate I. P. by non-aqueous titration
- (3) Sodium chloride I. P. by precipitation titration
- (4) Calcium gluconate I. P. by complexometry
- (5) Hydrogen peroxide I. P./B. P. by Permanganometry
- (6) Ferrous sulphate I. P. by cerimetry
- (7) Copper sulphate I. P. by iodometry

8 turns

III. Determination of Normality by electro-analytical methods

- (1) Conductometric titrations of strong acid against strong base
- (2) Conductometric titration of strong acid and weak acid against strong base
- (3) Potentiometric titration of strong acid against strong base (Using Sigmoidal and First order derivative plot)

3 turns

IV. Measurement of refractive index of some samples

(Glycerol, Water, Rectified Spirit, Castor Oil I. P.)

1 turn



Recommended Books

1. Indian Pharmacopoeia, Ministry of Health and Family Welfare, Controller of Publications Edition. New Delhi.
2. British Pharmacopoeia, British Pharmacopoeia Commission, London, 2015.
3. Beckett, A.H. and Stenlake J. B., Practical Pharmaceutical Chemistry, Vol I, Stahlome Press, University of London.
4. Vogel, P. I., A Textbook of Quantitative Chemical Analysis, James Polytect. London, Longman Group, UK Ltd.
5. Connors K. A., A Textbook of Pharmaceutical Analysis, Third Edition, John Wiley and Sons.
6. Christian G. D., Analytical Chemistry, 6/Ed, John Wiley & Sons.
7. Mahadik K. R., Wadodkar S.G., More H. N, Pharmaceutical Analysis, Vol. I and II, Nirali Prakashan.
8. Kar Ashutosh, Pharmaceutical Drug Analysis, Minerva Press, New Delhi.
9. Day R. A. & Underwood A. L. Quantitative Analysis. 5/Ed., Prentice Hall of India Pvt.Ltd. New Delhi.
10. Skoog, A. D. West, D. M. et al. Fundamentals of Analytical Chemistry. 8/ Ed. Thomson Brookscole.
11. Willard Merit. Dean Settle. Instrumental Methods of Analysis, 7/Ed, CBS Publisher & Distributor.
12. Sharma, B. K. Instrumental Methods of Chemical Analysis, Goel Publishing House.



Scope: This course is designed to impart a fundamental knowledge on the preparatory pharmacy with arts and science of preparing the different conventional dosage forms.

Objectives: Upon completion of this course the student should be able to:

- Know the history of profession of pharmacy
- Understand the basics of different dosage forms, pharmaceutical incompatibilities and pharmaceutical calculations
- Understand the professional way of handling the prescription
- Preparation of various conventional dosage forms

Course Content:

UNIT – I

10 Hours

- **Historical background and development of profession of pharmacy:** History of profession of Pharmacy in India in relation to pharmacy education, industry and organization, Pharmacy as a career.
- **Dosage forms:** Introduction to dosage forms, classification and definitions
- **Prescription:** Definition, Parts of prescription, handling of Prescription and Errors in prescription.
- **Posology:** Definition, Factors affecting posology. Pediatric dose calculations based on age, body weight and body surface area.

UNIT – II

10 Hours

- **Pharmaceutical calculations:** Weights and measures – Imperial & Metric system, Calculations involving percentage solutions, alligation, proof spirit and isotonic solutions based on freezing point and molecular weight.
- **Powders:** Definition, classification, advantages and disadvantages, Simple & compound powders – official preparations, dusting powders, effervescent, efflorescent and hygroscopic powders, eutectic mixtures. Geometric dilutions.
- **Liquid dosage forms:** Advantages and disadvantages of liquid dosage forms. Excipients used in formulation of liquid dosage forms. Solubility enhancement techniques



UNIT – III

10 Hours

- **Monophasic liquids:** Definitions and preparations of Gargles, Mouthwashes, Throat Paint, Eardrops, Nasal drops, Enemas, Syrups, Elixirs, Liniments and Lotions.
- **Biphasic liquids:**
Suspensions: Definition, advantages and disadvantages, classifications, Preparation of suspensions; Flocculated and Deflocculated suspension & stability problems and methods to overcome.
Emulsions: Definition, classification, emulsifying agent, test for the identification of type of Emulsion, Methods of preparation & stability problems and methods to overcome.

UNIT – IV

08 Hours

- **Suppositories:** Definition, types, advantages and disadvantages, types of bases, methods of preparations. Displacement value & its calculations, evaluation of suppositories.
- **Pharmaceutical incompatibilities:** Definition, classification, physical, chemical and therapeutic incompatibilities with examples

UNIT – V

07 Hours

- **Semisolid dosage forms:** Definitions, classification, mechanisms and factors influencing dermal penetration of drugs. Preparation of ointments, pastes, creams and gels. Excipients used in semi solid dosage forms. Evaluation of semi solid dosages forms



BP109P. PHARMACEUTICS I (Practical)

4 Hours / week

1. Syrups

- a) Syrup IP'66
- b) Compound syrup of Ferrous Phosphate BPC'68

2. Elixirs

- a) Piperazine citrate elixir
- b) Paracetamol pediatric elixir

3. Linctus

- a) Terpin Hydrate Linctus IP'66
- b) Iodine Throat Paint (Mandles Paint)

4. Solutions

- a) Strong solution of ammonium acetate
- b) Cresol with soap solution
- c) Lugol'S SOLUTION

5. Suspensions (Any two experiments)

- a) Calamine lotion
- b) Magnesium Hydroxide mixture
- c) Aluminium Hydroxide gel

6. Emulsions

- a) Turpentine Liniment
- b) Liquid paraffin emulsion

7. Powders and Granules (Any three experiments)

- a) ORS powder (WHO)
- b) Effervescent granules
- c) Dusting powder
- d) Divided powders

8. Suppositories (Any two experiments)

- a) Glycero gelatin suppository
- b) Cocoa butter suppository
- c) Zinc Oxide suppository

8. Semisolids (Any two experiments)

- a) Sulphur ointment
- b) Non staining-iodine ointment with methyl salicylate
- c) Carbopol gel



9. Gargles and Mouthwashes

- a) Iodine gargle
- b) Chlorhexidine mouthwash

Recommended Books:

1. H.C. Ansel et al., Pharmaceutical Dosage Form and Drug Delivery System, Lippincott Williams and Walkins, New Delhi.
2. Carter S.J., Cooper and Gunn's-Dispensing for Pharmaceutical Students, CBS publishers, New Delhi.
3. M.E. Aulton, Pharmaceutics, The Science & Dosage Form Design, Churchill Livingstone, Edinburgh.
4. Indian pharmacopoeia.
5. British pharmacopoeia.
6. Lachmann. Theory and Practice of Industrial Pharmacy, Lea & Febiger Publisher, The University of Michigan.

7. Alfonso R. Gennaro Remington. The Science and Practice of Pharmacy, Lippincott Williams, New Delhi.
8. Carter S.J., Cooper and Gunn's. Tutorial Pharmacy, CBS Publications, New Delhi.
9. E.A. Rawlins, Bentley's Text Book of Pharmaceutics, English Language Book Society, Elsevier Health Sciences, USA.
10. Isaac Ghebre Sellassie: Pharmaceutical Pelletization Technology, Marcel Dekker, INC, New York.
11. Dilip M. Parikh: Handbook of Pharmaceutical Granulation Technology, Marcel Dekker, INC, New York.
12. Francoise Nieloud and Gilberte Marti-Mestres: Pharmaceutical Emulsions and Suspensions, Marcel Dekker, INC, New York.



BP104T. PHARMACEUTICAL INORGANIC CHEMISTRY (Theory) 45 Hours

Scope

This subject deals with the concepts and monographs of inorganic drugs and pharmaceuticals.

Objectives

Upon completion of course student shall be able to

- Know the sources of impurities and methods to determine the impurities in drugs and pharmaceuticals
- Understand the medicinal and pharmaceutical importance of inorganic compounds

COURSE CONTENT

UNIT I

- a) **Impurities in pharmaceutical substances:** History of pharmacopoeia, sources and types of impurities, principle, reaction and procedure involved in the limit test for chloride, sulphate, iron, arsenic, lead and heavy metals, modified limit test for chloride and sulphate. **10 hours**
- b) **Water:** Different official waters and official control test for water.

General methods of preparation and assay for compounds superscripted with asterisk (*). Properties and Medicinal uses of Inorganic Compounds belonging to the following classes

UNIT II

- a) **Acids, Bases and Buffers:** Buffer equations and buffer capacity in general, buffers in pharmaceutical systems, preparation, stability, buffered isotonic solutions, measurements of tonicity, calculations and methods of adjusting isotonicity.
- b) **Major extra and intracellular electrolytes:** Functions of major physiological ions. Electrolytes used in the replacement therapy: Sodium chloride*, Potassium chloride, Calcium gluconate* and Oral Rehydration Salt (ORS), Physiological acid base balance. **10 hours**
- c) **Dental products:** Dentifrices, role of fluoride in the treatment of dental caries, Desensitizing agents, Calcium carbonate, Sodium fluoride, and Zinc eugenol cement.

UNIT III

- a) **Gastrointestinal agents**
- Acidifiers:** Ammonium chloride* and Dil. HCl
 - Antacid:** Ideal properties of antacids, combinations of antacids, Sodium bicarbonate*, Aluminum hydroxide gel, Magnesium hydroxide mixture
 - Cathartics:** Magnesium sulphate, Sodium orthophosphate, **10 hours**
- b) **Protectives and Adsorbents:** Kaolin and Bentonite
- c) **Antimicrobials:** Mechanism, classification, Potassium permanganate, Boric acid, Hydrogen peroxide*, Chlorinated lime*, Iodine and its preparations



UNIT IV

Miscellaneous Compounds

- a) **Expectorants:** Potassium iodide, Ammonium chloride
- b) **Emetics:** Copper sulphate* , Sodium potassium tartarate 08 hours
- c) **Haematinics:** Ferrous sulphate*, Ferrous gluconate
- d) **Poison and Antidote:** Sodium thiosulphate*, Activated charcoal, Sodium nitrite
- e) **Astringents:** Zinc Sulphate, Potash Alum

UNIT V

Radiopharmaceuticals: Radio activity, measurement of radioactivity, properties of α , β , γ radiations, half-life, radio isotopes and study of radio isotopes - Sodium iodide¹³¹, Indium¹¹¹, Calcium⁴⁷, Chromium⁵¹, Erbium¹⁶⁹, Gallium⁶⁸, Technetium^{99m}, Storage conditions, precautions & pharmaceutical applications of radioactive substances. 07 hours



BP110P. PHARMACEUTICAL INORGANIC CHEMISTRY (Practical)
4 Hours/Week

- I. Limit Test of the following:**
(1) Chloride (2) Sulphate (3) Iron (4) Arsenic (5) Lead (6) Heavy metals **6 turns**
- II. Identification test**
(1) Magnesium hydroxide (2) Ferrous sulphate (3) Sodium bicarbonate (4) Calcium gluconate (5) Copper sulphate **3 turns**
- III. Test for purity**
(1) Swelling power of Bentonite **3 turns**
(2) Neutralizing capacity of Aluminum hydroxide gel
(3) Determination of Potassium iodate and iodine in Potassium Iodide
- IV. Preparation of Inorganic Pharmaceuticals** **3 turns**
(1) Boric acid (2) Potash alum (3) Ferrous sulphate

Recommended Books

1. Beckett, A.H. and Stenlake, J. B. 1970, Practical Pharmaceutical Chemistry, Vol I & II, 4th edn, Stahlone Press of University of London.
2. Jeffery, G. H., Bassett, J., Mendham, J. and Cdenney, R., Vogel's Textbook of Quantitative Chemical Analysis, 5th edn, Thames Polytechnic, Longman Group, UK Ltd, London.
3. Gundu Rao, P. 2008, Pharmaceutical and Medicinal Inorganic Chemistry, Vallabh Prakashan.
4. Bentley, A.O., Driver, J.E. and Atherden, L.M. 1969, Bentley and Driver's Textbook of Pharmaceutical Chemistry, Oxford University Press, London.
5. Anand, S.K. and Chatwal, G.R. 2017, Inorganic Pharmaceutical Chemistry, Himalaya Publishing House Pvt Ltd.
6. Block, J.H., Roche, E.B., Soine, T.O and Wilson, C.O. 1974, Inorganic Medicinal and Pharmaceutical Chemistry, Philadelphia, PA.
7. Indian Pharmacopoeia, Ministry of Health and Family Welfare, Controller of Publications Edition, New Delhi.



Scope: This course will prepare the young pharmacy student to interact effectively with doctors, nurses, dentists, physiotherapists and other health workers. At the end of this course the student will get the soft skills set to work cohesively with the team as a team player and will add value to the pharmaceutical business.

Objectives:

Upon completion of the course the student shall be able to

1. Understand the behavioral needs for a Pharmacist to function effectively in the areas of pharmaceutical operation
2. Communicate effectively (Verbal and Non Verbal)
3. Effectively manage the team as a team player
4. Develop interview skills
5. Develop Leadership qualities and essentials

COURSE CONTENT

UNIT – I

• **Communication Skills:** Introduction, Definition, The Importance of Communication,

The Communication Process – Source, Message, Encoding, Channel, Decoding, Receiver, Feedback, Context

• **Barriers to communication:** Physiological Barriers, Physical Barriers, Cultural Barriers, Language Barriers, Gender Barriers, Interpersonal Barriers, Psychological Barriers, Emotional barriers

07 Hours

• **Perspectives in Communication:** Introduction, Visual Perception, Language, Other factors affecting our perspective - Past Experiences, Prejudices, Feelings, Environment

UNIT – II

• **Elements of Communication:** Introduction, Face to Face Communication - Tone of

Voice, Body Language (Non-verbal communication), Verbal Communication, Physical Communication

07 Hours

• **Communication Styles:** Introduction, The Communication Styles Matrix with example for each - Direct Communication Style, Spirited Communication Style, Systematic e) Communication Style, Considerate Communication Style

UNIT – III

• **Basic Listening Skills:** Introduction, Self-Awareness, Active Listening, Becoming an

Active Listener, Listening in Difficult Situations

07 Hours

• **Effective Written Communication:** Introduction, When and When Not to Use



Written

Communication - Complexity of the Topic, Amount of Discussion' Required, Shades of

Meaning, Formal Communication

• **Writing Effectively:** Subject Lines, Put the Main Point First, Know Your Audience,

d) Organization of the Message

UNIT – IV

• **Interview Skills:** Purpose of an interview, Do's and Dont's of an interview

• **Giving Presentations:** Dealing with Fears, Planning your Presentation, Structuring Your

05 Hours

iv. Presentation, Delivering Your Presentation, Techniques of Delivery

UNIT – V

• **Group Discussion:** Introduction, Communication skills in group discussion, Do's and

04 Hours

c) Dont's of group discussion.



BP111P.COMMUNICATION SKILLS (Practical)
2 Hours / week

The following learning modules are to be conducted using wordsworth English language lab software

Basic communication covering the following topics

Meeting People

Asking Questions

Making Friends

What did you do?

Do's and Dont's

Pronunciations covering the following topics

Pronunciation (Consonant Sounds)

Pronunciation and Nouns

Pronunciation (Vowel Sounds)

Advanced Learning

Listening Comprehension / Direct and Indirect Speech

Figures of Speech

Effective Communication

Writing Skills

Effective Writing

Interview Handling Skills

E-Mail etiquette

Presentation Skills



Recommended Books: (Latest Edition)

1. Basic communication skills for Technology, Andreja. J. Ruther Ford, 2nd Edition, Pearson Education, 2011
2. Communication skills, Sanjay Kumar, Pushpalata, 1st Edition, Oxford Press, 2011
3. Organizational Behaviour, Stephen .P. Robbins, 1st Edition, Pearson, 2013
4. Brilliant- Communication skills, Gill Hasson, 1st Edition, Pearson Life, 2011
5. The Ace of Soft Skills: Attitude, Communication and Etiquette for success, Gopala Swamy Ramesh, 5th Edition, Pearson, 2013
6. Developing your influencing skills, Deborah Dalley, Lois Burton, Margaret, Green hall, 1st Edition Universe of Learning LTD, 2010
7. Communication skills for professionals, Konar nira, 2nd Edition, New arrivals –PHI, 2011
8. Personality development and soft skills, Barun K Mitra, 1st Edition, Oxford Press, 2011
9. Soft skill for everyone, Butter Field, 1st Edition, Cengage Learning india pvt.ltd, 2011
10. Soft skills and professional communication, Francis Peters SJ, 1st Edition, Mc Graw Hill Education, 2011
11. Effective communication, John Adair, 4th Edition, Pan Mac Millan, 2009
12. Bringing out the best in people, Aubrey Daniels, 2nd Edition, Mc Graw Hill, 1999



BP 106RBT.REMEDIAL BIOLOGY (Theory)

30 hours

Scope: To learn and understand the components of living world, structure and functional system of plant and animal kingdom.

Objectives: Upon completion of the course, the student shall be able to

- know the classification and salient features of five kingdoms of life
- understand the basic components of anatomy & physiology of plant
- know understand the basic components of anatomy & physiology animal with special reference to human

COURSE CONTENT

UNIT I

Living world:

- Definition and characters of living organisms
- Diversity in the living world
- Binomial nomenclature
- Five kingdoms of life and basis of classification. Salient features of Monera, Potista, Fungi, Animalia and Plantae, Virus,

07 Hours

Morphology of Flowering plants

- Morphology of different parts of flowering plants – Root, stem, inflorescence, flower, leaf, fruit, seed.
- General Anatomy of Root, stem, leaf of monocotyledons & Dicotylidons.

UNIT II

Body fluids and circulation

- Composition of blood, blood groups, coagulation of blood
- Composition and functions of lymph
- Human circulatory system
- Structure of human heart and blood vessels
- Cardiac cycle, cardiac output and ECG

Digestion and Absorption

- Human alimentary canal and digestive glands
- Role of digestive enzymes
- Digestion, absorption and assimilation of digested food

07 Hours

Breathing and respiration

- Human respiratory system
- Mechanism of breathing and its regulation
- Exchange of gases, transport of gases and regulation of respiration
- Respiratory volumes

UNIT III

Excretory products and their elimination

- Modes of excretion

07 Hours



- Human excretory system- structure and function
- Urine formation
- Rennin angiotensin system

Neural control and coordination

- Definition and classification of nervous system
- Structure of a neuron
- Generation and conduction of nerve impulse
- Structure of brain and spinal cord
- Functions of cerebrum, cerebellum, hypothalamus and medulla oblongata

Chemical coordination and regulation

- Endocrine glands and their secretions
- Functions of hormones secreted by endocrine glands

Human reproduction

- Parts of female reproductive system
- Parts of male reproductive system
- Spermatogenesis and Oogenesis
- Menstrual cycle

UNIT IV

Plants and mineral nutrition:

- Essential mineral, macro and micronutrients
- Nitrogen metabolism, Nitrogen cycle, biological nitrogen fixation

05 Hours

Photosynthesis

- Autotrophic nutrition, photosynthesis, Photosynthetic pigments, Factors affecting photosynthesis

UNIT V

Plant respiration:Respiration, glycolysis, fermentation (anaerobic).

Plant growth and development

- Phases and rate of plant growth, Condition of growth,Introduction to plant growth regulators

04 Hours

Cell - The unit of life

- Structure and functions of cell and cell organelles.Cell division

Tissues

Definition, types of tissues, location and functions.

Text Books

1. Text book of Biology by S. B. Gokhale
2. A Text book of Biology by Dr. Thulajappa and Dr. Seetaram.

Reference Books

1. A Text book of Biology by B.V. Sreenivasa Naidu
2. A Text book of Biology by Naidu and Murthy
3. Botany for Degree students By A.C.Dutta.
4. Outlines of Zoology byM. Ekambaranatha ayyer and T. N. Ananthakrishnan.
5. A manual for pharmaceutical biology practical by S.B. Gokhale and C. K. Kokate



BP112RBP.REMEDIAL BIOLOGY (Practical)
2 Hours/week

1. Introduction to experiments in biology
 - a) Study of Microscope
 - b) Section cutting techniques
 - c) Mounting and staining
 - d) Permanent slide preparation
2. Study of cell and its inclusions
3. Study of Stem, Root, Leaf, seed, fruit, flower and their modifications
4. Detailed study of frog by using computer models
5. Microscopic study and identification of tissues pertinent to Stem, Root Leaf, seed, fruit and flower
6. Identification of bones
7. Determination of blood group
8. Determination of blood pressure
9. Determination of tidal volume

Reference Books

1. Practical human anatomy and physiology. by S.R.Kale and R.R.Kale.
2. A Manual of pharmaceutical biology practical by S.B.Gokhale, C.K.Kokate and S.P.Shriwastava.
3. Biology practical manual according to National core curriculum .Biology forum of Karnataka. Prof .M.J.H.Shafi



BP 106 RMT.REMEDIAL MATHEMATICS (Theory)**30 hours**

Scope: This is an introductory course in mathematics. This subject deals with the introduction to Partial fraction, Logarithm, matrices and Determinant, Analytical geometry, Calculus, differential equation and Laplace transform.

Objectives: Upon completion of the course the student shall be able to:-

1. Know the theory and their application in Pharmacy
2. Solve the different types of problems by applying theory
3. Appreciate the important application of mathematics in Pharmacy

COURSE CONTENT**UNIT – I****Partial fraction**

Introduction, Polynomial, Rational fractions, Proper and Improper fractions, Partial fraction, Resolving into Partial fraction, Application of Partial Fraction in Chemical Kinetics and Pharmacokinetics.

Logarithms

Introduction, Definition, Theorems/Properties of logarithms, Common logarithms. Characteristic and Mantissa, worked examples, application of logarithm to solve pharmaceutical problems.

06 Hours**Function:**

Real Valued function, Classification of real valued functions

Limits and continuity :

Introduction, Limit of a function, Definition of limit of a function ($\epsilon - \delta$ definition),

$$\lim_{x \rightarrow a} \frac{x^n - a^n}{x - a} = na^{n-1}, \quad \lim_{\theta \rightarrow 0} \frac{\sin \theta}{\theta} = 1,$$

UNIT –II**Matrices and Determinant:**

Introduction matrices, Types of matrices, Operation on matrices, Transpose of a matrix, Matrix Multiplication, Determinants, Properties of determinants, Product of determinants, Minors and co-Factors, Adjoint or adjugate of a square matrix, Singular and non-singular matrices, Inverse of a matrix, Solution of system of linear of equations using matrix method, Cramer's rule, Characteristic equation and roots of a square matrix, Cayley-Hamilton theorem, Application of Matrices in solving Pharmacokinetic equations Respiratory volumes

06 Hours**UNIT – III****Calculus**

Differentiation : Introductions, Derivative of a function, Derivative of a constant, Derivative of a product of a constant and a function, Derivative of the sum or difference of two functions, Derivative of the product of two functions (product formula), Derivative of the quotient of two functions

06 Hours

(Quotient formula) – **Without Proof**, Derivative of x^n w.r.t. x , where n is any rational number, Derivative of e^x , Derivative of $\log_e x$, Derivative of a^x , Derivative of trigonometric functions from first principles (**without Proof**), Successive Differentiation, Conditions for a function to be a maximum or a minimum at a point. Application

UNIT – IV

Analytical Geometry

Introduction: Signs of the Coordinates, Distance formula, **Straight Line** : Slope or gradient of a straight line, Conditions for parallelism and perpendicularity of two lines, Slope of a line joining two points, Slope – intercept form of a straight line

06 Hours

Integration:

Introduction, Definition, Standard formulae, Rules of integration, Method of substitution, Method of Partial fractions, Integration by parts, definite integrals, application

UNIT-V

Differential Equations : Some basic definitions, Order and degree, Equations in separable form, Homogeneous equations, Linear Differential equations, Exact equations, **Application in solving Pharmacokinetic equations**

06 Hours

Laplace Transform : Introduction, Definition, Properties of Laplace transform, Laplace Transforms of elementary functions, Inverse Laplace transforms, Laplace transform of derivatives, Application to solve Linear differential equations, **Application in solving Chemical kinetics and Pharmacokinetics equations**

Recommended Books (Latest Edition)

1. Differential Calculus by Shanthinarayan
2. Pharmaceutical Mathematics with application to Pharmacy by Panchaksharappa Gowda D.H.
3. Integral Calculus by Shanthinarayan
4. Higher Engineering Mathematics by Dr.B.S.Grewal



Semester- II



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PRINCIPAL

Dr. N. J. Paulbudhe College of Pharmacy
Shaneshwarnagar, Ahmednagar-414003

BP 201T. HUMAN ANATOMY AND PHYSIOLOGY-II (Theory) 45 Hours

Scope: This subject is designed to impart fundamental knowledge on the structure and functions of the various systems of the human body. It also helps in understanding both homeostatic mechanisms. The subject provides the basic knowledge required to understand the various disciplines of pharmacy.

Objectives: Upon completion of this course the student should be able to:

1. Explain the gross morphology, structure and functions of various organs of the human body.
2. Describe the various homeostatic mechanisms and their imbalances.
3. Identify the various tissues and organs of different systems of human body.
4. Perform the hematological tests like blood cell counts, haemoglobin estimation, bleeding/clotting time etc. and also record blood pressure, heart rate, pulse and respiratory volume.
5. Appreciate coordinated working pattern of different organs of each system
6. Appreciate the interlinked mechanisms in the maintenance of normal functioning (homeostasis) of human body.

Course Content:

Unit-I	Nervous system	10 hours
	Organization of nervous system, neuron, neuroglia, classification and properties of nerve fiber, electrophysiology, action potential, nerve impulse, receptors, synapse, neurotransmitters. <i>Central nervous system:</i> Meninges, ventricles of brain and cerebrospinal fluid. structure and functions of brain (cerebrum, brain stem, cerebellum), spinal cord (gross structure, functions of afferent and efferent nerve tracts, reflex activity)	
Unit -II	Digestive system	08hours
	Anatomy of GI Tract with special reference to anatomy and functions of stomach, (Acid production in the stomach, regulation of acid production through parasympathetic nervous system, pepsin role in protein digestion) small intestine and large intestine, anatomy and functions of salivary glands, pancreas and liver, movements of GIT, digestion and absorption of nutrients and disorders of GIT. Energetics: Formation and role of ATP, Creatinine Phosphate and BMR.	
Unit-III		10 hours
	Respiratory system	6 hours
	Anatomy of respiratory system with special reference to anatomy of lungs, mechanism of respiration, regulation of respiration Lung Volumes	



and capacities transport of respiratory gases, artificial respiration, and resuscitation methods.

Urinary system

4 hours

Anatomy of urinary tract with special reference to anatomy of kidney and nephrons, functions of kidney and urinary tract, physiology of urine formation, micturition reflex and role of kidneys in acid base balance, role of RAS in kidney and disorders of kidney.

Unit-IV

08 hours

Endocrine system

Classification of hormones, mechanism of hormone action, structure and functions of pituitary gland, thyroid gland, parathyroid gland, adrenal gland, pancreas, pineal gland, thymus and their disorders.

Unit-V

09 hours

Reproductive system

07 Hours

Anatomy of male and female reproductive system, Functions of male and female reproductive system, sex hormones, physiology of menstruation, fertilization, spermatogenesis, oogenesis, pregnancy and parturition

Introduction to genetics

02 hours

Chromosomes, genes and DNA, protein synthesis, genetic pattern of inheritance

Recommended Books

1. Essentials of Medical Physiology by K. Sembulingam and P. Sembulingam. Jaypee brothers medical publishers, New Delhi.
2. Anatomy and Physiology in Health and Illness by Kathleen J.W. Wilson, Churchill Livingstone, New York
3. Physiological basis of Medical Practice-Best and Tailor. Williams & Wilkins Co, Riverview,MI USA
4. Text book of Medical Physiology- Arthur C, Guyton and John.E. Hall. Miamisburg, OH, U.S.A.
5. Principles of Anatomy and Physiology by Tortora Grabowski. Palmetto, GA, U.S.A.
6. Textbook of Human Histology by Inderbir Singh, Jaypee brothers medical publishers, New Delhi.
7. Textbook of Practical Physiology by C.L. Ghai, Jaypee brothers medical publishers, New Delhi.
8. Practical workbook of Human Physiology by K. Srinageswari and Rajeev Sharma, Jaypee brother's medical publishers, New Delhi.



9. Physiological basis of Medical Practice-Best and Tailor. Williams & Wilkins Co, Riverview, MI USA
10. Text book of Medical Physiology- Arthur C, Guyton and John. E. Hall. Miamisburg, OH, U.S.A.
11. Human Physiology (vol 1 and 2) by Dr. C.C. Chatterje ,Academic Publishers Kolkata

BP 207 P. HUMAN ANATOMY AND PHYSIOLOGY (Practical)

4 Hours/week

Practical physiology is complimentary to the theoretical discussions in physiology. Practicals allow the verification of physiological processes discussed in theory classes through experiments on living tissue, intact animals or normal human beings. This is helpful for developing an insight on the subject.

1. To study the integumentary and special senses using specimen, models, etc.,
2. To determine the Platelet count.
3. To perform the differential leukocyte count (DLC).
4. To determine the Armeth index.
5. Determination of osmotic fragility of RBCs.
6. To study the nervous system using specimen, models, etc.,
7. To study the endocrine system using specimen, models, etc
8. To demonstrate the general neurological examination
9. To demonstrate the function of olfactory nerve
10. To examine the different types of taste.
11. To demonstrate the visual acuity
12. To demonstrate the reflex activity
13. Recording of body temperature
14. To demonstrate positive and negative feedback mechanism.
15. Determination of tidal volume and vital capacity.
16. Study of Digestive, respiratory, cardiovascular systems, urinary and reproductive systems with the help of models, charts and specimens.
17. Recording of basal mass index.
18. Study of familyplanning devices and pregnancy diagnosis test.



19. Demonstration of total blood count by cell analyzer.

20. Permanent slides of vital organs and gonads.

21. Visit to Hospital/ Pathology Laboratory.

Recommended Books:

1. Godkar P.B and Godkar D.P., Textbook of Medical Laboratory Technology. Bhalani Publishing House, Mumbai.
2. Joshi V.D. Practical Physiology. Vora Medical Publications, Mumbai.
3. DiFiore-Mariano S.H., Atlas of Human Histology. Lea and Febiger, Philadelphia.
4. Mukherjee, K.L., Medical Laboratory Technology. Tata McGraw Hill Publishing Company Ltd. New Delhi.
5. Beck, W.S., Human Desigh: Molecular, Cellular and Systemic Physiology. Harcourt Brace Jovanovich Inc. New York.
6. Chatterjee, C.C., Human Physiology. Medical Allied Agency, Kolkata.
7. Ganong, W.F., Review of Medical Physiology. Prentice-Hall International, London.
8. Guyton, A.C., Textbook of Medical Physiology. W. B. Saunders Co., Philadelphia, USA.
9. Tortora, G.J. and Grabowski, S.R., 2005.
10. Principals of Anatomy and Physiology. Harper Collins College Publishers, New York.
11. Vander, A.J., Sherman, J.H. and Luciano, D.S., Human Physiology. McGraw-Hill Publishing Co., USA.
12. Garg K., Bahel I. and Kaul M., A Textbook of Histology. CBS Publishers and Distributors, New Delhi.
13. Practical workbook of Human Physiology by K. Srinageswari and Rajeev Sharma, Jaypee Brother's medical publishers, New Delhi.



Scope

This subject deals with classification and nomenclature of simple organic compounds, isomerism, intermediates formed in reactions, important physical properties, reactions and methods of preparation of these compounds. The syllabus also emphasizes on mechanisms and orientation of reactions.

Objectives

Upon completion of the course the student shall be able to

- Write the structure, name and the type of isomerism of the organic compound
- Write the reaction, name the reaction and orientation of reactions
- Account for reactivity/stability of compounds
- Identify/confirm the identification of organic compounds

COURSE CONTENT**Note:**

1. **General methods of preparation (any 05) and reactions of class of compounds superscripted with asterisk (*) to be explained.**
2. **To emphasize on definition, types, classification, principles/mechanisms, applications, examples and differences.**

UNIT I**Basic Principles of Organic Chemistry**

Hybridization of atomic orbitals of carbon, nitrogen and oxygen to form molecular orbitals. Types of bonds, bond fission. intermolecular forces, inductive effect, steric effect, electromeric, mesomeric effect and resonance, hyperconjugation, concept of tautomerism.

04 hours

UNIT II**Classification, Nomenclature and Isomerism****a) Classification of organic compounds**

- i. Compounds containing carbon and hydrogen atoms only : hydrocarbons (alkanes, alkenes alkynes, aromatic hydrocarbons, polynuclear aromatic hydrocarbons, aryl-alkyl hydrocarbons, alicyclic hydrocarbons)
 - ii. Compounds containing carbon, hydrogen and oxygen atoms only (alcohols, phenols, ethers and epoxides, carbonyl compounds, carboxylic acids, esters, anhydrides)
 - iii. Compounds containing carbon, hydrogen and nitrogen atoms only
 - iv. (amines and imine, nitriles, hydrazines, nitro compounds)
 - v. Compounds containing carbon, hydrogen, and halogens with oxygen (alkyl halides, aryl halides, acyl halides)
 - vi. Compounds containing carbon, hydrogen, oxygen and nitrogen atoms only (amides, imides, aldoxime and ketoxime)
 - vii. Compounds containing carbon, hydrogen and sulphur with/without nitrogen, oxygen and halogen. Sulphonic acids, sulphonylhalides.
- (At least five mono-functional examples of each class including aromatic

08 hours



and aliphatic compounds should be covered with their common names.)

- b) **Common and IUPAC systems of nomenclature of organic compounds**
IUPAC nomenclature of all classes of compounds: nomenclature of mono-substituted and poly-substituted compounds should be covered.
- c) Structural isomerism in organic compounds

UNIT-II

Alkanes*, Alkenes* and Conjugated dienes*

- i. Halogenation of alkanes, uses of paraffins.
- ii. Stabilities of alkenes, E1 and E2 reactions – kinetics, order of reactivity of alkyl halides, rearrangement of carbocations, Saytzeff's orientation, Hofmann orientation and evidences. Factors affecting E1 and E2 reactions. **10 hours**
- iii. Chemical Reactions: Ozonolysis, electrophilic addition reactions of alkenes, Markownikoff's orientation, free radical addition reactions of alkenes, Anti Markownikoff's orientation
- iv. Stability of conjugated dienes, Diel's-Alder, 1,2 and 1,4- electrophilic addition, free radical addition reactions of conjugated dienes, allylic rearrangement names.

UNIT-III

a) Alkyl halides*

- i. S_N1 and S_N2 reactions - kinetics, order of reactivity of alkyl halides, stereochemistry and rearrangement of carbocations. S_N1 versus S_N2 reactions, factors affecting S_N1 and S_N2 reactions. **08 hours**
- ii. b. Structure and uses of ethylchloride, chloroform, trichloroethylene, dichloromethane, tetrachloromethane and iodoform.

- b) **Alcohols*** - Qualitative tests, structure and uses of ethyl alcohol, chlorobutanol, cetosteryl alcohol, benzyl alcohol, glycerol, and propylene glycol.

UNIT-IV

Carbonyl compounds* (Aldehydes and ketones)

- i. Nucleophilic addition, Electromeric effect, Aldol condensation, Crossed Aldol condensation, Cannizzaro reaction, Crossed Cannizzaro reaction, Benzoin condensation, and Perkin condensation. **08 Hours**
- ii. Qualitative tests, structure and uses of formaldehyde, paraldehyde, acetone, chloral hydrate, benzaldehyde, vanillin, and cinnamaldehyde.

UNIT V

a) Carboxylic acids*

- i. Acidity of carboxylic acids, effect of substituent/s on acidity, qualitative tests for carboxylic acids, amide and ester. Reactions of interconversion of carboxylic acids, amides and esters. **07 Hours**
- ii. Structure and uses of acetic acid, lactic acid, tartaric acid/s, citric acid, succinic acid, oxalic acid, salicylic acid, benzoic acid, benzyl benzoate, dimethyl phthalate, methyl salicylate and acetyl salicylic acid.

- b) **Aliphatic amines*** - Basicity, effect of substituent on basicity, qualitative test, structure and uses of ethanolamine, ethylenediamine



BP208P. PHARMACEUTICAL ORGANIC CHEMISTRY – I (Practical)

4 Hours/Week

- | | |
|---|----------------|
| I. Safety measures in an organic laboratory. | 1 turn |
| II. Introduction to laboratory techniques: Calibration of thermometer, melting point, boiling point, distillation, and crystallization. | 3 turns |
| III. Systematic qualitative analysis of unknown organic compounds (min 05) | 8 turns |
| 1. Preliminary test: color, odour, aliphatic/aromatic compounds, saturation and unsaturation, etc. | |
| 2. Detection of elements like nitrogen, sulphur and halogen by Lassaigne's test. | |
| 3. Solubility test | |
| 4. Functional group test like phenols, amides, carbohydrates, amines, carboxylic acids, aldehydes and ketones, alcohols, esters, aromatic and halogenated hydrocarbons, nitro compounds and anilides. | |
| 5. Melting point/Boiling point of organic compounds. | |
| 6. Identification of the unknown compound from the literature using melting point/ boiling point. | |
| IV. Preparation of suitable solid derivatives from organic compounds | 2 turns |
| V. Building of molecular models of structures containing various functional groups | 1 turns |

Recommended Books

1. Morrison, R. T. & Boyd, R. D., Textbook of Organic Chemistry, VI (ed.) ELBS, London, 1996
2. Pine, S. H, Organic Chemistry, V, Tata McGraw Hill, New Delhi, 2007
3. Finar, I. L., Organic Chemistry Vol. I, V (ed.), ELBS, Pearson Education, New Delhi, 2003
4. Finar, I. L., Organic Chemistry Vol. II, V (ed.), ELBS, Pearson Education, New Delhi, 2003
5. Eliel, E. L., "Stereochemistry of Carbon Compounds", Wiley-Interscience, 1994.



Scope

Biochemistry deals with complete understanding of the molecular levels of the chemical process associated with living cells. The scope of the subject is to provide biochemical facts and the principles to understand metabolism of nutrient molecules in physiological and pathological conditions. It also emphasizes on genetic organization of mammalian genome, hetero and autocatalytic functions of DNA.

Objectives

Upon completion of course the students shall able to

- Understand the catalytic role of enzymes and importance of enzyme in biochemical process.
- Understand the metabolism of nutrient molecules in physiological and pathological conditions.
- Understand the genetic organization of mammalian genome and functions of DNA in the synthesis of RNAs and proteins.

COURSE CONTENT**UNIT –I****a) Biomolecules**

Introduction, classification, chemical nature and biological role of carbohydrates, lipids, nucleic acids, amino acids and proteins.

b) Carbohydrate metabolism

- i. Glycolysis – Pathway, energetics and significance.
- ii. Citric acid cycle- Pathway, energetics and significance. **10 hours**
- iii. HMP shunt and its significance; Glucose-6-Phosphate ehydrogenase (G6PD) deficiency.
- iv. Glycogen metabolism Pathways and glycogen storage diseases (GSD).
- v. Gluconeogenesis- Pathway and its significance.
- vi. Hormonal regulation of blood glucose level and Diabetes mellitus.

UNIT-II**a) Biological oxidation**

- i. Electron transport chain (ETC) and its mechanism.
- ii. Oxidative phosphorylation & its mechanism and substrate level. Phosphorylation Inhibitor
- iii. ETC and oxidative phosphorylation / uncouplers. **08 hours**

b) Bioenergetics

- i. Concept of free energy, endergonic and exergonic reaction, relationship between free energy, enthalpy and entropy.
- ii. Energy rich compounds; classification; biological significances of ATP and cyclic AMP.

UNIT-III**a) Lipid metabolism****10 hours**

- i. β -Oxidation of saturated fatty acid (Palmitic acid).
 - ii. Formation and utilization of ketone bodies; ketoacidosis.
 - iii. *De novo* synthesis of fatty acids (Palmitic acid).
- Biological significance of cholesterol and conversion of cholesterol into bile acids, steroid hormone and vitamin D.
Disorders of lipid metabolism: hypercholesterolemia, atherosclerosis, fatty liver and obesity.

b) Amino acid metabolism

- i. General reactions of amino acid metabolism: Transamination, deamination & decarboxylation, urea cycle and its disorders.
- ii. Catabolism of phenylalanine and tyrosine and their metabolic disorders (Phenylketonuria, alkaptonuria, tyrosinemia)
- iii. Synthesis and significance of biological substances; 5-HT, melatonin, dopamine, noradrenaline, adrenaline
- iv. Catabolism of heme; hyperbilirubinemia

UNIT-IV

Nucleic acid metabolism and genetic information transfer

- i. Biosynthesis of purine and pyrimidine nucleotides.
- ii. Catabolism of purine nucleotides and hyperuricemia and gout disease.
- iii. Organization of mammalian genome.
- iv. Structure of DNA and RNA and their functions.
- v. DNA replication (semi conservative model)
- vi. Transcription or RNA synthesis.
- vii. Genetic code, Translation or Protein synthesis and inhibitors.

10 hours

UNIT-V

Enzymes

- i. Introduction, properties, nomenclature and IUB classification of enzymes.
- ii. Enzyme kinetics (Michaelis plot, Line Weaver Burke plot).
- iii. Enzyme inhibitors with examples.
- iv. Regulation of enzymes: enzyme induction and repression, allosteric enzyme-regulation.
- v. Therapeutic and diagnostic applications of enzymes and isoenzymes.
- vi. Coenzymes–Structure and biochemical functions; Co-factors.

07 hours



BP 209 P. BIOCHEMISTRY (Practical)

4 Hours / week

- | | |
|--|---------|
| 1. Qualitative analysis of carbohydrates (Glucose, Fructose, Lactose, Maltose, Sucrose and Starch) | 3 turns |
| 2. Identification tests for amino acids (any one aromatic and one aliphatic) | 1 turn |
| 3. Identification tests for proteins (albumin and casein) | 1 turn |
| 4. Qualitative analysis of urine for abnormal constituents (at least four abnormal constituents) | 2 turns |
| 5. Determination of blood creatinine | 1 turn |
| 6. Determination of blood sugar by Folin-Wu method/Glucose-oxidase method | 1 turn |
| 7. Determination of serum total cholesterol. | 1 turn |
| 8. Preparation of buffer solution and measurement of pH (any two). | 1 turn |
| 9. Quantitative analysis of reducing sugars (DNSA method) and Proteins (Biuret method). | 1 turn |
| 10. Determination of salivary amylase activity. | 1 turn |
| 11. Study the effect of temperature on salivary amylase activity. | 1 turn |
| 12. Study the effect of substrate concentration on salivary amylase activity. | 1 turn |

Recommended Books

1. David Nelson and Cox M. M., Lehninger's Principles of Biochemistry, 4/Ed., Palgrave Macmillan.
2. Robert K. Murry, Daryl K., Granner and Victor W. Rodwell, Harper's Biochemistry, 27/Ed, McGraw Hill.
3. Lubert Stryer, W.H., Freeman & Company, Biochemistry, New York
4. U. Satyanarayana & U. Chakrapani, Biochemistry, 3/Ed., Books & Allied (P) Ltd.
5. Rao, A. V. S. S. Rama Rao, Textbook of Biochemistry, first edition, UBS Publishers' Distributors Pvt. Ltd.
6. Deb, A. C. Viva & Practical Biochemistry, 3/Ed., New Central Book Agency (P) Ltd.
7. Conn Eric. E. and Stumpf, Paul K. et al., Outlines of Biochemistry, Wiley student edition.
8. Gupta R. C. and Bhargavan, S. Practical Biochemistry, 5/Ed, CBS publishers and distributors.
9. David T. Plummer, Introduction of Practical Biochemistry. 3/Ed, Tata McGraw-Hill Education Pvt. Ltd.
10. Rajagopal and Ramakrishna, Practical Biochemistry for Medical students, Orient BlackSwan (1983)
11. Harold Varley, Varley's Practical Clinical Biochemistry, 6/Ed., CBS Publishers, New Delhi.
12. David T. Plummer, Introduction to Practical Biochemistry, III (ed.), McGraw-Hill Publishing Co., New York, 1987.
13. Alan H. Gowenlock, Varley's Practical Clinical Biochemistry, VI (ed.), Butterworth-Heinemann Ltd., UK & CBS Publication, New Delhi, 2002.



BP 204T. PATHOPHYSIOLOGY (THEORY)**45Hours**

Scope: Pathophysiology is the study of causes of diseases and reactions of the body to such disease producing causes. This course is designed to impart a thorough knowledge of the relevant aspects of pathology of various conditions with reference to its pharmacological applications, and understanding of basic pathophysiological mechanisms. Hence it will not only help to study the syllabus of pathology, but also to get baseline knowledge required to practice medicine safely, confidently, rationally and effectively. Pharmacotherapy of drugs is particularly not to be considered as a part of this subject from examination point of view as the subject deals with pathophysiological aspects of the diseases.

Objectives: Upon completion of the subject, student shall be able to –

1. Describe the etiology and pathogenesis of the selected disease states;
2. Name the signs and symptoms of the diseases

Unit-I	Basic principles of Cell injury and Adaptation Introduction & definitions Causes of cellular injury, Pathogenesis (Cell membrane damage, Mitochondrial damage, Ribosome damage, Nuclear damage), Morphology of cell injury – Adaptive changes (Atrophy, Hypertrophy, Hyperplasia, Metaplasia, Dysplasia), Cell swelling, Intracellular accumulation, Calcification, Enzyme leakage and cell death, acidosis and alkalosis, Electrolyte imbalance Basic mechanism involved in the process of inflammation and repair Introduction, Clinical signs of inflammation, Different types of Inflammation, Mechanism of Inflammation – Alteration in vascular permeability and blood flow, migration of WBC's, Mediators of inflammation, Basic principles of wound healing in the skin	10 Hrs
Unit -II.	Cardiovascular System: Hypertension, Congestive heart failure, Ischemic heart diseases (angina, myocardial infarction, atherosclerosis and arteriosclerosis) Respiratory system: Asthma, Chronic obstructive airways diseases Renal system: Acute and chronic renal failure	10 Hrs
Unit-III	Haematological Diseases: Iron deficiency anaemia, Megaloblastic anaemia (Vit B12 and folic acid), Sickle cell anemia, Thalassemia, Hereditary acquired anemia, Hemophilia Endocrine system: Diabetes, Thyroid diseases (Hypothyroidism, hyperthyroidism, Goitre) Disorders of sex hormones (Amenorrhoea, polycystic ovarian syndrome, hypogonadism) Nervous system:	12 Hrs



	Epilepsy, Parkinson's disease, Stroke, Psychiatric disorders: Depression, Schizophrenia and Alzheimer's disease	
	Gastrointestinal system: Peptic Ulcer, Inflammatory Bowel Diseases, Jaundice, Hepatitis (A,B,C,D,E,F), Alcoholic liver disease	
Unit-IV	Diseases of bones and joints Rheumatoid Arthritis, Osteoporosis, Gout	06 Hrs
	Cancer: Classification, etiology and pathogenesis of cancer	
Unit-V	Infectious diseases Tuberculosis, Leprosy, Malaria, Dengue, Meningitis, Typhoid, Urinary tract infections	07 Hrs
	Sexually transmitted diseases AIDS, Syphilis, Gonorrhoea	

REFERENCES:

1. Vinay Kumar, Abul K. Abas, Jon C. Aster; Robbins & Cotran Pathologic Basis of Disease; South Asia edition; India; Elsevier; 2014.
2. Harsh Mohan; Text book of Pathology; 6th edition; India; Jaypee Publications; 2010.
3. Laurence B, Bruce C, Bjorn K. ; Goodman Gilman's The Pharmacological Basis of Therapeutics; 12th edition; New York; McGraw-Hill; 2011.
4. Best, Charles Herbert 1899-1978; Taylor, Norman Burke 1885-1972; West, John B (John Burnard); Best and Taylor's Physiological basis of medical practice; 12th ed; united states.
5. William and Wilkins, Baltimore; 1991 [1990 printing].
6. Nicki R. Colledge, Brian R. Walker, Stuart H. Ralston; Davidson's Principles and Practice of Medicine; 21st edition; London; ELBS/Churchill Livingstone; 2010.
7. Guyton A, John .E Hall; Textbook of Medical Physiology; 12th edition; WB Saunders Company; 2010.
8. Joseph DiPiro, Robert L. Talbert, Gary Yee, Barbara Wells, L. Michael Poscy; Pharmacotherapy: A Pathophysiological Approach; 9th edition; London; McGraw-Hill Medical; 2014.
9. V. Kumar, R. S. Cotran and S. L. Robbins; Basic Pathology; 6th edition; Philadelphia; WB Saunders Company; 1997.
10. Roger Walker, Clive Edwards; Clinical Pharmacy and Therapeutics; 3rd edition; London; Churchill Livingstone Publication; 2003.



Recommended Journals

1. The Journal of Pathology. ISSN: 1096-9896(Online)
2. The American Journal of Pathology. ISSN:0002-9440
3. Pathology. 1465-3931 (Online)
4. International Journal of Physiology, Pathophysiology and Pharmacology.
ISSN: 1944-8171 (Online)
5. Indian Journal of Pathology and Microbiology.ISSN-0377-4929.



BP205 T. COMPUTER APPLICATIONS IN PHARMACY (Theory)

30 Hrs

Scope: This subject deals with the introduction Database, Database Management system, computer application in clinical studies and use of databases.

Objectives: Upon completion of the course the student shall be able to

1. know the various types of application of computers in pharmacy
2. know the various types of databases
3. know the various applications of databases in pharmacy

COURSE CONTENT

UNIT – I

Number system: Binary number system, Decimal number system, Octal number system, Hexadecimal number systems, conversion decimal to binary, binary to decimal, octal to binary etc, binary addition, binary subtraction – One's complement, Two's complement method, binary multiplication, binary division **06 hours**

Concept of Information Systems and Software : Information gathering, requirement and feasibility analysis, data flow diagrams, process specifications, input/output design, process life cycle, planning and managing the project

UNIT –II

Web technologies: Introduction to HTML, XML, CSS and Programming languages, introduction to web servers and Server Products Introduction to databases, MYSQL, MS ACCESS, Pharmacy Drug database **06 hours**

UNIT – III

Application of computers in Pharmacy – Drug information storage and retrieval, Pharmacokinetics, Mathematical model in Drug design, Hospital and Clinical Pharmacy, Electronic Prescribing and discharge (EP) systems, barcode medicine identification and automated dispensing of drugs, mobile technology and adherence monitoring Diagnostic System, Lab-diagnostic System, Patient Monitoring System, Pharma Information System **06 hours**

UNIT – IV

Bioinformatics: Introduction, Objective of Bioinformatics, Bioinformatics Databases, Concept of Bioinformatics, Impact of Bioinformatics in Vaccine Discovery. **06 hours**

UNIT-V

Computers as data analysis in Preclinical development: Chromatographic data analysis(CDS), Laboratory Information management System (LIMS) and Text Information Management System(TIMs) **06 hours**



BP210P. COMPUTER APPLICATIONS IN PHARMACY (Practical)

1. Design a questionnaire using a word processing package to gather information about a particular disease.
2. Create a HTML web page to show personal information.
- 3 Retrieve the information of a drug and its adverse effects using online tools
- 4 Creating mailing labels Using Label Wizard , generating label in MS WORD
- 5 Create a database in MS Access to store the patient information with the required fields Using access
6. Design a form in MS Access to view, add, delete and modify the patient record in the database
7. Generating report and printing the report from patient database
8. Creating invoice table using – MS Access
9. Drug information storage and retrieval using MS Access
10. Creating and working with queries in MS Access
11. Exporting Tables, Queries, Forms and Reports to web pages
12. Exporting Tables, Queries, Forms and Reports to XML pages

Recommended books :

1. Computer Application in Pharmacy – William E.Fassett –Lea and Febiger, 600 South Washington Square, USA, (215) 922-1330.
2. Computer Application in Pharmaceutical Research and Development –Sean Ekins – Wiley-Interscience, A John Willey and Sons, INC., Publication, USA
3. Bioinformatics (Concept, Skills and Applications) – S.C.Rastogi-CBS Publishers and Distributors, 4596/1- A, 11 Darya Gani, New Delhi – 110 002(INDIA)
4. Microsoft office Access - 2003, Application Development Using VBA, SQL Server, DAP and Infopath – Cary N.Prague – Wiley Dreamtech India (P) Ltd., 4435/7, Ansari Road, Daryagani, New Delhi – 110002

BP 206 T. ENVIRONMENTAL SCIENCES (Theory)

30 hours

Scope: Environmental Sciences is the scientific study of the environmental system and the status of its inherent or induced changes on organisms. It includes not only the study of physical and biological characters of the environment but also the social and cultural factors and the impact of man on environment.

Objectives: Upon completion of the course the student shall be able to:

1. Create the awareness about environmental problems among learners.
2. Impart basic knowledge about the environment and its allied problems.
3. Develop an attitude of concern for the environment.
4. Motivate learner to participate in environment protection and environment improvement.
5. Acquire skills to help the concerned individuals in identifying and solving environmental problems.
6. Strive to attain harmony with Nature.

COURSE CONTENT

Unit-I

The Multidisciplinary nature of environmental studies Natural Resources Renewable and non-renewable resources:

Natural resources and associated problems

10hours

a) Forest resources; b) Water resources; c) Mineral resources; d) Food resources; e) Energy resources; f) Land resources: Role of an individual in conservation of natural resources

Unit-II

Ecosystems

- Concept of an ecosystem.
- Structure and function of an ecosystem.
- Introduction, types, characteristic features, structure and function of the ecosystems: Forest ecosystem; Grassland ecosystem; Desert ecosystem; Aquatic ecosystems (ponds, streams, lakes, rivers, oceans, estuaries)

10hours

Unit- III

Environmental Pollution: Air pollution; Water pollution; Soil pollution

10 hours

Recommended Books:

1. Y.K. Sing, Environmental Science, New Age International Pvt, Publishers, Bangalore
2. Agarwal, K.C. 2001 Environmental Biology, Nidi Publ. Ltd. Bikaner.
3. Bharucha Erach, The Biodiversity of India, Mapin Publishing Pvt. Ltd., Ahmedabad – 380 013, India,
4. Brunner R.C., 1989, Hazardous Waste Incineration, McGraw Hill Inc. 480p
5. Clark R.S., Marine Pollution, Clarendon Press Oxford
6. Cunningham, W.P. Cooper, T.H. Gorhani, E & Hepworth, M.T. 2001, Environmental Encyclopedia, Jaico Publ. House, Mumbai, 1196p
7. De A.K., Environmental Chemistry, Wiley Eastern Ltd.
8. Down of Earth, Centre for Science and Environment





SAVITRIBAI PHULE PUNE UNIVERSITY

FACULTY OF SCIENCE AND TECHNOLOGY



Syllabus of Second Year B. Pharmacy

2019 PATTERN

(EFFECTIVE FROM ACADEMIC YEAR 2020-2021)



N.J.
PRINCIPAL
Dr. N. J. Paulbudhe College of Pharmacy
Shaneshwarnagar, Ahmednagar-414003

CHAPTER- 1: REGULATIONS

1. Short Title and Commencement These regulations shall be called as “The Revised Regulations for the B. Pharm. Degree Program (CBCS) of the Pharmacy Council of India, New Delhi”. They shall come into effect from the Academic Year 2016-17. The regulations framed are subject to modifications from time to time by Pharmacy Council of India.

2. Minimum qualification for admission

2.1 First year B. Pharm: Candidate shall have passed 10+2 examination conducted by the respective state/central government authorities recognized as equivalent to 10+2 examination by the Association of Indian Universities (AIU) with English as one of the subjects and Physics, Chemistry, Mathematics (P.C.M) and or Biology (P.C.B / P.C.M.B.) as optional subjects individually. Any other qualification approved by the Pharmacy Council of India as equivalent to any of the above examinations.

2.2. B. Pharm lateral entry (to third semester): A pass in D. Pharm. course from an institution approved by the Pharmacy Council of India under section 12 of the Pharmacy Act.

3. Duration of the program The course of study for B.Pharm shall extend over a period of eight semesters (four academic years) and six semesters (three academic years) for lateral entry students. The curricula and syllabi for the program shall be prescribed from time to time by Pharmacy Council of India, New Delhi.

4. Medium of instruction and examinations Medium of instruction and examination shall be in English.

5. Working days in each semester each semester shall consist of not less than 90 working days. The odd semesters shall be conducted from the month of June/July to November/December and the even semesters shall be conducted from December/January to May/June in every calendar year.

6. Attendance and progress A candidate is required to put in at least 80% attendance in individual courses considering theory and practical separately. The candidate shall complete the prescribed course satisfactorily to be eligible to appear for the respective examinations.



7. Program/Course credit structure As per the philosophy of Credit Based Semester System, certain quantum of academic work viz. theory classes, tutorial hours, practical classes, etc. are measured in terms of credits. On satisfactory completion of the courses, a candidate earns credits. The amount of credit associated with a course is dependent upon the number of hours of instruction per week in that course. Similarly, the credit associated with any of the other academic, co/extra-curricular activities is dependent upon the quantum of work expected to be put in for each of these activities per week.

7.1. Credit assignment

7.1.1. Theory and Laboratory courses Courses are broadly classified as Theory and Practical. Theory courses consist of lecture (L) and /or tutorial (T) hours, and Practical (P) courses consist of hours spent in the laboratory. Credits (C) for a course is dependent on the number of hours of instruction per week in that course, and is obtained by using a multiplier of one (1) for lecture and tutorial hours, and a multiplier of half (1/2) for practical (laboratory) hours. Thus, for example, a theory course having three lectures and one tutorial per week throughout the semester carries a credit of 4. Similarly, a practical having four laboratory hours per week throughout semester carries a credit of 2.

7.2. Minimum credit requirements The minimum credit points required for award of a B. Pharm. degree is 208. These credits are divided into Theory courses, Tutorials, Practical, Practice School and Project over the duration of eight semesters. The credits are distributed semester-wise as shown in Table IX. Courses generally progress in sequences, building competencies and their positioning indicates certain academic maturity on the part of the learners. Learners are expected to follow the semester-wise schedule of courses given in the syllabus. The lateral entry students shall get 52 credit points transferred from their D. Pharm program. Such students shall take up additional remedial courses of „Communication Skills“ (Theory and Practical) and „Computer Applications in Pharmacy“ (Theory and Practical) equivalent to 3 and 4 credit points respectively, a total of 7 credit points to attain 59 credit points, the maximum of I and II semesters.

8. Academic work A regular record of attendance both in Theory and Practical shall be maintained by the teaching staff of respective courses.



9. **Course of study** The course of study for B. Pharm shall include Semester Wise Theory & Practical as given in Table – I to VIII. The number of hours to be devoted to each theory, tutorial and practical course in any semester shall not be less than that shown in Table – I to VIII.

Table-I: Course of study for semester I

Course code	Name of the course	No. of Hours per week/Total no of hours	Tutorial	Credit points
BP101T	Human Anatomy and Physiology I- Theory	3/45	1	4
BP102T	Pharmaceutical Analysis I – Theory	3/45	1	4
BP103T	Pharmaceutics I – Theory	3/45	1	4
BP104T	Pharmaceutical Inorganic Chemistry – Theory	3/45	1	4
BP105T	Communication skills – Theory *	2/30	-	2
BP106RBT BP106RMT	Remedial Biology/ Remedial Mathematics – Theory*	2/30	-	D
BP107P	Human Anatomy and Physiology – Practical	4/60	-	2
BP108P	Pharmaceutical Analysis I – Practical	4/60	-	2
BP109P	Pharmaceutics I – Practical	4/60	-	2
BP110P	Pharmaceutical Inorganic Chemistry – Practical	4/60	-	2
BP111P	Communication skills – Practical*	2/30	-	1
BP112RBP	Remedial Biology – Practical*	2/30	-	D
Total		32/34^S/36[#]/480 /510^S/540[#]	4	27

Applicable ONLY for the students who have studied Mathematics / Physics / Chemistry at HSC and appearing for Remedial Biology (RB) course. However for Remedial biology and Mathematics no credits to be allotted only 50 % passing i.e D grade will be prerequisite.

S Applicable ONLY for the students who have studied Physics / Chemistry / Botany / Zoology at HSC and appearing for Remedial Mathematics (RM) course.

* Non University Examination (NUE)



Table-II: Course of study for semester II

Course Code	Name of the course	No. of Hours per week/Total no of hours	Tutorial	Credit points
BP201T	Human Anatomy and Physiology II – Theory	3/45	1	4
BP202T	Pharmaceutical Organic Chemistry I – Theory	3/45	1	4
BP203T	Biochemistry – Theory	3/45	1	4
BP204T	Pathophysiology – Theory	3/45	1	4
BP205T	Computer Applications in Pharmacy – Theory *	3/45	-	3
BP206T	Environmental sciences – Theory *	3/45	-	3
BP207P	Human Anatomy and Physiology II –Practical	4/60	-	2
BP208P	Pharmaceutical Organic Chemistry I– Practical	4/60	-	2
BP209P	Biochemistry – Practical	4/60	-	2
BP210P	Computer Applications in Pharmacy – Practical*	4/60	-	1
Total		32/480	4	29

*Non University Examination (NUE)

Table-III: Course of study for semester III

Course code	Name of the course	No. of Hours per week/Total no of hours	Tutorial	Credit points
BP301T	Pharmaceutical Organic Chemistry II – Theory	3/45	1	4
BP302T	Physical Pharmaceutics I – Theory	3/45	1	4
BP303T	Pharmaceutical Microbiology – Theory	3/45	1	4
BP304T	Pharmaceutical Engineering – Theory	3/45	1	4
BP305P	Pharmaceutical Organic Chemistry II – Practical	4/60	-	2
BP306P	Physical Pharmaceutics I – Practical	4/60	-	2
BP307P	Pharmaceutical Microbiology – Practical	4/60	-	2
BP 308P	Pharmaceutical Engineering –Practical	4/60	-	2
Total		28/420	4	24



Table-IV: Course of study for semester IV

Course code	Name of the course	No. of Hours per week/Total no of hours	Tutorial	Credit Points
BP401T	Pharmaceutical Organic Chemistry III– Theory	3/45	1	4
BP402T	Medicinal Chemistry I – Theory	3/45	1	4
BP403T	Physical Pharmaceutics II – Theory	3/45	1	4
BP404T	Pharmacology I – Theory	3/45	1	4
BP405T	Pharmacognosy and Phytochemistry I– Theory	3/45	1	4
BP406P	Medicinal Chemistry I – Practical	4/60	-	2
BP407P	Physical Pharmaceutics II – Practical	4/60	-	2
BP408P	Pharmacology I – Practical	4/60	-	2
BP409P	Pharmacognosy and Phytochemistry I – Practical	4/60	-	2
Total		31/465	5	28

Table-V: Course of study for semester V

Course code	Name of the course	No. of Hours per week/Total no of hours	Tutorial	Credit points
BP501T	Medicinal Chemistry II – Theory	3/45	1	4
BP502T	Industrial Pharmacy-I– Theory	3/45	1	4
BP503T	Pharmacology II – Theory	3/45	1	4
BP504T	Pharmacognosy and Phytochemistry II– Theory	3/45	1	4
BP505T	Pharmaceutical Jurisprudence – Theory	3/45	1	4
BP506P	Industrial Pharmacy-I - Practical	4/60	-	2
BP507P	Pharmacology II – Practical	4/60	-	2
BP508P	Pharmacognosy and Phytochemistry II – Practical	4/60	-	2
Total		27/405	5	26



Table-VI: Course of study for semester VI

Course code	Name of the course	No. of Hours per week/Total no of hours	Tutorial	Credit points
BP601T	Medicinal Chemistry III – Theory	3/45	1	4
BP602T	Pharmacology III – Theory	3/45	1	4
BP603T	Herbal Drug Technology – Theory	3/45	1	4
BP604T	Biopharmaceutics and Pharmacokinetics – Theory	3/45	1	4
BP605T	Pharmaceutical Biotechnology – Theory	3/45	1	4
BP606T	Quality Assurance – Theory	3/45	1	4
BP607P	Medicinal chemistry III – Practical	4/60	-	2
BP608P	Pharmacology III – Practical	4/60	-	2
BP609P	Herbal Drug Technology – Practical	4/60	-	2
Total		30/450	6	30

Table-VII: Course of study for semester VII

Course code	Name of the course	No. of Hours per week/Total no of hours	Tutorial	Credit points
BP701T	Instrumental Methods of Analysis – Theory	3/45	1	4
BP702T	Industrial Pharmacy-II – Theory	3/45	1	4
BP703T	Pharmacy Practice – Theory	3/45	1	4
BP704T	Novel Drug Delivery System – Theory	3/45	1	4
BP705P	Instrumental Methods of Analysis – Practical	4/60	-	2
BP706PS	Practice School*	12/180	-	6
Total		28/420	5	24

* Non University Examination (NUE)



Table-VIII: Course of study for semester VIII

Course code	Name of the course	No. of Hours per week/Total no of hours	Tutorial	Credit points
BP801T	Biostatistics and Research Methodology	3/45	1	4
BP802T	Social and Preventive Pharmacy	3/45	1	4
BP803ET	Pharma Marketing Management	3 + 3 = 6/90	1 + 1 = 2	4 + 4 = 8
BP804ET	Pharmaceutical Regulatory Science			
BP805ET	Pharmacovigilance			
BP806ET	Quality Control and Standardizations of Herbals			
BP807ET	Computer Aided Drug Design			
BP808ET	Cell and Molecular Biology			
BP809ET	Cosmetic Science			
BP810ET	Pharmacological Screening Methods			
BP811ET	Advanced Instrumentation Techniques			
BP812PW	Project Work	12/180	-	6
Total		24/360	4	22

Table-IX: Semester wise credits distribution

Semester	Credit Points
I	27
II	29
III	26
IV	28
V	26
VI	26
VII	24
VIII	22
Extracurricular/ Co curricular activities	01*
Total credit points for the program	209



* The credit points assigned for extracurricular and or co-curricular activities shall be given by the Principals of the colleges and the same shall be submitted to the University. The criteria to acquire this credit point shall be defined by the colleges from time to time.

§ Applicable ONLY for the students studied Physics / Chemistry / Botany / Zoology at HSC and appearing for Remedial Mathematics course.

Applicable ONLY for the students studied Mathematics / Physics / Chemistry at HSC and appearing for Remedial Biology course.

1. Program Committee

- The B. Pharm. program shall have a Program Committee constituted by the Head of the institution in consultation with all the Heads of the departments.
- The composition of the Program Committee shall be as follows:
- A senior teacher shall be the Chairperson; One Teacher from each department handling B.Pharm courses; and four student representatives of the program (one from each academic year), nominated by the Head of the institution.

Duties of the Program Committee:

- I. Periodically reviewing the progress of the classes.
- II. Discussing the problems concerning curriculum, syllabus and the conduct of classes.
- III. Discussing with the course teachers on the nature and scope of assessment for the course and the same shall be announced to the students at the beginning of respective semesters.
- IV. Communicating its recommendation to the Head of the institution on academic matters.
- V. The Program Committee shall meet at least thrice in a semester preferably at the end of each Sessionalexam (Internal Assessment) and before the end semester exam.

2. Examinations/Assessments

The scheme for internal assessment and end semester examinations is given in Table – X.

2.1. End semester examinations



The End Semester Examinations for each theory and practical course through semesters I to VIII shall be conducted by the university except for the subjects with asterix symbol (*) in table I and II for which examinations shall be conducted by the subject experts at college level and the marks/grades shall be submitted to the university.



Tables-X: Schemes for internal assessments and end semester examinations semester wise

Semester I

Course Code	Name of the course	Internal Assessment				End Semester Exams		Total Marks
		Continuo us Mode	Sessional Exams		Total	Marks	Duration	
			Marks	Duratio n				
BP101T	Human Anatomy and Physiology I – Theory	10	15	1 Hr	25	75	3 Hrs	100
BP102T	Pharmaceutical Analysis I – Theory	10	15	1 Hr	25	75	3 Hrs	100
BP103T	Pharmaceutics I – Theory	10	15	1 Hr	25	75	3 Hrs	100
BP104T	Pharmaceutical Inorganic Chemistry – Theory	10	15	1 Hr	25	75	3 Hrs	100
BP105T	Communication skills – Theory*	5	10	1 Hr	15	35	1.5 Hrs	50
BP106RBT BP106RMT	Remedial Biology/ Mathematics – Theory*	5	10	1 Hr	15	35	1.5 Hrs	50
BP107P	Human Anatomy and Physiology – Practical	5	10	4 Hrs	15	35	4 Hrs	50
BP108P	Pharmaceutical Analysis I – Practical	5	10	4 Hrs	15	35	4 Hrs	50
BP109P	Pharmaceutics I – Practical	5	10	4 Hrs	15	35	4 Hrs	50
BP110P	Pharmaceutical Inorganic Chemistry – Practical	5	10	4 Hrs	15	35	4 Hrs	50
BP111P	Communication skills – Practical*	5	5	2 Hrs	10	15	2 Hrs	25
BP112RBP	Remedial Biology – Practical*	5	5	2 Hrs	10	15	2 Hrs	25
Total		70/75 ^S / 80 [#]	115/125 ^S / /130 [#]	23/24 ^S / 6 [#] Hrs	185/20 0 ^S /210 [#]	490/52 5 ^S / 540 [#]	31.5/3 ^S / 35 [#] Hrs	675/ 725 ^S / 750 [#]



Applicable ONLY for the students studied Mathematics / Physics / Chemistry at HSC and appearing for Remedial Biology (RB) course.

§ Applicable ONLY for the students studied Physics / Chemistry / Botany / Zoology at HSC and appearing for Remedial Mathematics (RM) course.

* Non University Examination (NUE)



Semester II

Course code	Name of the course	Internal Assessment				End Semester Exams		Total Marks
		Continuous Mode	Sessional Exams		Total	Marks	Duration	
			Marks	Duration				
BP201T	Human Anatomy and Physiology II – Theory	10	15	1 Hr	25	75	3 Hrs	100
BP202T	Pharmaceutical Organic Chemistry I – Theory	10	15	1 Hr	25	75	3 Hrs	100
BP203T	Biochemistry – Theory	10	15	1 Hr	25	75	3 Hrs	100
BP204T	Pathophysiology – Theory	10	15	1 Hr	25	75	3 Hrs	100
BP205T	Computer Applications in Pharmacy – Theory*	10	15	1 Hr	25	50	2 Hrs	75
BP206T	Environmental sciences – Theory*	10	15	1 Hr	25	50	2 Hrs	75
BP207P	Human Anatomy and Physiology II – Practical	5	10	4 Hrs	15	35	4 Hrs	50
BP208P	Pharmaceutical Organic Chemistry I – Practical	5	10	4 Hrs	15	35	4 Hrs	50
BP209P	Biochemistry – Practical	5	10	4 Hrs	15	35	4 Hrs	50
BP210P	Computer Applications in Pharmacy – Practical*	5	5	2 Hrs	10	15	2 Hrs	25
Total		80	125	20 Hrs	205	520	30 Hrs	725

* The subject experts at college level shall conduct examinations



Semester III

Course code	Name of the course	Internal Assessment				End Semester Exams		Total Marks
		Continuous Mode	Sessional Exams		Total	Marks	Duration	
			Marks	Duration				
BP301T	Pharmaceutical Organic Chemistry II – Theory	10	15	1 Hr	25	75	3 Hrs	100
BP302T	Physical Pharmaceutics I – Theory	10	15	1 Hr	25	75	3 Hrs	100
BP303T	Pharmaceutical Microbiology – Theory	10	15	1 Hr	25	75	3 Hrs	100
BP304T	Pharmaceutical Engineering – Theory	10	15	1 Hr	25	75	3 Hrs	100
BP305P	Pharmaceutical Organic Chemistry II – Practical	5	10	4 Hr	15	35	4 Hrs	50
BP306P	Physical Pharmaceutics I – Practical	5	10	4 Hr	15	35	4 Hrs	50
BP307P	Pharmaceutical Microbiology – Practical	5	10	4 Hr	15	35	4 Hrs	50
BP308P	Pharmaceutical Engineering – Practical	5	10	4 Hr	15	35	4 Hrs	50
Total		60	100	20	160	440	28Hrs	600



Semester IV

Course code	Name of the course	Internal Assessment				End Semester Exams		Total Marks
		Continuous Mode	Sessional Exams		Total	Marks	Duration	
			Marks	Duration				
BP401T	Pharmaceutical Organic Chemistry III- Theory	10	15	1 Hr	25	75	3 Hrs	100
BP402T	Medicinal Chemistry I – Theory	10	15	1 Hr	25	75	3 Hrs	100
BP403T	Physical Pharmaceutics II – Theory	10	15	1 Hr	25	75	3 Hrs	100
BP404T	Pharmacology I – Theory	10	15	1 Hr	25	75	3 Hrs	100
BP405T	Pharmacognosy I – Theory	10	15	1 Hr	25	75	3 Hrs	100
BP406P	Medicinal Chemistry I – Practical	5	10	4 Hr	15	35	4 Hrs	50
BP407P	Physical Pharmaceutics II – Practical	5	10	4 Hrs	15	35	4 Hrs	50
BP408P	Pharmacology I – Practical	5	10	4 Hrs	15	35	4 Hrs	50
BP409P	Pharmacognosy I – Practical	5	10	4 Hrs	15	35	4 Hrs	50
Total		70	115	21 Hrs	185	515	31 Hrs	700



Semester V

Course code	Name of the course	Internal Assessment				End Semester Exams		Total Marks
		Continuous Mode	Sessional Exams		Total	Marks	Duration	
			Marks	Duration				
BP501T	Medicinal Chemistry II – Theory	10	15	1 Hr	25	75	3 Hrs	100
BP502T	Industrial Pharmacy-I- Theory	10	15	1 Hr	25	75	3 Hrs	100
BP503T	Pharmacology II – Theory	10	15	1 Hr	25	75	3 Hrs	100
BP504T	Pharmacognosy II – Theory	10	15	1 Hr	25	75	3 Hrs	100
BP505T	Pharmaceutical Jurisprudence – Theory	10	15	1 Hr	25	75	3 Hrs	100
BP506P	Industrial Pharmacy-I – Practical	5	10	4 Hr	15	35	4 Hrs	50
BP507P	Pharmacology II – Practical	5	10	4 Hr	15	35	4 Hrs	50
BP508P	Pharmacognosy II – Practical	5	10	4 Hr	15	35	4 Hrs	50
Total		65	105	17 Hr	170	480	27 Hrs	650



Semester VI

Course code	Name of the course	Internal Assessment				End Semester Exams		Total Marks
		Continuous Mode	Sessional Exams		Total	Marks	Duration	
			Marks	Duration				
BP601T	Medicinal Chemistry III – Theory	10	15	1 Hr	25	75	3 Hrs	100
BP602T	Pharmacology III – Theory	10	15	1 Hr	25	75	3 Hrs	100
BP603T	Herbal Drug Technology – Theory	10	15	1 Hr	25	75	3 Hrs	100
BP604T	Biopharmaceutics and Pharmacokinetics – Theory	10	15	1 Hr	25	75	3 Hrs	100
BP605T	Pharmaceutical Biotechnology – Theory	10	15	1 Hr	25	75	3 Hrs	100
BP606T	Quality Assurance – Theory	10	15	1 Hr	25	75	3 Hrs	100
BP607P	Medicinal chemistry III – Practical	5	10	4 Hrs	15	35	4 Hrs	50
BP608P	Pharmacology III – Practical	5	10	4 Hrs	15	35	4 Hrs	50
BP609P	Herbal Drug Technology – Practical	5	10	4 Hrs	15	35	4 Hrs	50
Total		75	120	18 Hrs	195	555	30 Hrs	750



Semester VII

Course code	Name of the course	Internal Assessment				End Semester Exams		Total Marks
		Continuous Mode	Sessional Exams		Total	Marks	Duration	
			Marks	Duration				
BP701T	Instrumental Methods of Analysis – Theory	10	15	1 Hr	25	75	3 Hrs	100
BP702T	Industrial Pharmacy -II– Theory	10	15	1 Hr	25	75	3 Hrs	100
BP703T	Pharmacy Practice – Theory	10	15	1 Hr	25	75	3 Hrs	100
BP704T	Novel Drug Delivery System – Theory	10	15	1 Hr	25	75	3 Hrs	100
BP705 P	Instrumental Methods of Analysis – Practical	5	10	4 Hrs	15	35	4 Hrs	50
BP706 PS	Practice School*	25	-	-	25	125	5 Hrs	150
Total		70	70	8Hrs	140	460	21 Hrs	600

* The subject experts at college level shall conduct examinations



Semester VIII

Course code	Name of the course	Internal Assessment			End Semester Exams		Total Marks	
		Continuo us Mode	Sessional Exams Marks	Duration	Total	Marks		Duration
BP801T	Biostatistics and Research Methodology – Theory	10	15	1 Hr	25	75	3 Hrs	100
BP802T	Social and Preventive Pharmacy – Theory	10	15	1 Hr	25	75	3 Hrs	100
BP803ET	Pharma. Marketing Management– Theory							
BP804ET	Pharmaceutical Regulatory Science – Theory							
BP805ET	Pharmacovigilance – Theory							
BP806ET	Quality Control and Standardizations of Herbals – Theory							
BP807ET	Computer Aided Drug Design – Theory							
BP808ET	Cell and Molecular Biology – Theory	10 + 10 = 20	15 + 15 = 30	1 + 1 = 2 Hrs	25 + 25 = 50	75 + 75 = 150	3 + 3 = 6 Hrs	100 + 100 = 200
BP809ET	Cosmetic Science – Theory							
BP810ET	Pharmacological Screening Methods-Theory							
BP811ET	Advanced Instrumentation Techniques – Theory							
BP812PW	Project Work	-	-	-	-	150	4 Hrs	150
Total		40	60	4 Hrs	100	450	16 Hrs	550



11.2 Internal assessment: Continuous mode

The marks allocated for Continuous mode of Internal Assessment shall be awarded as per the scheme given below.

Table-XI: Scheme for awarding internal assessment: Continuous mode

Theory		
Criteria	Maximum Marks	
Attendance (Refer Table – XII)	4	2
Academic activities (Average of any 2 activities e.g. quiz, assignment, open book test, field work, group discussion and seminar)	4	03
Student – Teacher interaction	2	
Total	10	5
Practical		
Attendance (Refer Table – XII)	2	
Based on Practical Records, Regular viva voce, etc.	3	
Total	5	

Table- XII: Guidelines for the allotment of marks for attendance

Percentage of Attendance	Theory	Practical
95 – 100	4	2
90 – 94	3	1.5
85 – 89	2	1
80 – 84	1	0.5
Less than 80	0	0

11.2.1. Sessional Exams

Two Sessional exams shall be conducted for each theory / practical course as per the schedule fixed by the college(s). The scheme of question paper for theory and practical Sessional examinations is given below. The average marks of two Sessional exams shall be computed for internal assessment as per the requirements given in tables – X.

Sessional exam shall be conducted for 30 marks for theory and shall be computed for 15 marks. Similarly Sessional exam for practical shall be conducted for 40 marks and shall be computed for 10 marks. The duration for the conduct of the exam is as below



Exam Type	Marks allotted	Duration
Theory	30	1.5 Hr
Practical	40	04 Hr

**Question paper pattern for theory Sessional
For subjects having University exams**

I. Objective Type Questions (Answer 05 out of 7)	=5 x 2 = 10
II. Long Answers (Answer 1 out of 2)	=1 x 10 = 10
III. Short Answers (Answer 2 out of 3)	=2 x 5 = 10
Total	30 marks

For subjects having Non University Examination

I. Long Answers (Answer 1 out of 2)	=1 x 10 = 10
II. Short Answers (Answer 4 out of 6)	=4 x 5 = 20
Total	30 marks

Question paper pattern for practical sessional examinations

I. Synopsis	= 10
II. Experiments	= 25
III. Viva voce	= 05
Total	40 marks



12. Promotion and award of grades

A student shall be declared PASS and eligible for getting grade in a course of B.Pharm. program if he/she secures at least 50% marks in that particular course including internal assessment. For example, to be declared as PASS and to get grade, the student has to secure a minimum of 50 marks for the total of 100 including continuous mode of assessment and end semester theory examination and has to secure a minimum of 25 marks for the total 50 including internal assessment and end semester practical examination.

13. Carry forward of marks

In case a student fails to secure the minimum 50% in any Theory or Practical course as specified in 12, then he/she shall reappear for the end semester examination of that course. However his/her marks of the Internal Assessment shall be carried over and he/she shall be entitled for grade obtained by him/her on passing.

14. Improvement of internal assessment

A student shall have the opportunity to improve his/her performance only once in the Sessional exam component of the internal assessment. The re-conduct of the Sessional exam shall be completed before the commencement of next end semester theory examinations.

15. Re-examination of end semester examinations

Reexamination of end semester examinations shall be conducted as per the schedule given in table XIII. The exact dates of examinations shall be notified from time to time.

Table-XIII: Tentative schedule of end semester examinations

Semester	For Regular Candidates	For Failed Candidates
I, III, V and VII	November / December	May / June
II, IV, VI and VIII	May / June	November / December



Question paper pattern for end semester theory examinations

For 75 marks paper

I. Objective Type Questions (Answer 5 out of 7)	= 5 x 3 = 15
II. Long Answers (Answer 2 out of 4)	= 2 x 10 = 20
III. Short Answers (Answer 8 out of 10)	= 8 x 5 = 40
Total	= 75marks

For 50 marks paper

I. Long Answers (Answer 2 out of 3)	= 2 x 10 = 20
II. Short Answers (Answer 6 out of 8)	= 6 x 5 = 30
Total	= 50 marks

For 35 marks paper

I. Long Answers (Answer 1 out of 2)	= 1 x 10 = 10
II. Short Answers (Answer 5 out of 7)	= 5 x 5 = 25
Total	= 25 marks

Question paper pattern for end semester practical examinations

I. Synopsis	= 5
II. Experiments	= 25
III. Viva voce	= 05
Total	= 35marks

16. Academic Progression:

No student shall be admitted to any examination unless he/she fulfills the norms given in 6. Academic progression rules are applicable as follows:

A student shall be eligible to carry forward all the courses of I, II and III semesters till the IV semester examinations. However, he/she shall not be eligible to attend the courses of V semester until all the courses of I and II semesters are successfully completed.

A student shall be eligible to carry forward all the courses of III, IV and V semesters till the VI semester examinations. However, he/she shall not be eligible to attend the courses of VII semester until all the courses of I, II, III and IV semesters are successfully completed.



A student shall be eligible to carry forward all the courses of V, VI and VII semesters till the VIII semester examinations. However, he/she shall not be eligible to get the course completion certificate until all the courses of I, II, III, IV, V and VI semesters are successfully completed.

A student shall be eligible to get his/her CGPA upon successful completion of the courses of I to VIII semesters within the stipulated time period as per the norms specified in 26.

A lateral entry student shall be eligible to carry forward all the courses of III, IV and V semesters till the VI semester examinations. However, he/she shall not be eligible to attend the courses of VII semester until all the courses of III and IV semesters are successfully completed.

A lateral entry student shall be eligible to carry forward all the courses of V, VI and VII semesters till the VIII semester examinations. However, he/she shall not be eligible to get the course completion certificate until all the courses of III, IV, V and VI semesters are successfully completed.

A lateral entry student shall be eligible to get his/her CGPA upon successful completion of the courses of III to VIII semesters within the stipulated time period as per the norms specified in 26.

Any student who has given more than 4 chances for successful completion of I / III semester courses and more than 3 chances for successful completion of II / IV semester courses shall be permitted to attend V / VII semester classes ONLY during the subsequent academic year as the case may be. In simpler terms there shall NOT be any ODD BATCH for any semester.

Note: Grade AB should be considered as failed and treated as one head for deciding academic progression. Such rules are also applicable for those students who fail to register for examination(s) of any course in any semester.



Rules for Carry Forward:

Sr. No	Remedial courses for admission to S.Y.B.Pharm in Academic Year 2019-20 (Cleared F.Y. B. Pharm as per 2015 Pattern)		
	(Non University Examination)	Semester	Passing Criteria
1.	Biochemistry Theory/Practicals	Semester III	Minimum 50% marks with D grade
2.	Pathophysiology- Theory		Minimum 50% marks with D grade
3.	Computer Applications in Pharmacy – Theory/Practicals	Semester IV	Minimum 50% marks with D grade
4.	Environmental sciences – Theory		Minimum 50% marks with D grade

The curriculum (including regulations, structure and syllabi) is in force from academic year 2018-19 and onwards for First Year B. Pharm, for academic year 2019- 20 onwards for Second Year B. Pharm., for academic year 2020-21 and onwards for Third Year B. Pharm., and for academic year 2021-22 and onwards for Final Year B. Pharm.

The learners who were admitted to First Year B. Pharm. of 2015 pattern during the academic year 2017-18 or before & failed in the First Year B.Pharm. of 2015 pattern examination will have to take admission to Semester-III of Second Year B. Pharm. of 2018 pattern in academic year 2019-20 or onwards, provided that

a) Their result of F. Y. B. Pharm of 2015 pattern is either pass or fails with A. T. K. T.

The said students will have to take up additional remedial courses as follows.

b) The learners who were admitted to S.Y B. Pharm. of 2015 pattern during the academic year 2018-19 or before and fail in the S.Y B.Pharm. of 2015 pattern examination will have to take admission to Semester-V of Third Year B. Pharm. of 2018 pattern in academic year 2020-21 or onwards, provided that Their result of S. Y. B. Pharm of 2015 pattern is either pass or fails with A. T. K. T. The said students will have to take up additional remedial course as follows.



Sr. No	Remedial courses for admission to T.Y. B.Pharm in Academic Year 2020-21 (Cleared S. Y.B. Pharm as per 2015 Pattern)		
	(Non University Examination with 50% passing.)	Semester	Passing Criteria
I.	Medicinal Chemistry I – Theory/ Practical	Semester V	Minimum 50% marks with D grade

17. Grading of performances

17.1. Letter grades and grade points allocations:

Based on the performances, each student shall be awarded a final letter grade at the end of the semester for each course. The letter grades and their corresponding grade points are given in Table – XII.

Table – XII: Letter grades and grade points equivalent to Percentage of marks and performances

Percentage of Marks Obtained	Letter Grade	Grade Point	Performance
90.00 – 100	O	10	Outstanding
80.00 – 89.99	A	9	Excellent
70.00 – 79.99	B	8	Good
60.00 – 69.99	C	7	Fair
50.00 – 59.99	D	6	Average
Less than 50	F	0	Fail
Absent	AB	0	Fail

A learner who remains absent for any end semester examination shall be assigned a letter grade of AB and a corresponding grade point of zero. He/she should reappear for the said evaluation/examination in due course.

18. The Semester grade point average (SGPA)

The performance of a student in a semester is indicated by a number called „Semester Grade Point Average” (SGPA). The SGPA is the weighted average of the grade points obtained in all



the courses by the student during the semester. For example, if a student takes five courses(Theory/Practical) in a semester with credits C₁, C₂, C₃, C₄ and C₅ and the student's grade points in these courses are G₁, G₂, G₃, G₄ and G₅, respectively, and then students' SGPA is equal to:

$$\text{SGPA} = \frac{C_1G_1 + C_2G_2 + C_3G_3 + C_4G_4 + C_5G_5}{C_1 + C_2 + C_3 + C_4 + C_5}$$

The SGPA is calculated to two decimal points. It should be noted that, the SGPA for any semester shall take into consideration the F and ABS grade awarded in that semester. For example if a learner has a F or ABS grade in course 4, the SGPA shall then be computed as:

$$\text{SGPA} = \frac{C_1G_1 + C_2G_2 + C_3G_3 + C_4 * \text{ZERO} + C_5G_5}{C_1 + C_2 + C_3 + C_4 + C_5}$$

19. Cumulative Grade Point Average (CGPA)

The CGPA is calculated with the SGPA of all the VIII semesters to two decimal points and is indicated in final grade report card/final transcript showing the grades of all VIII semesters and their courses. The CGPA shall reflect the failed status in case of F grade(s), till the course(s) is/are passed. When the course(s) is/are passed by obtaining a pass grade on subsequent examination(s) the CGPA shall only reflect the new grade and not the fail grades earned earlier. The CGPA is calculated as:

$$\text{CGPA} = \frac{C_1S_1 + C_2S_2 + C_3S_3 + C_4S_4 + C_5S_5 + C_6S_6 + C_7S_7 + C_8S_8}{C_1 + C_2 + C_3 + C_4 + C_5 + C_6 + C_7 + C_8}$$

where C₁, C₂, C₃,... is the total number of credits for semester I, II, III,.... and S₁, S₂, S₃,... is the SGPA of semester I, II, III,....



20. **Declaration of class**

The class shall be awarded on the basis of CGPA as follows

First Class with Distinction	= CGPA of. 7.50 and above
First Class	= CGPA of. 6.00 to 7.49
Second Class	= CGPA of. 5.00 to 5.99

21. **Project work**

All the students shall undertake a project under the supervision of a teacher and submit a report. The area of the project shall directly relate any one of the elective subject opted by the student in semester VIII. The project shall be carried out in group not exceeding 5 in number. The project report shall be submitted in triplicate (typed & bound copy not less than 25 pages).

The internal and external examiner appointed for evaluation of the project shall be approved teachers of SPPU /Industrial Experts appointed by Principal of the respective institute. Students shall be evaluated in groups for four hours (i.e., about half an hour for a group of five students). The projects shall be evaluated as per the criteria given below

Evaluation of Dissertation Book:

Objective(s) of the work done	15 Marks
Methodology adopted	20 Marks
Results and Discussions	20 Marks
Conclusions and Outcomes	20 Marks
Total	75 Marks

Evaluation of Presentation:

Presentation of work	25 Marks
Communication skills	20 Marks
Question and answer skills	30 Marks
Total	75 Marks



Explanation: The 75 marks assigned to the dissertation book shall be same for all the students in a group. However, the 75 marks assigned for presentation shall be awarded based on the performance of individual students in the given criteria.

22. Industrial training (Desirable)

Every candidate shall be required to work for at least 150 hours spread over four weeks in a Pharmaceutical Industry/Hospital. It includes Production unit, Quality Control department, Quality Assurance department, Analytical laboratory, Chemical manufacturing unit, Pharmaceutical R&D, Hospital (Clinical Pharmacy), Clinical Research Organization, Community Pharmacy, etc. After the Semester – VI and before the commencement of Semester – VII, and shall submit satisfactory report of such work and certificate duly signed by the authority of training organization to the head of the institute.

AND/OR

Every candidate shall be required to undergo any one of the Skill development modules mentioned below (Duration – Min. 04 weeks)

- a) Hands on Training (Central instrumentation lab/Machine room etc)
- b) UGC/AICTE recognized online courses (SWAYAM/NPTEL etc)

After the successful completion of the module the candidate shall submit satisfactory report and certificate duly signed by the authority of training organization/Head of the institute.

23. Practice School

In the VII semester, every candidate shall undergo practice school for a period of 150 hours evenly distributed throughout the semester. The student shall opt any one of the domains for practice school declared by the program committee from time to time.

At the end of the practice school, every student shall submit a printed report (in triplicate) on the practice school he/she attended (not more than 25 pages). Along with the exams of semester VII, the report submitted by the student, knowledge and skills acquired by the student through practice school shall be evaluated by the subject experts at college level and grade point shall be awarded



24. Award of Ranks

Ranks and Medals shall be awarded on the basis of final CGPA. However, candidates who fail in one or more courses during the B.Pharm program shall not be eligible for award of ranks. Moreover, the candidates should have completed the B. Pharm program in minimum prescribed number of years, (four years) for the award of Ranks.

25. Award of degree

Candidates who fulfill the requirements mentioned above shall be eligible for award of degree during the ensuing convocation.

26. Duration for completion of the program of study

The duration for the completion of the program shall be fixed as double the actual duration of the program and the students have to pass within the said period, otherwise they have to get fresh Registration.

27. Re-admission after break of study

Candidate who seeks re-admission to the program after break of study has to get the approval from the university by paying a condonation fee.

No condonation is allowed for the candidate who has more than 2 years of break up period and he/she has to rejoin the program by paying the required fees.



S.Y.B.PHARM SEMESTER – III

BP301T PHARMACEUTICAL ORGANIC CHEMISTRY –II (Theory) 45 Hours

Scope:

This subject deals with general methods of preparation and reactions of some organic compounds. Reactivity of organic compounds is also studied here. The syllabus emphasizes on mechanisms & orientation of reactions. Chemistry of fats and oils are also included in the syllabus.

Objectives

Upon completion of the course the student shall be able to

1. Write the structure, name and the type of isomerism of the organic compound
2. Write the reaction, name the reaction and orientation of reactions
3. Account for reactivity/stability of compounds
4. Prepare small organic compounds

Course Content :

Note - General methods of preparation (any 05) and reactions of compounds superscripted with asterisk (*) to be explained.

UNIT-I

10 Hours

Benzene and its derivatives

Introduction to benzene, orbital picture, resonance in benzene, Huckel's rule Reactions of benzene - nitration, sulphonation, halogenation- reactivity, Friedel- Craft's alkylation- reactivity, limitations, Friedel-Craft's acylation. Substituents, effect of substituents on reactivity and orientation of mono substituted benzene compounds towards electrophilic substitution reaction.

UNIT-II

08 Hours

Phenols* - Acidity of phenols, effect of substituents on acidity, qualitative tests for phenols, structure and uses of phenol, cresols, resorcinol, naphthols **Aromatic Amines*** - Basicity of



amines, effect of substituents on basicity, Nitrosation reaction, coupling and Sandmayer's reaction, Hinsberg Test, synthetic uses of aryl diazonium salts.

UNIT-III

10 Hours

Stereo Isomerism

Optical isomerism

Elements of symmetry, chiral and achiral molecules

Optical activity, enantiomerism, diastereoisomerism, meso compounds

D & L system of nomenclature of optical isomers, sequence rules, R & S system of nomenclature of optical isomers

Geometrical isomerism

Nomenclature of geometrical isomers (Cis & Trans, E & Z, Syn & Anti systems) Methods of determination of configuration of geometrical isomers.

UNIT-IV

10 Hours

Polynuclearhydrocarbons

Synthesis, reactions and structure and medicinal uses of naphthalene, phenanthrene, anthracene, diphenylmethane, triphenylmethane and their derivatives.

UNIT-V

05 Hours

Cycloalkanes*

Stabilities – Baeyer's strain theory, limitation of Baeyer's strain theory, Coulson and Moffitt's modification, Sachse Mohr's theory (Theory of strainless rings), reactions of cyclopropane and cyclobutane only.

UNIT-VI

02 Hours

Fats and Oils - Hydrolysis, Hydrogenation, Saponification and Rancidity of oils.

Recommended Books :

1. Morrison, R. T. & Boyd, R. D., Textbook of Organic Chemistry, VI(ed.) ELBS, London, 1996
2. Pine, S. H, Organic Chemistry, V, Tata McGraw Hill, New Delhi, 2003



3. Finar, I. L., Organic Chemistry Vol. I, V(ed.), ELBS, Pearson Education, New Delhi, 2003
4. Joule and Mills, Heterocyclic Chemistry, IV (ed.), Blackwel Publishing House, Oxford, UK,2004
5. Li, J. J., Name Reactions, III (ed.), Springer, Berlin, 2006
6. Stereochemistry of Organic Compound Principles and Applications by Nasipuri, Revised Edition, New Age International Publishers.
7. Stereochemistry Conformation and Mechanism by P.S. Kalsi, 7/Ed 2008, New Age International Publishers, New Delhi.
8. Furniss, B. S., Hannaford, A. J. Smith, P. W. G., and Tatchel, A. R., "Vogel's Textbook of Practical Organic Chemistry", V (ed.), Pearson, London, 1994
9. Finar, I. L., Organic Chemistry Vol. I, V (ed.), ELBS, Pearson Education, New Delhi, 2003
10. Mann, F. G. and Saunders, B. C., Practical Organic Chemistry, IV(ed.), Pearson, UK, 2009
11. Advanced General Organic Chemistry-A Modern Approach by Sachin Kumar Ghosh, 3/Ed. 2009, New Central Book Agency (P) Ltd

BP302T. PHYSICAL PHARMACEUTICS-I (Theory) 45Hours

Scope:

The course deals with the various physical and physicochemical properties, and principles involved in dosage forms/formulations. Theory and practical components of the subject help the student to get a better insight into various areas of formulation research and development, and stability studies of pharmaceutical dosage forms.

Objectives:

Upon the completion of the course student shall be able to

1. Investigate and apply various theories, laws and equations related to different states of matter



2. Distinguish the principles of complexation/ protein binding & to use them for calculations of drug release and stability constant.
3. Demonstrate use of physicochemical properties of drugs in the formulation development and evaluation of dosage forms.

Course Content:

UNIT-I

12 Hours

Solubility of drugs: Solubility expressions, mechanisms of solute solvent interactions, ideal solubility parameters, solvation & association, quantitative approach to the factors influencing solubility of drugs, diffusion principles in biological systems. Solubility of gas in liquids, solubility of liquids in liquids, Solubility of Solids in liquids (Binary solutions, ideal solutions with respect to their colligative properties) Raoult's law, real solutions. Partially miscible liquids (Phase equilibria, Phase rule, One, two and three component systems, ternary phase diagram, Critical solution temperature and applications). Distribution law, its limitations and applications

UNIT-II

10Hours

States of Matter and properties of matter: State of matter, changes in the state of matter, latent heats, vapour pressure, sublimation critical point, eutectic mixtures, gases, Liquefaction of gases, aerosols- inhalers, relative humidity, liquid complexes, liquid crystals, glassy states, solid crystalline, amorphous (Methods of crystal analysis: X-Ray Diffraction, Bragg's equation.) & polymorphism (Definition, Different shapes of polymorphs, Example and its Pharmaceutical applications, Brief introduction of Detection techniques).

Physicochemical properties of drug molecules: Refractive index, optical rotation, dielectric constant, dipole moment, dissociation constant, determinations and applications 34

UNIT-III

08 Hours Surface

and interfacial phenomenon: Liquid interface, surface & interfacial tensions, surface free energy, measurement of surface & interfacial tensions, spreading coefficient, adsorption at liquid interfaces, surface active agents, HLB Scale, solubilisation, detergency, adsorption at solid interface.



UNIT-IV**08Hours**

Complexation and protein binding: Introduction, Classification of Complexation, Applications, methods of analysis, protein binding, Complexation and drug action, crystalline structures of complexes and thermodynamic treatment of stability constants.

UNIT-V**07 Hours**

pH, buffers and Isotonic solutions: Sorensen's pH scale, pH determination (electrometric and calorimetric), applications of buffers, buffer equation, buffer capacity, buffers in pharmaceutical and biological systems, buffered isotonic solutions.

Recommended Books:

1. Physical Pharmacy by Alfred Martin
2. Experimental Pharmaceutics by Eugene, Parott.
3. Tutorial Pharmacy by Cooper and Gunn.
4. Stocklosam J. Pharmaceutical Calculations, Lea &Febiger, Philadelphia.
5. Liberman H.A, Lachman C., Pharmaceutical Dosage forms, Tablets, Volume-1 to 3, MarcelDekkar Inc.
6. Liberman H.A, Lachman C, Pharmaceutical Dosage forms. Disperse systems, volume 1,2, 3. Marcel Dekkar Inc.
7. Physical Pharmaceutics by Ramasamy C and ManavalanR.
8. LaboratoryManual of Physical Pharmaceutics, C.V.S. Subramanyam, J.Thimma settee
9. Physical Pharmaceutics by C.V.S. Subramanyam
10. Text book of Physical Phramacy, by Gaurav Jain & Roop K. Khar



BP 303 T. PHARMACEUTICAL MICROBIOLOGY (Theory) 45Hours

Scope:

Study of microorganisms and its effect on pharmaceutical products

Objectives: Upon completion of the subject student shall be able to;

1. Understand methods of identification, cultivation and preservation of various Microorganisms
2. To understand the importance and implementation of sterilization in pharmaceutical processing and industry
3. Learn sterility testing of pharmaceutical products.
4. Carried out microbiological standardization of Pharmaceuticals.
5. Understand the cell culture technology and its applications in pharmaceutical industries.

Course content:

Unit I

10 Hours

Introduction, history of microbiology, its branches, scope and its importance. Introduction to Prokaryotes and Eukaryotes Study of ultra-structure and morphological classification of bacteria, nutritional requirements, raw materials used for culture media and physical parameters for growth, growth curve, isolation and preservation methods for pure cultures, cultivation of anaerobes, quantitative measurement of bacterial growth (total & viable count). Study of different types of phase contrast microscopy, dark field microscopy and electron microscopy.

Definition and examples of Probiotics and Prebiotics

Unit II

10 Hours

Identification of bacteria using staining techniques (simple, Gram's & Acid fast staining) and biochemical tests (IMViC). Definition of D value & Z value and its significance. Study of principle, procedure, merits, demerits and applications of physical, chemical gaseous, radiation and mechanical method of sterilization. Evaluation of the efficiency of sterilization methods. Equipments employed in large scale sterilization. Sterility indicators.

Unit III

10 Hours



Study of morphology, classification, reproduction/replication and cultivation of Fungi and Viruses. Classification and mode of action of disinfectants Factors influencing disinfection, antiseptics and their evaluation. For bacteriostatic and bactericidal actions Evaluation of bactericidal & Bacteriostatic. Sterility testing of products (solids, liquids, ophthalmic and other sterile products) according to IP, BP and USP.

Unit IV

08 Hours

Designing of aseptic area, laminar flow equipments; study of different sources of contamination in an aseptic area and methods of prevention, clean area classification. Principles and methods of different microbiological assay. Methods for standardization of antibiotics, vitamins and amino acids. Assessment of a new antibiotic.

Unit V

07Hours

Types of spoilage, factors affecting the microbial spoilage of pharmaceutical products, sources and types of microbial contaminants, assessment of microbial contamination and spoilage. Preservation of pharmaceutical products using antimicrobial agents, evaluation of microbial stability of formulations. Growth of animal cells in culture, general procedure for cell culture, Primary, established and transformed cell cultures. Application of cell cultures in pharmaceutical industry and research.

Recommended Books

1. W.B. Hugo and A.D. Russel: Pharmaceutical Microbiology, Blackwell Scientific publications, Oxford London.
2. Prescott and Dunn., Industrial Microbiology, 4th edition, CBS Publishers & Distributors, Delhi.
3. Pelczar, Chan Kreig, Microbiology, Tata McGraw Hill edn.
4. Malcolm Harris, Balliere Tindall and Cox: Pharmaceutical Microbiology.
5. Rose: Industrial Microbiology.
6. Probisher, Hinsdill et al: Fundamentals of Microbiology, 9th ed. Japan



7. Cooper and Gunn's: Tutorial Pharmacy, CBS Publisher and Distribution.
8. Pepler: Microbial Technology.
9. I.P., B.P., U.S.P.- latest editions.
10. Ananthnarayan : Text Book of Microbiology, Orient-Longman, Chennai
11. Edward: Fundamentals of Microbiology.
12. N.K.Jain: Pharmaceutical Microbiology, Vallabh Prakashan, Delhi
13. Bergeys manual of systematic bacteriology, Williams and Wilkins- A Waverly company
14. "Nutrition Probiotics and prebiotics" by Pamela Mason; The Pharmaceutical Journal Vol 266 No 7132 p118-121.
15. Alfonso R. Gennaro Remington. The Science and Practice of Pharmacy, Lippincott Williams, New Delhi.

BP 304 T. PHARMACEUTICAL ENGINEERING (Theory)

45 Hours

Scope:

This course is designed to impart a fundamental knowledge on the art and science of various unit operations used in pharmaceutical industry.

Objectives:

Upon completion of the course student shall be able:

1. To know various unit operations used in Pharmaceutical industries.
2. To understand the material handling techniques.
3. To perform various processes involved in pharmaceutical manufacturing process.
4. To carry out various test to prevent environmental pollution.
5. To appreciate and comprehend significance of plant lay out design for optimum use of resources.
6. To appreciate the various preventive methods used for corrosion control in Pharmaceutical industries.



Course content:

UNIT-I

10 Hours

- Flow of fluids: Types of manometers, Reynolds number and its significance, Bernoulli's theorem and its applications, Energy losses, Orifice meter, Venturimeter, Pitot tube and Rotometer.
- Size Reduction: Objectives, Mechanisms & Laws governing size reduction, factors affecting size reduction, principles, construction, working, uses, merits and demerits of Hammer mill, ball mill, fluid energy mill, Edge runner mill & end runner mill.
- Size Separation: Objectives, applications & mechanism of size separation, official standards of powders, sieves, size separation Principles, construction, working, uses, merits and demerits of Sieve shaker, cyclone separator, Air separator, Bag filter & elutriation tank.

UNIT-II

10 Hours

- Heat Transfer: Objectives, applications & Heat transfer mechanisms. Fourier's law, Heat transfer by conduction, convection & radiation. Heat interchangers & heat exchangers.
- Evaporation: Objectives, applications and factors influencing evaporation, differences between evaporation and other heat process. principles, construction, working, uses, merits and demerits of Steam jacketed kettle, horizontal tube evaporator, climbing film evaporator, forced circulation evaporator, multiple effect evaporator & Economy of multiple effect evaporator.
- Distillation: Basic Principles and methodology of simple distillation, flash distillation, fractional distillation, distillation under reduced pressure, steam distillation & molecular distillation

UNIT- III

08 Hours

- Drying: Objectives, applications & mechanism of drying process, measurements & applications of Equilibrium Moisture content, rate of drying curve. principles,



construction, working, uses, merits and demerits of Tray dryer, drum dryer spray dryer, fluidized bed dryer, vacuum dryer, freeze dryer.

- Mixing: Objectives, applications & factors affecting mixing, Difference between solid and liquid mixing, mechanism of solid mixing, liquids mixing and semisolids mixing. Principles, Construction, Working, uses, Merits and Demerits of Double cone blender, twin shell blender, ribbon blender, Sigma blade mixer, planetary mixers, Propellers, Turbines, Paddles & Silverson Emulsifier,

UNIT-IV

08 Hours

- Filtration: Objectives, applications, Theories & Factors influencing filtration, filter aids, filter medias. Principle, Construction, Working, Uses, Merits and demerits of plate & frame filter, filter leaf, rotary drum filter, Meta filter & Cartridge filter, membrane filters and Seidtz filter.
- Centrifugation: Objectives, principle & applications of Centrifugation, principles, construction, working, uses, merits and demerits of Perforated basket centrifuge, Non-perforated basket centrifuge, semi continuous centrifuge & super centrifuge.

UNIT- V

07 Hours

- Materials of pharmaceutical plant construction, Corrosion and its prevention: Factors affecting during materials selected for Pharmaceutical plant construction, Theories of corrosion, types of corrosion and there prevention. Ferrous and nonferrous metals, inorganic and organic non metals, basic of material handling systems.

Recommended Books:

1. Paradkar A. Introduction to Pharmaceutical Engineering. Eleventh Edition, Nirali Prakashan, Pune. 2007.
2. Badger WL, Banchero JT. Introduction to Chemical Engineering. International Edition, McGraw Hill Book Company. 1955.
3. Subrahmanyam CVS, Thimma Setty J, Sarasija Suresh, Kusum Devi V. Pharmaceutical Engineering Unit Operations-II. Second Edition, Vallabh Prakashan, Delhi. 2011.



4. Tekade AR, Pande VV, Shastri KV. Pharmaceutical Engineering. First Edition, TechMax Publications, Pune. 2015.

5. Sambamurthy K. Pharmaceutical Engineering. First Edition, New Age International Publishers, New Delhi. 1998.

BP305P. PHARMACEUTICAL ORGANIC CHEMISTRY - II (Practical) 4 Hours/Week

1. Experiments involving laboratory techniques

- Recrystallization **1 Turn**
- Steam distillation

2. Experiments involving Separation of Binary mixtures **2 Turns**

3. Determination of saponification value of oil samples (Any two) **1 Turn**

4. Synthesis of following compounds

- Benzanilide /phenyl benzoate /acetanilide from aniline/ phenol/ aniline by benzoylation/acylation reaction
- 2, 4, 6-Tribromoaniline/para-bromo acetanilide from aniline
- p-bromo Acetanilide by halogenation (Bromination) reaction.
- 5-Nitrosalicylic /meta-dinitrobenzene from salicylic acid/ nitrobenzene by nitration reaction **11 Turns**
- Benzoic acid/ Salicylic acid from alkyl benzoate/ alkyl salicylate by hydrolysis reaction.
- 1-Phenylazo-2-naphthol from aniline by diazotization and coupling reactions/ piodobenzoic acid from P-aminobenzoic acid by replacement reaction.
- Benzil from benzoin by oxidation reaction
- Dibenzal acetone from benzaldehyde by Claisen-Schmidt reaction



Recommended Books:

1. Mann, F. G. and Saunders, B. C., Practical Organic Chemistry, IV(ed.), Pearson, UK, 2009
2. Vogel's Text Book of Practical Organic Chemistry- Brian Furniss, Antony Hannaford, Peter Smith, Austrin (Eds), 5th edition, ELBS Publication, Singapore, 1997.
3. A Guidebook to Mechanism in Organic Chemistry by Peter Sykes Longman Scientific and Technical, Sixth Edition, 1985.
4. Advanced Organic Chemistry by Francis A. Carey, Part A: Structure and Mechanism, Springer, 2007.
5. Writing Reaction Mechanisms in Organic Chemistry by Audrey Miller, Second Edition, Elsevier Science & Technology Books, 1999.
6. Organic Reactions by Werner E. Bachmann, Volume I, John Wiley and Sons. INC, 1942.
7. Advanced Organic Chemistry Reaction Mechanisms by Reinhard Bruckner, Elsevier, 2002

BP306P. PHYSICAL PHARMACEUTICS – I (Practical)

4 Hrs/week

1. Determination the solubility of drug at room temperature
2. Determination of pKa value by Half Neutralization/ Henderson Hasselbalch equation.
3. Determination of Partition co- efficient of benzoic acid in benzene and water
4. Determination of Partition co- efficient of Iodine in CCl₄ and water
5. Determination of % composition of NaCl in a solution using phenol-water system by CST method
6. Determination of surface tension of given liquids by drop count and drop weight method
7. Determination of HLB number of a surfactant by saponification method
8. Determination of Freundlich and Langmuir constants using activated char coal
9. Determination of critical micellar concentration of surfactants



10. Determination of stability constant and donor acceptor ratio of PABA-Caffeine complex by solubility method

11. Determination of stability constant and donor acceptor ratio of Cupric-Glycine complex by pH titration method.

12. Determination of Refractive index of given sample.

13. Determination of thermodynamic parameters using solubility studies.

Recommended Books:

1. Physical Pharmacy by Alfred Martin
2. Experimental Pharmaceutics by Eugene, Parott.
3. Tutorial Pharmacy by Cooper and Gunn.
4. Stocklosam J. Pharmaceutical Calculations, Lea &Febiger, Philadelphia.
5. Liberman H.A, Lachman C., Pharmaceutical Dosage forms, Tablets, Volume-1 to 3, MarcelDekkar Inc.
6. Liberman H.A, Lachman C, Pharmaceutical Dosage forms. Disperse systems, volume 1, 2, 3. Marcel Dekkar Inc.
7. Physical Pharmaceutics by Ramasamy C and ManavalanR.
8. LaboratoryManual of Physical Pharmaceutics, C.V.S. Subramanyam, J.Thimma settee
9. Physical Pharmaceutics by C.V.S. Subramanyam
10. Text book of Physical Phramacy, by Gaurav Jain & Roop K. Khar

BP 307P.PHARMACEUTICAL MICROBIOLOGY (Practical)

4 Hours/week

1. Introduction and study of different equipments and processing, e.g., B.O.D. incubator, laminar flow or aseptic hood, autoclave, hot air sterilizer, deep freezer, refrigerator, microscopes used in experimental microbiology.
2. Sterilization of glassware, preparation and sterilization of media.
3. Sub culturing of bacteria and fungus. Nutrient stabs and slants preparations.



4. Staining methods- Simple, Grams staining and acid fast staining (Demonstration with practical).
5. Isolation of pure culture of micro-organisms by multiple streak plate technique and other techniques.
6. Microbiological assay of antibiotics by cup plate method and other methods
7. Motility determination by Hanging drop method.
8. Sterility testing of pharmaceuticals (Any two samples).
9. Bacteriological analysis of water
10. Biochemical test of any one microorganism.

Recommended Books

1. W.B. Hugo and A.D. Russel: Pharmaceutical Microbiology, Blackwell Scientific publications, Oxford London.
2. Prescott and Dunn., Industrial Microbiology, 4th edition, CBS Publishers & Distributors, Delhi.
3. Pelczar, Chan Kreig, Microbiology, Tata McGraw Hill edn.
4. Malcolm Harris, Balliere Tindall and Cox: Pharmaceutical Microbiology.
5. Rose: Industrial Microbiology.
6. Probisher, Hinsdill et al: Fundamentals of Microbiology, 9th ed. Japan
7. Cooper and Gunn's: Tutorial Pharmacy, CBS Publisher and Distribution.
8. Pepler: Microbial Technology.
9. I.P., B.P., U.S.P.- latest editions.
10. Ananthnarayan : Text Book of Microbiology, Orient-Longman, Chennai
11. Edward: Fundamentals of Microbiology.
12. N.K.Jain: Pharmaceutical Microbiology, Vallabh Prakashan, Delhi
13. Bergeys manual of systematic bacteriology, Williams and Wilkins- A Waverly company
14. "Nutrition Probiotics and prebiotics" by Pamela Mason; The Pharmaceutical Journal Vol 266 No 7132 p118-121.
15. Alfonso R. Gennaro Remington. The Science and Practice of Pharmacy, Lippincott



Williams, New Delhi.

BP308 P - PHARMACEUTICAL ENGINEERING (PRACTICAL) 4 Hours/week

- I. Determination of radiation constant of any one of – brass/ iron/unpainted and painted glass.
- II. Steam distillation- To calculate the efficiency of steam distillation.
- III. To determine the overall heat transfer coefficient by heat exchanger.
- IV. Construction of drying curves (for calcium carbonate and starch)
- V. Determination of moisture content and loss on drying.
- VI. Determination of humidity of air - i) From wet and dry bulb temperatures -use of Dew point method
- VII. Description of Construction, working and application of any two Pharmaceutical Machinery such as Rotary tablet Machine, capsule filling machine, tablet coating machine, autoclave, oven and dehumidifier.
- VIII. Size analysis by sieving -To evaluate size distribution of tablet granulations – Construction of various size frequency curves including arithmetic and logarithmic probability plots.
- IX. Size reduction: To verify the laws of size reduction using ball mill and and determining Kicks, Rittinger's, Bond's coefficients, power requirement and critical speed of Ball Mill.
- X. Demonstration of any two equipments such as colloid mill, planetary mixer, fluidized bed dryer, Spray dryer Laminar Air Flow, Ball Mill and such other major equipments.
- XI. Factors affecting Rate of Filtration and Evaporation (Surface area, Concentration and Thickness/ viscosity).
- XII. To study the effect of time on the Rate of Crystallization.
- XIII. To calculate the uniformity Index for given sample by using Double Cone Blender



Recommended Books:

1. Paradkar A. Introduction to Pharmaceutical Engineering. Eleventh Edition, Nirali Prakashan, Pune. 2007.
2. Badger WL, Banchero JT. Introduction to Chemical Engineering. International Edition, McGraw Hill Book Company. 1955.
3. Subrahmanyam CVS, Thimma Setty J, Sarasija Suresh, Kusum Devi V. Pharmaceutical Engineering Unit Operations-II. Second Edition, Vallabh Prakashan, Delhi. 2011.
4. Tekade AR, Pande VV, Shastri KV. Pharmaceutical Engineering. First Edition, TechMax Publications, Pune. 2015.
5. Sambamurthy K. Pharmaceutical Engineering. First Edition, New Age International Publishers, New Delhi. 1998



S.Y.B.PHARM SEMESTER - IV

BP401T PHARMACEUTICAL ORGANIC CHEMISTRY –III (Theory) 45 Hours

Scope :

The subject imparts knowledge on stereo chemical aspects of organic compounds and organic reactions, important name reactions, chemistry of important heterocyclic compounds. It also emphasizes on medicinal and other uses of organic compounds.

Objectives :

Upon completion of the course the student shall be able to

1. Understand the methods of preparation and properties of organic compounds.
2. Explain the stereochemical aspects of organic compounds and stereo chemical reactions.
3. Know the medicinal uses and other applications of organic compounds

COURSE CONTENT

UNIT-I 07 Hours

Stereo isomerism

Reactions of Chiral molecules

Racemic modification and resolution of racemic mixture.

Introduction to Asymmetric synthesis with suitable examples.

UNIT-II 06Hours

Geometrical isomerism

Conformational isomerism in n-Butane and cyclohexane.

Stereoisomerism in biphenyl compounds (Atropisomerism) and conditions for optical activity.

Stereospecific and stereo selective reactions.

UNIT-III 08 Hours



Heterocyclic compounds

Nomenclature and classification of heterocyclic compounds in to classes: Oxygen containing five & six membered rings, Nitrogen containing five & six membered rings, sulphur containing five & six member rings; Oxygen & nitrogen containing five & six membered rings, oxygen & sulphur containing five & six membered rings, and sulphur and nitrogen containing five & six membered rings; benzo-fused heterocyclic compounds as benzimidazole, benzthiazole, benzopyran

Chemistry, Synthesis (any one), reactions and medicinal uses of following compounds

- Pyrrole, Furan, and Thiophene and their derivatives (any one from each class)

UNIT-IV

12 Hours

Chemistry, Synthesis (any one), reactions and medicinal uses of following compounds and their derivatives (any one from each class)

- Pyrazole, Imidazole, Oxazole and Thiazole.
 - Pyridine, Quinoline, Isoquinoline, Acridine and Indole

Synthesis (any one) and medicinal uses of following compounds Pyrimidine, Purine, Azepines and their derivatives (any one from each class)

UNIT-V

12 Hours

Name Reactions of synthetic importance

Pinacol-Pinacolone, Hofmann, Baeyer-Villiger oxidation, Benzilic acid rearrangement reaction, Beckmann's rearrangement and Schmidt rearrangement, Claisen-Schmidt condensation, Clemmensen reduction, Wolff rearrangement, Oppenauer-oxidation and Dakin reaction, and Birch reduction.

Recommended Books



1. Morrison, R. T. & Boyd, R. D., Textbook of Organic Chemistry, VI (ed.) ELBS, London, 1996
2. Advanced General Organic Chemistry-A Modern Approach by Sachin Kumar Ghosh, 3/Ed. 2009, New Central Book Agency (P) Ltd.
3. Pine, S. H, Organic Chemistry, V, Tata McGraw Hill, New Delhi, 2003 4. Finar, I. L., Organic Chemistry Vol. I, V (ed.), ELBS, Pearson Education, New Delhi, 2003
4. Joule and Mills, Heterocyclic Chemistry, IV (ed.), Blackwell Publishing House, Oxford, UK, 2004
5. Li, J. J., Name Reactions, III (ed.), Springer, Berlin, 2006
6. Stereochemistry of Organic Compound Principles and Applications by Nasipuri, Revised Edition, New Age International Publishers.
7. Stereochemistry Conformation and Mechanism by P.S. Kalsi, 7/Ed 2008, New Age International Publishers, New Delhi.
8. Stereochemistry of Organic Compound Principles and Applications by Nasipuri, Revised Edition, New Age International Publishers.

BP402T. MEDICINAL CHEMISTRY – I (Theory)

45 hours

Scope:

This subject is designed to impart fundamental knowledge on the structure, chemistry and therapeutic value of drugs. The subject emphasizes on structure activity relationships of drugs, importance of physicochemical properties and metabolism of drugs. The syllabus also emphasizes on chemical synthesis of important drugs under each class.

Objectives:

Upon completion of the course the student shall be able to -

1. Understand the chemistry of drugs with respect to their pharmacological activity.
2. Understand the drug metabolic pathways, adverse effect and therapeutic value of Drugs.
3. Know the Structural Activity Relationship (SAR) of different class of drugs.
4. Write the chemical synthesis of some drugs.



COURSE CONTENT:

Note: Study of the development of the following classes of drugs, classification, mechanism of action, Structure activity relationship, uses of drugs mentioned in the course. The synthesis of drugs mentioned in bracket-[] only needs to be covered.

UNIT-I

06 hours

Introduction to Medicinal Chemistry:

- a) History and development of medicinal chemistry
- b) Physicochemical properties in relation to biological action Ionization, Solubility, Partition Coefficient, Hydrogen bonding, Protein binding, Chelation, Bioisosterism, Optical and Geometrical isomerism.
- c) Drug metabolism
Drug metabolism principles - Phase I and Phase II.
Factors affecting drug metabolism.

UNIT-II

Drugs acting on Autonomic Nervous System

10 hours

- a) Adrenergic Neurotransmitters: Biosynthesis and catabolism of catecholamine. Adrenergic receptors (Alpha & Beta) and their distribution.
- b) Sympathomimetic agents: SAR of Sympathomimetic agents Directacting: Nor-epinephrine, Epinephrine, Dopamine, Phenylephrine, Methyldopa, Clonidine, Dobutamine, Isoproterenol, Terbutaline, Salbutamol, Oxymetazoline and Xylometazoline
 - Indirect acting agents: Hydroxyamphetamine, Pseudoephedrine
 - Agents with mixed mechanism: Ephedrine, Amphetamine.
- c) Adrenergic Antagonists:
 - Alpha adrenergic blockers: Tolazoline, Phentolamine, Phenoxybenzamine, Prazosin.
 - Beta adrenergic blockers: SAR of beta blockers, Propranolol, Atenolol, Labetolol, Carvedilol.
[Phenylephrine, Salbutamol, Tolazoline, Propranolol]



UNIT-III

10 hours

- a) **Cholinergic neurotransmitters** : Biosynthesis and catabolism of acetylcholine. Cholinergic receptors (Muscarinic & Nicotinic) and their distribution.
- b) **Parasympathomimetic agents : SAR of Parasympathomimetic agents** Direct acting agents : Acetylcholine, Carbachol, Bethanechol, Pilocarpine.
Indirect acting/ Cholinesterase inhibitors (Reversible & Irreversible) : Physostigmine, Neostigmine, Edrophonium chloride, Donepezil, Tacrine hydrochloride, Parathion, Malathion.
Cholinesterase reactivator : Pralidoxime chloride.
- c) **Cholinergic Blocking agents: SAR of cholinolytic agents** : Solanaceous alkaloids and analogues : Atropine sulphate, Scopolamine hydrobromide, Ipratropium bromide
Synthetic cholinergic blocking agents : Tropicamide, Cyclopentolate hydrochloride, Dicyclomine, Glycopyrrolate, Propantheline bromide
[Neostigmine, Dicyclomine hydrochloride]

UNIT-IV

10 hours

Drugs acting on Central Nervous System

- a) **Sedatives and Hypnotics** :
Benzodiazepines : SAR of Benzodiazepines, Chlordiazepoxide, Diazepam, Oxazepam, Chlorazepate, Lorazepam, Alprazolam, Zolpidem
Barbiturates : SAR of barbiturates, Barbitol, Amobarbital, Butobarbital, Pentobarbital, Secobarbital
Miscellaneous : Amides & imides Alcohol & their carbamate derivatives
Aldehyde & their derivatives
- b) **Antipsychotics**
Phenothiazines : SAR of Phenothiazines – Chlorpromazine hydrochloride, Triflupromazine, Thioridazine hydrochloride, Trifluoperazine hydrochloride
Ring Analogues of Phenothiazines : Thiothixene, Loxapine succinate, Clozapine.
Fluorobutero-phenones : Haloperidol, Droperidol, Risperidone.
Benzamides: Sulpiride.
- c) **Anticonvulsants** : SAR of Anticonvulsants, mechanism of anticonvulsant action
Barbiturates : Phenobarbitone, Mephobarbital
Hydantoins : Phenytoin, Mephenytoin



Oxazolidinediones : Trimethadione

Succinimides : Phensuximide, Methsuximide

Urea and monoacylureas : Phenacemide, Carbamazepine

Benzodiazepines : Clonazepam

Miscellaneous : Levetiracetam, Valproic acid, Gabapentin, Felbamate

d) General anesthetics :

Inhalation anesthetics : Halothane, Enflurane

Ultra-short acting barbiturates : Methohexital sodium, Thiopental sodium.

Dissociative anesthetics : Ketamine hydrochloride.

[Diazepam, Chlorpromazine hydrochloride, Carbamazepine, Halothane, Ketamine hydrochloride]

UNIT-V

09 hours

Centrally Acting analgesics

- a) **Narcotic and non-narcotic analgesics Morphine and related drugs** : SAR of Morphine analogues, Codeine, Meperidine hydrochloride, Loperamide hydrochloride, Fentanyl citrate, Methadone hydrochloride, Propoxyphene hydrochloride, Pentazocine.

Introduction to Narcotic antagonists

- b) **Anti-inflammatory agents** : Sodium salicylate, Aspirin, Mefenamic acid, Indomethacin, Sulindac, Diclofenac, Ketorolac, Ibuprofen, Piroxicam, Acetaminophen, Phenylbutazone.

[Fentanyl citrate, Mefenamic acid, Diclofenac, Ibuprofen]

Recommended Books (Latest Editions)

1. John Marlowe Beale, Wilson and Giswold's Organic medicinal and Pharmaceutical Chemistry. 11th E/d,
2. Thomas L. Lemke, David A. Williams, Victoria F. Roche, Foye's Principles of Medicinal Chemistry.
3. Burger's Medicinal Chemistry, Vol I to IV, 6th E/d, M. E. Wolff. John Wiley & Sons, New York. 1997.
4. Smith and Williams, Introduction to principles of drug design, CRC Press; 4 edition.
5. John E. Hoover, Remington's Pharmaceutical Sciences, Mack Publishing Company; 13th edition (1965).



6. Sean C. Sweetman, Martindale's extra pharmacopoeia, Pharmaceutical Society of Great Britain.
7. Organic Chemistry by I.L. Finar, Vol. II, Longmans Green & Co., 3rd E/d.
8. Daniel Lednicer, Lester A. Mitscher, The Organic Chemistry of Drug Synthesis, John Wiley & Sons, Inc, Vol. 1-5.
9. Indian Pharmacopoeia.
10. Text book of practical organic chemistry- A.I.Vogel.
11. An Introduction to Medicinal chemistry, Graham Patrick

BP 403 T. PHYSICAL PHARMACEUTICS-II (Theory)

45 Hours

Scope:

The course deals with the various physical and physicochemical properties, and principles involved in dosage forms/formulations. Theory and practical components of the subject help the student to get a better insight into various areas of formulation research and development, and stability studies of pharmaceutical dosage forms.

Objectives:

Upon the completion of the course student shall be able to

1. Relate various physicochemical properties of drug and excipient molecules in designing the dosage forms
2. Distinguish the principles of chemical kinetics & to use them for stability testing and determination of expiry date of formulations
3. Demonstrate the behavior and mechanism of drugs and excipients in the formulation development and evaluation of dosage forms.

Course Content:

UNIT-I

07 Hours

Colloidal dispersions: Classification of dispersed systems & their general characteristics, size & shapes of colloidal particles, classification of colloids & comparative account of their general



properties. Optical, kinetic & electrical properties. Effect of electrolytes, coacervation, peptization & protective action.

UNIT-II

10 Hours

Rheology: Newtonian systems, law of flow, kinematic viscosity, effect of temperature, non-Newtonian systems, pseudoplastic, dilatant, plastic, thixotropy, thixotropy in formulation, determination of viscosity, capillary, falling sphere, rotational viscometers, Visco elasticity
Deformation of solids: Plastic and elastic deformation, Heckel equation, Stress, Strain, Elastic Modulus

UNIT-III

10 Hours

Coarse dispersion: Suspension, interfacial properties of suspended particles, settling in suspensions, formulation of flocculated and deflocculated suspensions. Emulsions and theories of emulsification, microemulsion and multiple emulsions; Stability of emulsions, preservation of emulsions, rheological properties of emulsions and emulsion formulation by HLB method.

UNIT-IV

08 Hours

Micromeritics: Particle size and distribution, mean particle size, number and weight distribution, particle number, methods for determining particle size by different methods, counting and separation method, particle shape, specific surface, methods for determining surface area, permeability, adsorption, derived properties of powders, porosity, packing arrangement, densities, bulkiness & flow properties.

UNIT-V

10 Hours

Drug stability: Reaction kinetics: zero, pseudo-zero, first & second order (complex reaction: reversible, parallel and side reactions), units of basic rate constants, determination of reaction order. Physical and chemical factors influencing the chemical degradation of pharmaceutical product: temperature, solvent, ionic strength, dielectric constant, specific & general acid base catalysis, Simple numerical problems. Stabilization of medicinal agents against



common reactions like hydrolysis & oxidation. Accelerated stability testing in expiration dating of pharmaceutical dosage forms. Photolytic degradation and its prevention.

Recommended Books:

1. Physical Pharmacy by Alfred Martin, Sixth edition
2. Experimental pharmaceutics by Eugene, Parott.
3. Tutorial pharmacy by Cooper and Gunn.
4. Stocklosam J. Pharmaceutical calculations, Lea & Febiger, Philadelphia.
5. Liberman H.A, Lachman C., Pharmaceutical Dosage forms, Tablets, Volume-1 to 3, Marcel Dekkar Inc.
6. Liberman H.A, Lachman C, Pharmaceutical dosage forms. Disperse systems, volume 1 2, 3. Marcel Dekkar Inc.
7. Physical Pharmaceutics by Ramasamy C, and Manavalan R.

BP 404 T. PHARMACOLOGY-I (Theory)

45Hours

Scope:

The main purpose of the subject is to understand what drugs do to the living organisms and how their effects can be applied to therapeutics. The subject covers the information about the drugs, mechanism of action, physiological and biochemical effects (Pharmacodynamics) as well as absorption, distribution, metabolism and excretion (pharmacokinetics) along with the adverse effects, clinical uses, interactions, doses, contraindications and route of administration of different classes of drugs.

Objectives: Upon completion of the subject, student shall be able to –

1. Understand the pharmacological actions of different categories of drugs.
2. Explain the mechanism of action at organ system/sub cellular/macromolecular levels.
3. Apply the basic pharmacological knowledge in the prevention and treatment of various diseases.
4. Observe the effects of drugs on animal by simulated experiments.



5. Appreciate correlation of pharmacology with other bio medical sciences.

Course Content:

Unit-I

General Pharmacology: 06 Hrs

Introduction to Pharmacology 03 Hrs

Definition, Historical landmarks and scope of pharmacology, Nature and source of drugs, Essential drugs concept and Routes of drug administration.

Dose response relationship, Therapeutic index, Agonists, Antagonists (competitive and non-competitive), Combined effects of drugs.

Factors modifying drug action.

Pharmacokinetics 03 Hrs

Membrane transport, Absorption, Distribution, Metabolism and Excretion of drugs. Enzyme induction, Enzyme inhibition, Introduction to kinetics of elimination.

Unit-II

General Pharmacology 12 Hrs

Pharmacodynamics: 07

Principles and mechanisms of drug action.

Receptor theories and classification of receptors, regulation of receptors. Drug receptors interactions, Signal transduction mechanisms, G-protein-coupled receptors, Ion channel receptors

Introduction to transmembrane enzyme linked receptors, JAK-STAT binding receptors and receptors that regulate transcription factors, Spare receptors.

Adverse drug reactions: 02

Addiction, Tolerance, Dependence, Tachyphylaxis, Idiosyncrasy, Allergy (explain with suitable examples).

Drug interactions: 03

Pharmacokinetic and pharmacodynamic drug interactions.



Drug discovery and clinical evaluation of new drugs:

Introduction to drug discovery, Preclinical evaluation and Clinical trials.

Introduction to Pharmacovigilance

Unit III

Pharmacology of drugs acting on Peripheral Nervous System **08 Hrs**

Introduction to Autonomic Nervous System, Parasympathomimetics, **01**

Parasympatholytics, Sympathomimetics and Sympatholytics.

Neuromuscular blocking agents and skeletal muscle relaxants (peripheral). **02**

Local anaesthetic agents. **03**

Drugs used in myasthenia gravis and glaucoma **02**

Unit-IV

Pharmacology of drugs acting on central nervous system **10Hrs**

Neurohumoral transmission in the C.N.S.- **01**

Special emphasis to be given on importance of various neurotransmitters like with GABA, Glutamate, Glycine, Serotonin, Dopamine.

General anaesthetics and pre-anaesthetics **02**

Sedatives, Hypnotics and Centrally acting muscle relaxants **03**

Anti-epileptics **02**

Alcohol and Disulfiram **02**

Unit-V

Pharmacology of drugs acting on Central Nervous System **09Hrs**

Psychopharmacological agents: Antipsychotics, Antidepressants, Anti-anxiety agents, anti-manics and Hallucinogens **03**

Drugs used in Parkinson's disease and Alzheimer's disease **02**

CNS stimulants and Nootropics **02**

Opioid analgesics and antagonists (including addiction, abuse, tolerance and dependence) **02**



REFERENCES:

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3. Goodman and Gilman's, The Pharmacological Basis of Therapeutics
4. Marry Anne K. K., Lloyd Yee Y., Brian K. A., Robbin L.C., Joseph G. B., Wayne A. K., Bradley R.W., Applied Therapeutics, The Clinical use of Drugs, The Point Lippincott Williams &Wilkins
5. Mycek M.J, Gelnet S.B and Perper M.M. Lippincott's Illustrated Reviews-Pharmacology
6. K.D.Tripathi. Essentials of Medical Pharmacology, JAYPEE Brothers Medical Publishers (P) Ltd, New Delhi.
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8. Modern Pharmacology with clinical Applications, by Charles R. Craig & Robert,
9. Barar, F.S.K., Essentials of Pharmacotherapeutics; S. Chand and Company, New Delhi.
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12. Harrison's Principle and Practice of Medicine, 18th Edition, Churchill, Livingston, .London.
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15. Davidson's Principle of Internal Medicine, McGraw Hill companies.
16. Chatterjee, C.C., Human Physiology. Medical Allied Agency, Kolkata.
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BP 405 T.PHARMACOGNOSY AND PHYTOCHEMISTRY I (Theory) - 45 Hours

Scope: The subject involves the fundamentals of Pharmacognosy like scope, classification of crude drugs, their identification and evaluation, phytochemicals present in them and their medicinal properties.

Objectives: Upon completion of the course, the student shall be able

1. to know the techniques in the cultivation and production of crude drugs
2. to know the crude drugs, their uses and chemical nature
3. know the evaluation techniques for the herbal drugs
4. to carry out the microscopic and morphological evaluation of crude drugs

Course Content:

UNIT-I

10 Hours

Introduction to Pharmacognosy:

- (a) Definition, history, scope and development of Pharmacognosy
- (b) Sources of Drugs – Plants, Animals, Marine & Tissue culture
- (c) Organized drugs, unorganized drugs (dried latex, dried juices, dried extracts, gums and mucilages, oleoresins and oleo- gum -resins).

Classification of drugs:

Alphabetical, morphological, taxonomical, chemical, pharmacological, chemo and sero taxonomical classification of drugs

Quality control of Drugs of Natural Origin:

- Adulteration of drugs of natural origin. Evaluation by organoleptic, microscopic, physical, chemical and biological methods and properties.
- Quantitative microscopy of crude drugs including lycopodium spore method, leaf constants, camera lucida and diagrams of microscopic objects to scale with camera lucida.



UNIT-II

10 Hours

Cultivation, Collection, Processing and storage of drugs of natural origin:

- Cultivation and Collection of drugs of natural origin
- Factors influencing cultivation of medicinal plants.
- Plant hormones and their applications.
- Polyploidy, mutation and hybridization with reference to medicinal plants

Conservation of medicinal plants

UNIT-III

07 Hours

Plant tissue culture:

- Historical development of plant tissue culture, types of cultures, Nutritional requirements, growth and their maintenance.
- Applications of plant tissue culture in pharmacognosy.
- Edible vaccines

UNIT-IV

10 Hours

Plant description, morphology and anatomy:

Leaves, Roots, Barks, Wood, Flowers, Fruits, Seeds, subterranean organs

Introduction to secondary metabolites:

Definition, classification, properties and test for identification of Alkaloids, Glycosides, Flavonoids, Tannins, Volatile oil and Resins

UNIT-V

08 Hours

Study of biological source, chemical nature and uses of drugs of natural origin containing following drugs

Plant Products:

- Fibers - Cotton, Jute, Hemp
- Hallucinogens, Teratogens, Natural allergens



Primary metabolites: General introduction, detailed study with respect to chemistry, sources, preparation, evaluation, preservation, storage, therapeutic used and commercial utility as Pharmaceutical Aids and/or Medicines for the following Primary metabolites:

Carbohydrates: Acacia, Agar, Tragacanth, Honey

Proteins and Enzymes: Gelatin, casein, proteolytic enzymes (Papain, bromelain, serratiopeptidase, urokinase, streptokinase, pepsin).

Lipids (Waxes, fats, fixed oils): General methods of extraction of lipids.

Castor oil, Chaulmoogra oil, Shark liver oil and Cod liver oil, Wool Fat, Bees Wax

Marine Drugs:

Novel medicinal agents from marine sources a) Cardiovascular agents and b) Anti cancer agents

BP406P. MEDICINAL CHEMISTRY – I (Practical)

4Hrs/week

Synthesis of following medicinally important compounds / drug intermediates with

Recrystallization of compound and monitoring reactions with TLC

Preparation of drugs/ intermediates (any six)

10 turns

- 1,3-pyrazole
- 1,3-oxazole
- Benzimidazole
- Benztriazole
- 2,3- diphenyl quinoxaline
- Benzocaine
- Phenytoin
- Phenothiazine
- Barbiturate



Purification of above synthesized compounds by Column chromatography 01 turn (any one)
Determination of Partition coefficient and Ionization constants 04 turns
(any two compounds).

Recommended Books (Latest Editions)

1. John E. Hoover, Remington's Pharmaceutical Sciences, Mack Publishing Company; 13th edition (1965).
2. Sean C. Sweetman, Martindale's extra pharmacopoeia, Pharmaceutical Society of Great Britain.
3. Organic Chemistry by I.L. Finar, Vol. II, Longmans Green & Co., 3rd E/d.
4. Daniel Lednicer, Lester A. Mitscher, The Organic Chemistry of Drug Synthesis, John Wiley & Sons, Inc, Vol. 1-5.
5. Indian Pharmacopoeia.
6. Text book of practical organic chemistry- A.I. Vogel.
7. Medicinal Chemistry By Ashutosh Kar

BP 407P. PHYSICAL PHARMACEUTICS- II (Practical)

4 Hours/week

1. Determination of particle size, particle size distribution using sieving method
2. Determination of particle size, particle size distribution using Microscopic method
3. Determination of bulk density, true density and porosity
4. Determine the angle of repose and influence of lubricant on angle of repose
5. Determination of viscosity of liquid using Ostwald's viscometer
6. Determination sedimentation volume with effect of different suspending agent
7. Determination sedimentation volume with effect of different concentration of single suspending agent
8. Determination of viscosity of semisolid by using Brookfield viscometer
9. Determination of reaction rate constant first order.
10. Determination of reaction rate constant second order
11. Accelerated stability studies
12. Determination of Cloud point and Krafft point of given surfactant.



13. Determination of effect of salts on stability of hydrophobic sols

Recommended Books:

1. Physical Pharmacy by Alfred Martin, Sixth edition
2. Experimental pharmaceutics by Eugene, Parott.
3. Tutorial pharmacy by Cooper and Gunn.
4. Stocklosam J. Pharmaceutical calculations, Lea & Febiger, Philadelphia.
5. Liberman H.A, Lachman C., Pharmaceutical Dosage forms, Tablets, Volume-1 to 3, Marcel Dekkar Inc.
6. Liberman H.A, Lachman C, Pharmaceutical dosage forms. Disperse systems, volume 1, 2, 3. Marcel Dekkar Inc.
7. Physical Pharmaceutics by Ramasamy C, and Manavalan R.

BP 408 P. PHARMACOLOGY-I (Practical)

4Hrs/Week

1. Introduction to experimental pharmacology.
2. Commonly used instruments in experimental pharmacology.
3. Study of common laboratory animals and its possible use.
4. Maintenance of laboratory animals as per CPCSEA guidelines.
5. Common laboratory techniques. Blood withdrawal, serum and plasma separation, anesthetics and euthanasia used for animal studies.
6. Study of different routes of drugs administration in mice/rats.
7. Study of effect of hepatic microsomal enzyme inducers on the phenobarbitone sleeping time in mice.
8. Effect of drugs on ciliary motility of frog oesophagus
9. Effect of drugs on rabbit eye.
10. Effects of skeletal muscle relaxants using rota-rod apparatus.
11. Effect of drugs on locomotor activity using actophotometer.
12. Anticonvulsant effect of drugs by MES and PTZ method.
13. Study of stereotype and anti-catatonic activity of drugs on rats/mice.
14. Study of anxiolytic activity of drugs using rats/mice.
15. Study of local anaesthetics by different methods



Note: All laboratory techniques and animal experiments are demonstrated by simulated experiments by softwares and videos

REFERENCES:

1. Ghosh MN. Fundamentals of Experimental Pharmacology. Hilton & Company, Kolkata.
2. Kulkarni SK. Handbook of experimental pharmacology. Vallabh Prakashan.
3. Burn JH. Practical Pharmacology Blackwell Scientific, Oxford London.
4. Jaju BP. Pharmacology: A Practice Exercise Book, Jaypee Brothers, New Delhi.
5. Sheth UK, Dadkar NK and Kamat UG. selected topics in experimental pharmacology,(Kothari Book Depot, Mumbai)
6. Perry W.L.M. Pharmacological Experiments on Isolated Preparation, E&S Livingstone,London.
7. Goyal R. K., Practicals in Pharmacology, B. S. Shah Prakashan, Ahemadabad.

BP409 P. PHARMACOGNOSY AND PHYTOCHEMISTRY I (Practical): 4 Hours/Week

1. Analysis of crude drugs by chemical tests:
(i) Tragacanth (ii) Acacia (iii) Agar (iv) Gelatin (v) starch (vi) Honey (vii) Castor oil
2. Determination of stomatal number and index
3. Determination of vein islet number, vein islet termination and palisade ratio.
4. Determination of size of starch grains, calcium oxalate crystals by eye piece micrometer
5. Determination of Fiber length and width
6. Determination of number of starch grains by Lycopodium spore method
7. Determination of Ash value
8. Determination of Extractive values of crude drugs
9. Determination of moisture content of crude drugs
10. Determination of swelling index and foaming index



SAVITRIBAI PHULE PUNE UNIVERSITY

FACULTY OF SCIENCE AND TECHNOLOGY



Syllabus of Third Year B. Pharmacy

2019 PATTERN (Revised)

(EFFECTIVE FROM ACADEMIC YEAR 2021-2022)



Mae
PRINCIPAL
Dr. N. J. Paulbudhe College of Pharmacy
Shaneshwarnagar, Ahmednagar-414003

CHAPTER- I: REGULATIONS

1. Short Title and Commencement These regulations shall be called as “The Revised Regulations for the B. Pharm. Degree Program (CBCS) of the Pharmacy Council of India, New Delhi”. They shall come into effect from the Academic Year 2016-17. The regulations framed are subject to modifications from time to time by Pharmacy Council of India.

2. Minimum qualification for admission

2.1 First year B. Pharm: Candidate shall have passed 10+2 examination conducted by the respective state/central government authorities recognized as equivalent to 10+2 examination by the Association of Indian Universities (AIU) with English as one of the subjects and Physics, Chemistry, Mathematics (P.C.M) and or Biology (P.C.B / P.C.M.B.) as optional subjects individually. Any other qualification approved by the Pharmacy Council of India as equivalent to any of the above examinations.

2.2. B. Pharm lateral entry (to third semester): A pass in D. Pharm. course from an institution approved by the Pharmacy Council of India under section 12 of the Pharmacy Act.

3. Duration of the program The course of study for B.Pharm shall extend over a period of eight semesters (four academic years) and six semesters (three academic years) for lateral entry students. The curricula and syllabi for the program shall be prescribed from time to time by Pharmacy Council of India, New Delhi.

4. Medium of instruction and examinations Medium of instruction and examination shall be in English.

5. Working days in each semester Each semester shall consist of not less than 90 working days. The odd semesters shall be conducted from the month of June/July to November/December and the even semesters shall be conducted from December/January to May/June in every calendar year.



6. Attendance and progress A candidate is required to put in at least 80% attendance in individual courses considering theory and practical separately. The candidate shall complete the prescribed course satisfactorily to be eligible to appear for the respective examinations.

7. Program/Course credit structure As per the philosophy of Credit Based Semester System, certain quantum of academic work viz. theory classes, tutorial hours, practical classes, etc. are measured in terms of credits. On satisfactory completion of the courses, a candidate earns credits. The amount of credit associated with a course is dependent upon the number of hours of instruction per week in that course. Similarly, the credit associated with any of the other academic, co/extra-curricular activities is dependent upon the quantum of work expected to be put in for each of these activities per week.

7.1. Credit assignment

7.1.1. Theory and Laboratory courses Courses are broadly classified as Theory and Practical. Theory courses consist of lecture (L) and /or tutorial (T) hours, and Practical (P) courses consist of hours spent in the laboratory. Credits (C) for a course is dependent on the number of hours of instruction per week in that course, and is obtained by using a multiplier of one (1) for lecture and tutorial hours, and a multiplier of half (1/2) for practical (laboratory) hours. Thus, for example, a theory course having three lectures and one tutorial per week throughout the semester carries a credit of 4. Similarly, a practical having four laboratory hours per week throughout semester carries a credit of 2.

7.2. Minimum credit requirements The minimum credit points required for award of a B. Pharm. degree is 208. These credits are divided into Theory courses, Tutorials, Practical, Practice School and Project over the duration of eight semesters. The credits are distributed semester-wise as shown in Table IX. Courses generally progress in sequences, building competencies and their positioning indicates certain academic maturity on the part of the learners. Learners are expected to follow the semester-wise schedule of courses given in the syllabus. The lateral entry students shall get 52 credit points transferred from their D. Pharm program. Such students shall take up additional remedial courses of „Communication Skills“ (Theory and Practical) and „Computer Applications in Pharmacy“ (Theory and Practical) equivalent to 3 and 4 credit points



respectively, a total of 7 credit points to attain 59 credit points, the maximum of I and II semesters.

8. Academic work A regular record of attendance both in Theory and Practical shall be maintained by the teaching staff of respective courses.

9. Course of study The course of study for B. Pharm shall include Semester Wise Theory & Practical as given in Table – I to VIII. The number of hours to be devoted to each theory, tutorial and practical course in any semester shall not be less than that shown in Table – I to VIII.

Table-I: Course of study for semester I

Course code	Name of the course	No. of Hours per week/Total no of hours	Tutorial	Credit points
BP101T	Human Anatomy and Physiology I– Theory	3/45	1	4
BP102T	Pharmaceutical Analysis I – Theory	3/45	1	4
BP103T	Pharmaceutics I – Theory	3/45	1	4
BP104T	Pharmaceutical Inorganic Chemistry – Theory	3/45	1	4
BP105T	Communication skills – Theory *	2/30	-	2
BP106RBT BP106RMT	Remedial Biology/ Remedial Mathematics – Theory*	2/30	-	D
BP107P	Human Anatomy and Physiology – Practical	4/60	-	2
BP108P	Pharmaceutical Analysis I – Practical	4/60	-	2
BP109P	Pharmaceutics I – Practical	4/60	-	2
BP110P	Pharmaceutical Inorganic Chemistry – Practical	4/60	-	2
BP111P	Communication skills – Practical*	2/30	-	1
BP112RBP	Remedial Biology – Practical*	2/30	-	D
Total		32/34^s/36[#]/480 /510^s/540[#]	4	27

Applicable ONLY for the students who have studied Mathematics / Physics / Chemistry at HSC and appearing for Remedial Biology (RB) course. However for Remedial biology and Mathematics no credits to be allotted only 50 % passing i.e D grade will be prerequisite.



§ Applicable ONLY for the students who have studied Physics / Chemistry / Botany / Zoology at HSC and appearing for Remedial Mathematics (RM) course.

* Non University Examination (NUE)

Table-II: Course of study for semester II

Course Code	Name of the course	No. of Hours per week/Total no of hours	Tutorial	Credit points
BP201T	Human Anatomy and Physiology II – Theory	3/45	1	4
BP202T	Pharmaceutical Organic Chemistry I – Theory	3/45	1	4
BP203T	Biochemistry – Theory	3/45	1	4
BP204T	Pathophysiology – Theory	3/45	1	4
BP205T	Computer Applications in Pharmacy – Theory *	3/45	-	3
BP206T	Environmental sciences – Theory *	3/45	-	3
BP207P	Human Anatomy and Physiology II –Practical	4/60	-	2
BP208P	Pharmaceutical Organic Chemistry I– Practical	4/60	-	2
BP209P	Biochemistry – Practical	4/60	-	2
BP210P	Computer Applications in Pharmacy – Practical*	4/60	-	1
Total		32/480	4	29

*Non University Examination (NUE)

Table-III: Course of study for semester III

Course code	Name of the course	No. of Hours per week/Total no of hours	Tutorial	Credit points
BP301T	Pharmaceutical Organic Chemistry II – Theory	3/45	1	4
BP302T	Physical Pharmaceutics I – Theory	3/45	1	4
BP303T	Pharmaceutical Microbiology – Theory	3/45	1	4
BP304T	Pharmaceutical Engineering – Theory	3/45	1	4
BP305P	Pharmaceutical Organic Chemistry II – Practical	4/60	-	2
BP306P	Physical Pharmaceutics I – Practical	4/60	-	2
BP307P	Pharmaceutical Microbiology – Practical	4/60	-	2
BP 308P	Pharmaceutical Engineering –Practical	4/60	-	2
Total		28/420	4	24



Table-IV: Course of study for semester IV

Course code	Name of the course	No. of Hours per week/Total no of hours	Tutorial	Credit Points
BP401T	Pharmaceutical Organic Chemistry III- Theory	3/45	1	4
BP402T	Medicinal Chemistry I – Theory	3/45	1	4
BP403T	Physical Pharmaceutics II – Theory	3/45	1	4
BP404T	Pharmacology I – Theory	3/45	1	4
BP405T	Pharmacognosy and Phytochemistry I– Theory	3/45	1	4
BP406P	Medicinal Chemistry I – Practical	4/60	-	2
BP407P	Physical Pharmaceutics II – Practical	4/60	-	2
BP408P	Pharmacology I – Practical	4/60	-	2
BP409P	Pharmacognosy and Phytochemistry I – Practical	4/60	-	2
Total		31/465	5	28

Table-V: Course of study for semester V

Course code	Name of the course	No. of Hours per week/Total no of hours	Tutorial	Credit points
BP501T	Medicinal Chemistry II – Theory	3/45	1	4
BP502T	Industrial Pharmacy-I- Theory	3/45	1	4
BP503T	Pharmacology II – Theory	3/45	1	4
BP504T	Pharmacognosy and Phytochemistry II– Theory	3/45	1	4
BP505T	Pharmaceutical Jurisprudence – Theory	3/45	1	4
BP506P	Industrial Pharmacy-I - Practical	4/60	-	2
BP507P	Pharmacology II – Practical	4/60	-	2
BP508P	Pharmacognosy and Phytochemistry II – Practical	4/60	-	2
Total		27/405	5	26



Table-VI: Course of study for semester VI

Course code	Name of the course	No. of Hours per week/Total no of hours	Tutorial	Credit points
BP601T	Medicinal Chemistry III – Theory	3/45	1	4
BP602T	Pharmacology III – Theory	3/45	1	4
BP603T	Herbal Drug Technology – Theory	3/45	1	4
BP604T	Biopharmaceutics and Pharmacokinetics – Theory	3/45	1	4
BP605T	Pharmaceutical Biotechnology – Theory	3/45	1	4
BP606T	Quality Assurance – Theory	3/45	1	4
BP607P	Medicinal chemistry III – Practical	4/60	-	2
BP608P	Pharmacology III – Practical	4/60	-	2
BP609P	Herbal Drug Technology – Practical	4/60	-	2
Total		30/450	6	30

Table-VII: Course of study for semester VII

Course code	Name of the course	No. of Hours per week/Total no of hours	Tutorial	Credit points
BP701T	Instrumental Methods of Analysis – Theory	3/45	1	4
BP702T	Industrial Pharmacy-II – Theory	3/45	1	4
BP703T	Pharmacy Practice – Theory	3/45	1	4
BP704T	Novel Drug Delivery System – Theory	3/45	1	4
BP705P	Instrumental Methods of Analysis – Practical	4/60	-	2
BP706PS	Practice School*	12/180	-	6
Total		28/420	5	24

* Non University Examination (NUE)



Table-VIII: Course of study for semester VIII

Course code	Name of the course	No. of Hours per week/Total no of hours	Tutorial	Credit points
BP801T	Biostatistics and Research Methodology	3/45	1	4
BP802T	Social and Preventive Pharmacy	3/45	1	4
BP803ET	Pharma Marketing Management	3 + 3 = 6/90	1 + 1 = 2	4 + 4 = 8
BP804ET	Pharmaceutical Regulatory Science			
BP805ET	Pharmacovigilance			
BP806ET	Quality Control and Standardizations of Herbals			
BP807ET	Computer Aided Drug Design			
BP808ET	Cell and Molecular Biology			
BP809ET	Cosmetic Science			
BP810ET	Pharmacological Screening Methods			
BP811ET	Advanced Instrumentation Techniques			
BP812PW	Project Work	12/180	-	6
Total		24/360	4	22

Table-IX: Semester wise credits distribution

Semester	Credit Points
I	27
II	29
III	26
IV	28
V	26
VI	26
VII	24
VIII	22
Extracurricular/ Co curricular activities	01*
Total credit points for the program	209

* The credit points assigned for extracurricular and or co-curricular activities shall be given by the Principals of the colleges and the same shall be submitted to the University. The criteria to acquire this credit point shall be defined by the colleges from time to time.



§ Applicable ONLY for the students studied Physics / Chemistry / Botany / Zoology at HSC and appearing for Remedial Mathematics course.

Applicable ONLY for the students studied Mathematics / Physics / Chemistry at HSC and appearing for Remedial Biology course.

1. Program Committee

- The B. Pharm. program shall have a Program Committee constituted by the Head of the institution in consultation with all the Heads of the departments.
- The composition of the Program Committee shall be as follows:
- A senior teacher shall be the Chairperson; One Teacher from each department handling B.Pharm courses; and four student representatives of the program (one from each academic year), nominated by the Head of the institution.

Duties of the Program Committee:

- I. Periodically reviewing the progress of the classes.
- II. Discussing the problems concerning curriculum, syllabus and the conduct of classes.
- III. Discussing with the course teachers on the nature and scope of assessment for the course and the same shall be announced to the students at the beginning of respective semesters.
- IV. Communicating its recommendation to the Head of the institution on academic matters.
- V. The Program Committee shall meet at least thrice in a semester preferably at the end of each Sessionalexam (Internal Assessment) and before the end semester exam.

2. Examinations/Assessments

The scheme for internal assessment and end semester examinations is given in Table – X.

2.1. End semester examinations

The End Semester Examinations for each theory and practical course through semesters I to VIII shall be conducted by the university except for the subjects with asterix symbol (*) in table I and II for which examinations shall be conducted by the subject experts at college level and the marks/grades shall be submitted to the university.



Tables-X: Schemes for internal assessments and end semester examinations semester wise

Semester I

Course Code	Name of the course	Internal Assessment				End Semester Exams		Total Marks
		Continuous Mode	Sessional Marks	Sessional Duration	Total	Marks	Duration	
BP101T	Human Anatomy and Physiology I – Theory	10	15	1 Hr	25	75	3 Hrs	100
BP102T	Pharmaceutical Analysis I – Theory	10	15	1 Hr	25	75	3 Hrs	100
BP103T	Pharmaceutics I – Theory	10	15	1 Hr	25	75	3 Hrs	100
BP104T	Pharmaceutical Inorganic Chemistry – Theory	10	15	1 Hr	25	75	3 Hrs	100
BP105T	Communication skills – Theory *	5	10	1 Hr	15	35	1.5 Hrs	50
BP106RBT BP106RMT	Remedial Biology/ Mathematics – Theory*	5	10	1 Hr	15	35	1.5 Hrs	50
BP107P	Human Anatomy and Physiology – Practical	5	10	4 Hrs	15	35	4 Hrs	50
BP108P	Pharmaceutical Analysis I – Practical	5	10	4 Hrs	15	35	4 Hrs	50
BP109P	Pharmaceutics I – Practical	5	10	4 Hrs	15	35	4 Hrs	50
BP110P	Pharmaceutical Inorganic Chemistry – Practical	5	10	4 Hrs	15	35	4 Hrs	50
BP111P	Communication skills – Practical*	5	5	2 Hrs	10	15	2 Hrs	25
BP112RBP	Remedial Biology – Practical*	5	5	2 Hrs	10	15	2 Hrs	25
Total		70/75^S/ 80[#]	115/125^S/ /130[#]	23/24^S/ 6[#] Hrs	185/200^S/ 210[#]	490/525^S/ 540[#]	31.5/35^S/ 35[#] Hrs	675/ 725^S/ 750[#]



Applicable ONLY for the students studied Mathematics / Physics / Chemistry at HSC and appearing for Remedial Biology (RB)course.

\$ Applicable ONLY for the students studied Physics / Chemistry / Botany / Zoology at HSC and appearing for Remedial Mathematics (RM)course.

* Non University Examination (NUE)



Semester II

Course code	Name of the course	Internal Assessment				End Semester Exams		Total Marks
		Continuous Mode	Sessional Exams		Total	Marks	Duration	
			Marks	Duration				
BP201T	Human Anatomy and Physiology II – Theory	10	15	1 Hr	25	75	3 Hrs	100
BP202T	Pharmaceutical Organic Chemistry I – Theory	10	15	1 Hr	25	75	3 Hrs	100
BP203T	Biochemistry – Theory	10	15	1 Hr	25	75	3 Hrs	100
BP204T	Pathophysiology – Theory	10	15	1 Hr	25	75	3 Hrs	100
BP205T	Computer Applications in Pharmacy – Theory*	10	15	1 Hr	25	50	2 Hrs	75
BP206T	Environmental sciences – Theory*	10	15	1 Hr	25	50	2 Hrs	75
BP207P	Human Anatomy and Physiology II – Practical	5	10	4 Hrs	15	35	4 Hrs	50
BP208P	Pharmaceutical Organic Chemistry I – Practical	5	10	4 Hrs	15	35	4 Hrs	50
BP209P	Biochemistry – Practical	5	10	4 Hrs	15	35	4 Hrs	50
BP210P	Computer Applications in Pharmacy – Practical*	5	5	2 Hrs	10	15	2 Hrs	25
Total		80	125	20 Hrs	205	520	30 Hrs	725

* The subject experts at college level shall conduct examinations



Semester III

Course code	Name of the course	Internal Assessment				End Semester Exams		Total Marks
		Continuous Mode	Sessional Exams		Total	Marks	Duration	
			Marks	Duration				
BP301T	Pharmaceutical Organic Chemistry II – Theory	10	15	1 Hr	25	75	3 Hrs	100
BP302T	Physical Pharmaceutics I – Theory	10	15	1 Hr	25	75	3 Hrs	100
BP303T	Pharmaceutical Microbiology – Theory	10	15	1 Hr	25	75	3 Hrs	100
BP304T	Pharmaceutical Engineering – Theory	10	15	1 Hr	25	75	3 Hrs	100
BP305P	Pharmaceutical Organic Chemistry II – Practical	5	10	4 Hr	15	35	4 Hrs	50
BP306P	Physical Pharmaceutics I – Practical	5	10	4 Hr	15	35	4 Hrs	50
BP307P	Pharmaceutical Microbiology – Practical	5	10	4 Hr	15	35	4 Hrs	50
BP308P	Pharmaceutical Engineering – Practical	5	10	4 Hr	15	35	4 Hrs	50
Total		60	100	20	160	440	28Hrs	600



Semester IV

Course code	Name of the course	Internal Assessment				End Semester Exams		Total Marks
		Continuous Mode	Sessional Exams		Total	Marks	Duration	
			Marks	Duration				
BP401T	Pharmaceutical Organic Chemistry III – Theory	10	15	1 Hr	25	75	3 Hrs	100
BP402T	Medicinal Chemistry I – Theory	10	15	1 Hr	25	75	3 Hrs	100
BP403T	Physical Pharmaceutics II – Theory	10	15	1 Hr	25	75	3 Hrs	100
BP404T	Pharmacology I – Theory	10	15	1 Hr	25	75	3 Hrs	100
BP405T	Pharmacognosy I – Theory	10	15	1 Hr	25	75	3 Hrs	100
BP406P	Medicinal Chemistry I – Practical	5	10	4 Hrs	15	35	4 Hrs	50
BP407P	Physical Pharmaceutics II – Practical	5	10	4 Hrs	15	35	4 Hrs	50
BP408P	Pharmacology I – Practical	5	10	4 Hrs	15	35	4 Hrs	50
BP409P	Pharmacognosy I – Practical	5	10	4 Hrs	15	35	4 Hrs	50
Total		70	115	21 Hrs	185	515	31 Hrs	700



Semester V

Course code	Name of the course	Internal Assessment				End Semester Exams			Total Marks
		Continuous Mode	Sessional Exams		Total	Marks	Duration		
			Marks	Duration					
BP501T	Medicinal Chemistry II – Theory	10	15	1 Hr	25	75	3 Hrs	100	
BP502T	Industrial Pharmacy-I- Theory	10	15	1 Hr	25	75	3 Hrs	100	
BP503T	Pharmacology II – Theory	10	15	1 Hr	25	75	3 Hrs	100	
BP504T	Pharmacognosy II – Theory	10	15	1 Hr	25	75	3 Hrs	100	
BP505T	Pharmaceutical Jurisprudence – Theory	10	15	1 Hr	25	75	3 Hrs	100	
BP506P	Industrial Pharmacy-I – Practical	5	10	4 Hr	15	35	4 Hrs	50	
BP507P	Pharmacology II – Practical	5	10	4 Hr	15	35	4 Hrs	50	
BP508P	Pharmacognosy II – Practical	5	10	4 Hr	15	35	4 Hrs	50	
Total		65	105	17 Hr	170	480	27 Hrs	650	



Semester VI

Course code	Name of the course	Internal Assessment				End Semester Exams		Total Marks
		Continuous Mode	Sessional Exams		Total	Marks	Duration	
			Marks	Duration				
BP601T	Medicinal Chemistry III – Theory	10	15	1 Hr	25	75	3 Hrs	100
BP602T	Pharmacology III – Theory	10	15	1 Hr	25	75	3 Hrs	100
BP603T	Herbal Drug Technology – Theory	10	15	1 Hr	25	75	3 Hrs	100
BP604T	Biopharmaceutics and Pharmacokinetics – Theory	10	15	1 Hr	25	75	3 Hrs	100
BP605T	Pharmaceutical Biotechnology – Theory	10	15	1 Hr	25	75	3 Hrs	100
BP606T	Quality Assurance – Theory	10	15	1 Hr	25	75	3 Hrs	100
BP607P	Medicinal chemistry III – Practical	5	10	4 Hrs	15	35	4 Hrs	50
BP608P	Pharmacology III – Practical	5	10	4 Hrs	15	35	4 Hrs	50
BP609P	Herbal Drug Technology – Practical	5	10	4 Hrs	15	35	4 Hrs	50
Total		75	120	18 Hrs	195	555	30 Hrs	750



Semester VII

Course code	Name of the course	Internal Assessment				End Semester Exams			Total Marks
		Continuous Mode	Sessional Exams		Total	Marks	Duration		
			Marks	Duration					
BP701T	Instrumental Methods of Analysis – Theory	10	15	1 Hr	25	75	3 Hrs	100	
BP702T	Industrial Pharmacy -II- Theory	10	15	1 Hr	25	75	3 Hrs	100	
BP703T	Pharmacy Practice – Theory	10	15	1 Hr	25	75	3 Hrs	100	
BP704T	Novel Drug Delivery System – Theory	10	15	1 Hr	25	75	3 Hrs	100	
BP705 P	Instrumental Methods of Analysis – Practical	5	10	4 Hrs	15	35	4 Hrs	50	
BP706 PS	Practice School*	25	-	-	25	125	5 Hrs	150	
Total		70	70	8Hrs	140	460	21 Hrs	600	

* The subject experts at college level shall conduct examinations



Semester VIII

Course code	Name of the course	Internal Assessment				End Semester Exams		Total Marks
		Continuous Mode	Sessional Exams		Total	Marks	Duration	
			Marks	Duration				
BP801T	Biostatistics and Research Methodology – Theory	10	15	1 Hr	25	75	3 Hrs	100
BP802T	Social and Preventive Pharmacy – Theory	10	15	1 Hr	25	75	3 Hrs	100
BP803ET	Pharma. Marketing Management – Theory							
BP804ET	Pharmaceutical Regulatory Science – Theory							
BP805ET	Pharmacovigilance – Theory							
BP806ET	Quality Control and Standardizations of Herbals – Theory							
BP807ET	Computer Aided Drug Design – Theory							
BP808ET	Cell and Molecular Biology – Theory	10 + 10 = 20	15 + 15 = 30	1 + 1 = 2 Hrs	25 + 25 = 50	75 + 75 = 150	3 + 3 = 6 Hrs	100 + 100 = 200
BP809ET	Cosmetic Science – Theory							
BP810ET	Pharmacological Screening Methods-Theory							
BP811ET	Advanced Instrumentation Techniques – Theory							
BP812PW	Project Work					150	4 Hrs	150
Total		40	60	4 Hrs	100	450	16 Hrs	550



11.2 Internal assessment: Continuous mode

The marks allocated for Continuous mode of Internal Assessment shall be awarded as per the scheme given below.

Table-XI: Scheme for awarding internal assessment: Continuous mode

Theory		
Criteria	Maximum Marks	
Attendance (Refer Table – XII)	4	2
Academic activities (Average of any 2 activities e.g. quiz, assignment, open book test, field work, group discussion and seminar)	4	03
Student – Teacher interaction	2	
Total	10	5
Practical		
Attendance (Refer Table – XII)	2	
Based on Practical Records, Regular viva voce, etc.	3	
Total	5	

Table- XII: Guidelines for the allotment of marks for attendance

Percentage of Attendance	Theory	Practical
95 – 100	4	2
90 – 94	3	1.5
85 – 89	2	1
80 – 84	1	0.5
Less than 80	0	0

11.2.1. Sessional Exams

Two Sessional exams shall be conducted for each theory / practical course as per the schedule fixed by the college(s). The scheme of question paper for theory and practical Sessional examinations is given below. The average marks of two Sessional exams shall be



computed for internal assessment as per the requirements given in tables – X.

Sessional exam shall be conducted for 30 marks for theory and shall be computed for 15 marks. Similarly Sessional exam for practical shall be conducted for 40 marks and shall be computed for 10 marks. The duration for the conduct of the exam is as below

Exam Type	Marks allotted	Duration
Theory	30	1.5 Hr
Practical	40	04 Hr

Question paper pattern for theory Sessional

For subjects having University exams

I. Objective Type Questions (Answer 05 out of 7)	=5 x 2 = 10
II. Long Answers (Answer 1 out of 2)	=1 x 10 = 10
III. Short Answers (Answer 2 out of 3)	=2 x 5 = 10
Total	30 marks

For subjects having Non University Examination

I. Long Answers (Answer 1 out of 2)	=1 x 10 = 10
II. Short Answers (Answer 4 out of 6)	=4 x 5 = 20
Total	30 marks



Question paper pattern for practical sessional examinations

I. Synopsis	= 10
II. Experiments	= 25
III. Viva voce	= 05
Total	40 marks

12. Promotion and award of grades

A student shall be declared PASS and eligible for getting grade in a course of B.Pharm. program if he/she secures at least 50% marks in that particular course including internal assessment. For example, to be declared as PASS and to get grade, the student has to secure a minimum of 50 marks for the total of 100 including continuous mode of assessment and end semester theory examination and has to secure a minimum of 25 marks for the total 50 including internal assessment and end semester practical examination.

13. Carry forward of marks

In case a student fails to secure the minimum 50% in any Theory or Practical course as specified in 12, then he/she shall reappear for the end semester examination of that course. However his/her marks of the Internal Assessment shall be carried over and he/she shall be entitled for grade obtained by him/her on passing.

14. Improvement of internal assessment

A student shall have the opportunity to improve his/her performance only once in the Sessional exam component of the internal assessment. The re-conduct of the Sessional exam shall be completed before the commencement of next end semester theory examinations.



15. Re-examination of end semester examinations

Reexamination of end semester examinations shall be conducted as per the schedule given in table XIII. The exact dates of examinations shall be notified from time to time.

Table-XIII: Tentative schedule of end semester examinations

Semester	For Regular Candidates	For Failed Candidates
I, III, V and VII	November / December	May / June
II, IV, VI and VIII	May / June	November / December

Question paper pattern for end semester theory examinations

For 75 marks paper

I. Objective Type Questions (Answer 5 out of 7)	= 5 x 3 = 15
II. Long Answers (Answer 2 out of 4)	= 2 x 10 = 20
III. Short Answers (Answer 8 out of 10)	= 8 x 5 = 40
Total	= 75 marks

For 50 marks paper

I. Long Answers (Answer 2 out of 3)	= 2 x 10 = 20
II. Short Answers (Answer 6 out of 8)	= 6 x 5 = 30
Total	= 50 marks

For 35 marks paper

I. Long Answers (Answer 1 out of 2)	= 1 x 10 = 10
II. Short Answers (Answer 5 out of 7)	= 5 x 5 = 25
Total	= 25 marks



Question paper pattern for end semester practical examinations

I. Synopsis	= 5
II. Experiments	= 25
III. Viva voce	= 05
Total	= 35marks

16. Academic Progression:

No student shall be admitted to any examination unless he/she fulfills the norms given in

6. Academic progression rules are applicable as follows:

A student shall be eligible to carry forward all the courses of I, II and III semesters till the IV semester examinations. However, he/she shall not be eligible to attend the courses of V semester until all the courses of I and II semesters are successfully completed.

A student shall be eligible to carry forward all the courses of III, IV and V semesters till the VI semester examinations. However, he/she shall not be eligible to attend the courses of VII semester until all the courses of I, II, III and IV semesters are successfully completed.

A student shall be eligible to carry forward all the courses of V, VI and VII semesters till the VIII semester examinations. However, he/she shall not be eligible to get the course completion certificate until all the courses of I, II, III, IV, V and VI semesters are successfully completed.

A student shall be eligible to get his/her CGPA upon successful completion of the courses of I to VIII semesters within the stipulated time period as per the norms specified in 26.



A lateral entry student shall be eligible to carry forward all the courses of III, IV and V semesters till the VI semester examinations. However, he/she shall not be eligible to attend the courses of VII semester until all the courses of III and IV semesters are successfully completed.

A lateral entry student shall be eligible to carry forward all the courses of V, VI and VII semesters till the VIII semester examinations. However, he/she shall not be eligible to get the course completion certificate until all the courses of III, IV, V and VI semesters are successfully completed.

A lateral entry student shall be eligible to get his/her CGPA upon successful completion of the courses of III to VIII semesters within the stipulated time period as per the norms specified in 26.

Any student who has given more than 4 chances for successful completion of I / III semester courses and more than 3 chances for successful completion of II / IV semester courses shall be permitted to attend V / VII semester classes ONLY during the subsequent academic year as the case may be. In simpler terms there shall NOT be any ODD BATCH for any semester.

Note: Grade AB should be considered as failed and treated as one head for deciding academic progression. Such rules are also applicable for those students who fail to register for examination(s) of any course in any semester.

Rules for Carry Forward:

The curriculum (including regulations, structure and syllabi) is in force from academic year 2018-19 and onwards for First Year B. Pharm, for academic year 2019- 20 onwards for Second Year B. Pharm., for academic year 2020-21 and onwards for Third Year B. Pharm., and for academic year 2021-22 and onwards for Final Year B. Pharm.

The learners who were admitted to First Year B. Pharm. of 2015 pattern during the academic year 2017-18 or before & failed in the First Year B.Pharm. of 2015 pattern examination will have to take admission to Semester-III of Second Year B. Pharm. of 2018 pattern in academic



year 2019-20 or onwards, provided that

Sr. No	Remedial courses for admission to S.Y.B.Pharm in Academic Year 2019-20 (Cleared F.Y. B. Pharm as per 2015 Pattern)		
	(Non University Examination)	Semester	Passing Criteria
1.	Biochemistry – Theory/Practicals	Semester III	Minimum 50% marks with D grade
2.	Pathophysiology- Theory		Minimum 50% marks with D grade
3.	Computer Applications in Pharmacy – Theory/Practicals	Semester IV	Minimum 50% marks with D grade
4.	Environmental sciences – Theory		Minimum 50% marks with D grade

a) Their result of F. Y. B. Pharm of 2015 pattern is either pass or fails with A. T. K. T. The said students will have to take up additional remedial courses as follows.

b) The learners who were admitted to S.Y B. Pharm. of 2015 pattern during the academic year 2018-19 or before and fail in the S.Y B.Pharm. of 2015 pattern examination will have to take admission to Semester-V of Third Year B. Pharm. of 2018 pattern in academic year 2020-21 or onwards, provided that Their result of S. Y. B. Pharm of 2015 pattern is either pass or fails with A. T. K. T. The said students will have to take up additional remedial course as follows.



Sr. No	Remedial courses for admission to T.Y. B.Pharm in Academic Year 2020-21 (Cleared S. Y.B. Pharm as per 2015 Pattern)		
	(Non University Examination with 50% passing.)	Semester	Passing Criteria
1.	Medicinal Chemistry I – Theory/ Practical	Semester V	Minimum 50% marks with D grade

17. Grading of performances

17.1. Letter grades and grade points allocations:

Based on the performances, each student shall be awarded a final letter grade at the end of the semester for each course. The letter grades and their corresponding grade points are given in Table – XII.

Table – XII: Letter grades and grade points equivalent to Percentage of marks and performances

Percentage of Marks Obtained	Letter Grade	Grade Point	Performance
90.00 – 100	O	10	Outstanding
80.00 – 89.99	A	9	Excellent
70.00 – 79.99	B	8	Good
60.00 – 69.99	C	7	Fair
50.00 – 59.99	D	6	Average
Less than 50	F	0	Fail
Absent	AB	0	Fail

A learner who remains absent for any end semester examination shall be assigned a letter grade of AB and a corresponding grade point of zero. He/she should reappear for the said evaluation/examination in due course.



18. The Semester grade point average (SGPA)

The performance of a student in a semester is indicated by a number called „Semester Grade Point Average“ (SGPA). The SGPA is the weighted average of the grade points obtained in all the courses by the student during the semester. For example, if a student takes five courses(Theory/Practical) in a semester with credits C1, C2, C3, C4 and C5 and the student’s grade points in these courses are G1, G2, G3, G4 and G5, respectively, and then students’ SGPA is equal to:

$$\text{SGPA} = \frac{C_1G_1 + C_2G_2 + C_3G_3 + C_4G_4 + C_5G_5}{C_1 + C_2 + C_3 + C_4 + C_5}$$

The SGPA is calculated to two decimal points. It should be noted that, the SGPA for any semester shall take into consideration the F and ABS grade awarded in that semester. For example if a learner has a F or ABS grade in course 4, the SGPA shall then be computed as:

$$\text{SGPA} = \frac{C_1G_1 + C_2G_2 + C_3G_3 + C_4 * \text{ZERO} + C_5G_5}{C_1 + C_2 + C_3 + C_4 + C_5}$$

19. Cumulative Grade Point Average (CGPA)

The CGPA is calculated with the SGPA of all the VIII semesters to two decimal points and is indicated in final grade report card/final transcript showing the grades of all VIII semesters and their courses. The CGPA shall reflect the failed status in case of F grade(s), till the course(s) is/are passed. When the course(s) is/are passed by obtaining a pass grade on subsequent examination(s) the CGPA shall only reflect the new grade and not the fail grades earned earlier. The CGPA is calculated as:



$$CGPA = \frac{C1S1 + C2S2 + C3S3 + C4S4 + C5S5 + C6S6 + C7S7 + C8S8}{C1 + C2 + C3 + C4 + C5 + C6 + C7 + C8}$$

where C_1, C_2, C_3, \dots is the total number of credits for semester I, II, III, and S_1, S_2, S_3, \dots is the SGPA of semester I, II, III,

20. Declaration of class

The class shall be awarded on the basis of CGPA as follows

First Class with Distinction	= CGPA of. 7.50 and above
First Class	= CGPA of. 6.00 to 7.49
Second Class	= CGPA of. 5.00 to 5.99

21. Project work

All the students shall undertake a project under the supervision of a teacher and submit a report. The area of the project shall directly relate any one of the elective subject opted by the student in semester VIII. The project shall be carried out in group not exceeding 5 in number. The project report shall be submitted in triplicate (typed & bound copy not less than 25 pages).

The internal and external examiner appointed for evaluation of the project shall be approved teachers of SPPU /Industrial Experts appointed by Principal of the respective institute. Students shall be evaluated in groups for four hours (i.e., about half an hour for a group of five students). The projects shall be evaluated as per the criteria given below

Evaluation of Dissertation Book:

Objective(s) of the work done	15 Marks
Methodology adopted	20 Marks
Results and Discussions	20 Marks
Conclusions and Outcomes	20 Marks

Total 75 Marks



Evaluation of Presentation:

Presentation of work	25 Marks
Communication skills	20 Marks
Question and answer skills	30 Marks
<hr/>	
Total	75 Marks
<hr/>	

Explanation: The 75 marks assigned to the dissertation book shall be same for all the students in a group. However, the 75 marks assigned for presentation shall be awarded based on the performance of individual students in the given criteria.

22. Industrial training (Desirable)

Every candidate shall be required to work for at least 150 hours spread over four weeks in a Pharmaceutical Industry/Hospital. It includes Production unit, Quality Control department, Quality Assurance department, Analytical laboratory, Chemical manufacturing unit, Pharmaceutical R&D, Hospital (Clinical Pharmacy), Clinical Research Organization, Community Pharmacy, etc. After the Semester – VI and before the commencement of Semester – VII, and shall submit satisfactory report of such work and certificate duly signed by the authority of training organization to the head of the institute.

AND/OR

Every candidate shall be required to undergo any one of the Skill development modules mentioned below(**Duration – Min. 04 weeks**)

- a) Hands on Training (Central instrumentation lab/Machine room etc)
- b) UGC/AICTE recognized online courses (SWAYAM/NPTEL etc)

After the successful completion of the module the candidate shall submit satisfactory report and certificate duly signed by the authority of training organization/Head of the institute.



23. Practice School

In the VII semester, every candidate shall undergo practice school for a period of 150 hours evenly distributed throughout the semester. The student shall opt any one of the domains for practice school declared by the program committee from time to time.

At the end of the practice school, every student shall submit a printed report (in triplicate) on the practice school he/she attended (not more than 25 pages). Along with the exams of semester VII, the report submitted by the student, knowledge and skills acquired by the student through practice school shall be evaluated by the subject experts at college level and grade point shall be awarded.

24. Award of Ranks

Ranks and Medals shall be awarded on the basis of final CGPA. However, candidates who fail in one or more courses during the B.Pharm program shall not be eligible for award of ranks. Moreover, the candidates should have completed the B. Pharm program in minimum prescribed number of years, (four years) for the award of Ranks.

25. Award of degree

Candidates who fulfill the requirements mentioned above shall be eligible for award of degree during the ensuing convocation.

26. Duration for completion of the program of study

The duration for the completion of the program shall be fixed as double the actual duration of the program and the students have to pass within the said period, otherwise they have to get fresh Registration.

27. Re-admission after break of study

Candidate who seeks re-admission to the program after break of study has to get the approval from the university by paying a condonation fee.

No condonation is allowed for the candidate who has more than 2 years of break up period and he/she has to rejoin the program by paying the required fees.



T.Y.B.PHARM SEMESTER – V

BP501T. MEDICINAL CHEMISTRY – II (Theory)

45 Hours

Scope:

This subject is designed to impart fundamental knowledge on the structure, chemistry and therapeutic value of drugs. The subject emphasizes on structure activity relationships of drugs, importance of physicochemical properties and metabolism of drugs. The syllabus also emphasizes on chemical synthesis of important drugs under each class.

Objectives: Upon completion of the course the student shall be able to

1. Understand the chemistry of drugs with respect to their pharmacological activity
2. Understand the drug metabolic pathways, adverse effect and therapeutic value of drugs
3. Know the Structural Activity Relationship of different class of drugs
4. Study the chemical synthesis of selected drugs

Course Content:

Study of the development of the following classes of drugs, Classification, mechanism of action, uses of drugs mentioned in the course, Structure activity relationship of selective class of drugs as specified in the course and synthesis of drugs mentioned in bracket [] only to be covered.

UNIT- I

10 Hours

Antihistaminic agents and autacoids

- a) **Antihistaminic agents:** Histamine, receptors and their distribution in the human body
- b) **H₁-antagonists:** Diphenhydramine hydrochloride, Dimenhydrinate, Doxylamine succinate, Clemastine fumarate, Tripelenamine hydrochloride, Chlorcyclizine hydrochloride, Meclizine hydrochloride, Buclizine hydrochloride, Chlorpheniramine maleate, Triprolidine hydrochloride, Phenindamine tartarate, Promethazine hydrochloride, Trimeprazine tartrate, Fexofenadine, Astemizole, Loratadine, Cetirizine, Cromolyn sodium
- c) **H₂-antagonists:** Cimetidine, Famotidine, Ranitidine
- d) **Gastric Proton pump inhibitors:** Omeprazole, Lansoprazole, Rabeprazole, Pantoprazole



- e) **Autacoids:** Prostaglandins, Prostanoids, Leucotriene antagonists
[Diphenhydramine hydrochloride, Cetirizine, Promethazine hydrochloride, Ranitidine]

UNIT – II

10 Hours

Drugs acting on Cardiovascular system

a) **Anti-anginals:**

Vasodilators: Amyl nitrite, Nitroglycerin, Pentaerythritol tetranitrate, Isosorbide dinitrite, Dipyridamole.

Calcium channel blockers: Verapamil, Bepridil hydrochloride, Diltiazem hydrochloride, Nifedipine, Amlodipine, Felodipine, Nicardipine, Nimodipine.

b) **Diuretics:**

Carbonic anhydrase inhibitors: Acetazolamide, Methazolamide, Dichlorphenamide.

Thiazides: Chlorthiazide, Hydrochlorothiazide, Hydroflumethiazide, Cyclothiazide

Loop diuretics: Furosemide, Bumetanide, Ethacrynic acid.

Potassium sparing Diuretics: Spironolactone, Triamterene, Amiloride.

Osmotic Diuretics: Mannitol

c) **Anti-hypertensive Agents:**

α blockers- Prazosin, Terazosin

β blockers- Propranolol, Timolol, Atenolol

ACE inhibitors- Captopril, Lisinopril, Enalapril, Quinapril hydrochloride

Angiotensin II receptor antagonists- Losartan, Telmisartan, Valsartan

Misc.class- Methyldopate hydrochloride, Clonidine hydrochloride, Guanethidine monosulphate, Reserpine, Hydralazine hydrochloride.

[Isosorbide dinitrite, Nifedipine, Chlorthiazide, Furosemide, Lisinopril, Atenolol]



UNIT-III

10 Hours

Drugs acting on cardiovascular system (Continued)

- a) **Anti-arrhythmic Drugs:** Quinidine sulphate, Procainamide hydrochloride, Disopyramide phosphate, Phenytoin sodium, Lidocaine hydrochloride, Tocainide hydrochloride, Mexiletine hydrochloride, Lorcainide hydrochloride, Amiodarone, Sotalol.
- b) **Anti-hyperlipidemic agents**
HMG Co-A reductase inhibitors: Lovastatin, Simvastatin, Atorvastatin
Misc. class-Ezetimibe, Clofibrate
- c) **Coagulant & Anticoagulants:** Menadione, Warfarin, Clopidogrel
- d) **Drugs used in Congestive Heart Failure:** Digoxin, Digitoxin, Nesiritide, Bosentan [Amiodarone, Atorvastatin]

UNIT-IV

08 Hours

Drugs acting on Endocrine system

- a) **Chemistry, Nomenclature, Stereochemistry and metabolism of steroids**
- b) **Sex hormones:** Testosterone, Nandrolone, Progesterones, Oestriol, Oestradiol, Oestrone, Diethyl stilbestrol.
- c) **Drugs for erectile dysfunction:** Sildenafil, Tadalafil.
- d) **Oral contraceptives:** Mifepristone, Norgestrel, Levonorgestrol
- e) **Corticosteroids:** Cortisone, Hydrocortisone, Prednisolone, Betamethasone, Dexamethasone
- f) **Thyroid and antithyroid drugs:** L-Thyroxine, L-Thyronine, Propylthiouracil, Methimazole.

UNIT - V

07 Hours

Antidiabetic agents and Local anaesthetics

- a) **Antidiabetic agents:**

Insulin and its preparations

Sulfonyl ureas: Tolbutamide, Chlorpropamide, Glipizide, Glimepiride.

Biguanides: Metformin.

Meglitinides: Repaglinide, Nateglinide.



Glucosidase inhibitors: Acarbose, Voglibose.

DPP IV inhibitors -Sitagliptin, Teneligliptin

SGLT2 inhibitors – Empagliflozin, Canagliflozin

b) **Local Anesthetics:** SAR of Local anesthetics

Benzoic Acid derivatives; Meprylcaine, Cyclomethycaine, Piperocaine.

Amino Benzoic acid derivatives: Benzocaine, Procaine, Butacaine, Propoxycaine, Tetracaine.

Lidocaine/Anilide derivatives: Lignocaine, Mepivacaine, Prilocaine, Etidocaine.

Miscellaneous: Phenacaine

[Tolbutamide, Benzocaine]

Recommended Books (Latest Editions)

1. Wilson and Giswold's Organic medicinal and Pharmaceutical Chemistry.
2. Foye's Principles of Medicinal Chemistry.
3. Graham L. Patrick's An Introduction to Medicinal Chemistry
4. Burger's Medicinal Chemistry, Vol I to IV.
5. Introduction to principles of drug design- Smith and Williams.
6. Remington's Pharmaceutical Sciences.
7. Martindale's extra pharmacopoeia.
8. Organic Chemistry by I.L. Finar, Vol. II.
9. The Organic Chemistry of Drug Synthesis by Lednicer, Vol. 1 to 5.
10. Indian Pharmacopoeia.
11. Text book of practical organic chemistry-A.I.Vogel.

BP 502 T. Industrial Pharmacy I (Theory)

45 Hours

Scope:

Course enables the student to understand and appreciate the influence of pharmaceutical additives and various pharmaceutical dosage forms on the performance of the drug product.



Objectives:

Upon completion of the course the student shall be able to

1. illustrate various pharmaceutical dosage forms and their manufacturing techniques.
2. describe various factors to be considered in development of pharmaceutical dosage forms
3. Formulate solid, liquid and semisolid dosage forms and evaluate them for their quality

Course content:

3 hours/ week

UNIT-I

03 Hours

Preformulation Studies: Introduction to preformulation, goals and objectives, study of physicochemical characteristics of drug substances.

UNIT-II

14 Hours

Tablets:

- a. Introduction, ideal characteristics of tablets, classification of tablets. Excipients, preformulation and Formulation of tablets, granulation methods, compression and processing problems, Equipments and tablet tooling.
- b. Tablet coating: Types of coating, coating materials, formulation of coating composition, methods of coating, equipment employed and defects in coating.
- c. Quality control tests: In process and finished product tests

Liquid orals: Preformulation, Formulation and manufacturing consideration of syrups and elixirs suspensions and emulsions; Filling and packaging; evaluation of liquid orals official in pharmacopocia

UNIT-III

08 Hours

Capsules:

- a. Hard gelatin capsules: Introduction, Production of hard gelatin capsule shells. Size of capsules, Filling, finishing and special techniques of formulation of hard gelatin capsules, manufacturing defects. In process and final product quality control tests for capsules.



b. Soft gelatin capsules: Nature of shell and capsule content, size of capsules, importance of base adsorption and minim/gram factors, production, in process and final product quality control tests. Packing, storage and stability testing of soft gelatin capsules and their applications.

Pellets: Introduction, formulation requirements, pelletization process, equipments for manufacture of pellets

UNIT-IV

10 Hours

Parenteral Products:

a. Definition, types, advantages and limitations. Preformulation factors and essential requirements, vehicles, additives, importance of isotonicity

b. Production procedure, production facilities and controls, aseptic processing

c. Formulation of injections, sterile powders, large volume parenterals and lyophilized products.

d. Containers and closures selection, filling and sealing of ampoules, vials and infusion fluids. Quality control tests of parenteral products. Ophthalmic Preparations: Introduction, formulation considerations; formulation of eye drops, eye ointments and eye lotions; methods of preparation; labeling, containers; evaluation of ophthalmic preparations

UNIT-V

10 Hours

Cosmetics: Formulation and preparation of the following cosmetic preparations: lipsticks, shampoos, cold cream and vanishing cream, tooth pastes, hair dyes and sunscreens.

Pharmaceutical Aerosols: Definition, propellants, containers, valves, types of aerosol systems; preformulation, formulation and manufacture of aerosols; Evaluation of aerosols; Quality control and stability studies.

Packaging Materials Science: Materials used for packaging of pharmaceutical products, factors influencing choice of containers, legal and official requirements for containers, stability aspects of packaging materials, quality control tests.



Recommended Books: (Latest Editions)

1. Pharmaceutical dosage forms - Tablets, volume 1 -3 by H.A. Liberman, Leon Lachman & J.B.Schwartz
2. Pharmaceutical dosage form - Parenteral medication vol- 1&2 by Liberman & Lachman
3. Pharmaceutical dosage form disperse system VOL-1 by Liberman & Lachman
4. Modern Pharmaceutics by Gilbert S. Banker & C.T. Rhodes, 3rd Edition
5. Remington: The Science and Practice of Pharmacy, 20th edition Pharmaceutical Science (RPS)
6. Theory and Practice of Industrial Pharmacy by Liberman & Lachman
7. Pharmaceutics- The science of dosage form design by M.E.Aulton, Churchill livingstone, Latest edition
8. Introduction to Pharmaceutical Dosage Forms by H. C.Ansel, Lea &Febiger, Philadelphia, 5th edition, 2005
9. Drug stability - Principles and practice by Cartensen & C.J. Rhodes, 3rd Edition, Marcel Dckker Series, Vol 107.

BP503.T. PHARMACOLOGY-II (Theory)

45 Hours

Scope:

This subject is intended to impart the fundamental knowledge on various aspects (classification, mechanism of action, therapeutic effects, clinical uses, side effects and contraindications) of drugs acting on different systems of body and in addition, emphasis on the basic concepts of bioassay.

Objectives: Upon completion of this course the student should be able to

1. Understand the mechanism of drug action and its relevance in the treatment of different diseases



2. Demonstrate isolation of different organs/tissues from the laboratory animals by simulated experiments
3. Demonstrate the various receptor actions using isolated tissue preparation
4. Appreciate correlation of pharmacology with related medical sciences

Course Content:

UNIT-I

10hr

Pharmacology of drugs acting on cardiovascular system

- a. Introduction to hemodynamic and electrophysiology of heart.
- b. Drugs used in congestive heart failure
- c. Anti-hypertensive drugs.
- d. Anti-anginal drugs.
- e. Anti-arrhythmic drugs.
- f. Anti-hyperlipidemic drugs.

UNIT-II

Pharmacology of drugs acting on cardiovascular system

10hr

- a. Drug used in the therapy of shock.
- b. Hematinics, coagulants and anticoagulants.
- c. Fibrinolytics and anti-platelet drugs
- d. Plasma volume expanders

Pharmacology of drugs acting on urinary system

- a. Diuretics
- b. Anti-diuretics.

UNIT-III

Autocoids and related drugs

10hr

- a. Introduction to autocoids and classification
- b. Histamine, 5-HT and their antagonists.
- c. Prostaglandins, Thromboxanes and Leucotrienes
- d. Angiotensin, Bradykinin and Substance P.
- e. Non-steroidal anti-inflammatory agents
- f. Anti-gout drugs
- g. Antirheumatic drugs



UNIT-IV

Pharmacology of drugs acting on endocrine system

08hr

- a. Basic concepts in endocrine pharmacology.
- b. Anterior Pituitary hormones- analogues and their inhibitors.
- c. Thyroid hormones- analogues and their inhibitors.
- d. Hormones regulating plasma calcium level- Parathormone, Calcitonin and Vitamin-D.
- d. Insulin, Oral Hypoglycemic agents and glucagon.
- e. ACTH and corticosteroids.

UNIT-V

Pharmacology of drugs acting on endocrine system

07hr

- a. Androgens and Anabolic steroids.
- b. Estrogens, progesterone and oral contraceptives.
- c. Drugs acting on the uterus.

Bioassay

- a. Principles, applications and types of bioassay.
- b. Bioassay of insulin, oxytocin, vasopressin, ACTH, d-tubocurarine, digitalis, histamine and 5-HT

Recommended Books (Latest Editions)

1. Rang H. P., Dale M. M., Ritter J. M., Flower R. J., Rang and Dale's Pharmacology, Churchill Livingstone Elsevier
2. Katzung B. G., Masters S. B., Trevor A. J., Basic and clinical pharmacology, Tata McGraw-Hill
3. Goodman and Gilman's, The Pharmacological Basis of Therapeutics
4. Marry Anne K. K., Lloyd Yee Y., Brian K. A., Robbin L.C., Joseph G. B., Wayne A.K., Bradley R.W., Applied Therapeutics, The Clinical use of Drugs. The Point Lippincott Williams & Wilkins
5. Mycek M.J, Gelnet S.B and Perper M.M. Lippincott's Illustrated Reviews-Pharmacology
6. K. D. Tripathi. Essentials of Medical Pharmacology, JAYPEE Brothers Medical Publishers (P) Ltd, New Delhi.
7. Sharma H. L., Sharma K. K., Principles of Pharmacology, Paras medical publisher



8. Modern Pharmacology with clinical Applications, by Charles R. Craig & Robert,

BP504 T PHARMACOGNOSY AND PHYTOCHEMISTRY-II (Theory) 45 Hours

Scope:

The main purpose of subject is to impart the students the knowledge of how the secondary metabolites are produced in the crude drugs, how to isolate and identify and produce them industrially. Also this subject involves the study of producing the plants and phytochemicals through plant tissue culture, drug interactions and basic principles of traditional system of medicine

Objectives: Upon completion of the course, the student shall be able

1. To know the modern extraction techniques, characterization and identification of the herbal drugs and phytoconstituents
2. To understand the production of of Phytoconstituents /herbal formulation.
3. To understand the metabolic pathways in formation of secondary metabolites and application of biogenetic studies.
4. To carryout isolation and identification of phytoconstituents

Course Content:

UNIT-I

7 Hours

Metabolic pathways in higher plants and their determination

- a) Brief study of basic metabolic pathways and formation of different secondary metabolites through these pathways- Shikimic acid pathway, Acetate pathways and Amino acid pathway.
- b) Study of utilization of radioactive isotopes in the investigation of Biogenetic studies.

UNIT-II

14 Hours

General introduction, composition, chemistry & chemical classes, bio sources, **methods of extraction**, therapeutic uses and commercial applications of following secondary metabolites:

Alkaloids: Vinca, Rauwolfia, Belladonna, Opium,

Phenylpropanoids and Flavonoids: Lignans, Tea, Ruta

Steroids, Cardiac Glycosides & Triterpenoids: Liquorice, Dioscorea, Digitalis



Volatile oils: Mentha, Clove, Cinnamon, Fennel, Coriander,

Tannins: Catechu, Pterocarpus

Resins: Benzoin, Guggul, Ginger, Asafoetida, Myrrh, Colophony

Glycosides: Senna, Aloes, Bitter Almond

Iridoids, Other terpenoids & Naphthaquinones: Gentian, Artemisia, taxus, carotenoids

UNIT-III

06 Hours

Isolation, Identification and Analysis of Phytoconstituents

a) Terpenoids: Menthol, Citral, Artemisin

b) Glycosides: Glycyrrhetic acid & Rutin

c) Alkaloids: Atropine, Quinine, Reserpine, Caffeine

d) Resins: Podophyllotoxin, Curcumin

UNIT-IV

06 Hours

Industrial production, estimation and utilization of the following phytoconstituents:

Forskolin, Sennoside, Artemisinin, Diosgenin, Digoxin, Atropine, Podophyllotoxin, Caffeine,

Taxol, Vincristine and Vinblastine

UNIT V

12 Hours

Basics of Phytochemistry

Methods of extraction (Soxhlet, Maceration, Percolation, Supercritical fluid extraction, Microwave assisted extraction, Ultrasound assisted extraction, Solid Phase Extraction)

Application of latest techniques like Spectroscopy, Chromatography and electrophoresis in the isolation, purification and identification of crude drugs

Non-chromatographic separation techniques: Fractional distillation, fractional liberation, sublimation, chemical derivatization, fractional crystallization, centrifugation, Froth floatation technique.

BP 505 T. PHARMACEUTICAL JURISPRUDENCE (Theory)

45 Hours

Scope:

This course is designed to impart basic knowledge on important legislations related to the profession of pharmacy in India.



Objectives: Upon completion of the course, the student shall be able to understand:

1. The Pharmaceutical legislations and their implications in the development and marketing of pharmaceuticals.
2. Various Indian pharmaceutical Acts and Laws
3. The regulatory authorities and agencies governing the manufacture and sale of pharmaceuticals
4. The code of ethics during the pharmaceutical practice

Course Content:

UNIT-I

10 Hours

Drugs and Cosmetics Act, 1940 and its rules 1945:

Objectives, Definitions, Legal definitions of schedules to the Act and Rules Import of drugs – Classes of drugs and cosmetics prohibited from import, Import under license or permit. Offences and penalties. Manufacture of drugs – Prohibition of manufacture and sale of certain drugs,

Conditions for grant of license and conditions of license for manufacture of drugs, Manufacture of drugs for test, examination and analysis, manufacture of new drug, loan license and repacking license.

UNIT-II

10 Hours

Drugs and Cosmetics Act, 1940 and its rules 1945.

Detailed study of Schedule G, H, M, N, P, T, U, V, X, Y, Part XII B, Sch F & DMR (OA) Sale of Drugs – Wholesale, Retail sale and restricted license. Offences and penalties Labeling & packing of drugs- General labeling requirements and specimen labels for drugs and cosmetics, List of permitted colors. Offences and penalties.

Administration of the Act and Rules – Drugs Technical Advisory Board, Central drugs Laboratory, Drugs Consultative Committee, Government drug analysts, Licensing authorities, controlling authorities, Drugs Inspectors



UNIT-III

10 Hours

Pharmacy Act –1948: Objectives, Definitions, Pharmacy Council of India; its constitution and functions, Education Regulations, State and Joint state pharmacy councils; constitution and functions, Registration of Pharmacists, Offences and 122 Penalties

Medicinal and Toilet Preparation Act –1955: Objectives, Definitions, Licensing, Manufacture In bond and Outside bond, Export of alcoholic preparations, Manufacture of Ayurvedic, Homeopathic, Patent & Proprietary Preparations. Offences and Penalties.

Narcotic Drugs and Psychotropic substances Act-1985 and Rules: Objectives, Definitions, Authorities and Officers, Constitution and Functions of narcotic & Psychotropic Consultative Committee, National Fund for Controlling the Drug Abuse, Prohibition, Control and Regulation, opium poppy cultivation and production of poppy straw, manufacture, sale and export of opium, Offences and Penalties

UNIT-IV

08 Hours

Study of Salient Features of Drugs and Magic Remedies Act and its rules: Objectives, Definitions, Prohibition of certain advertisements, Classes of Exempted advertisements, Offences and Penalties

Prevention of Cruelty to animals Act-1960: Objectives, Definitions, Institutional Animal Ethics Committee, CPCSEA guidelines for Breeding and Stocking of Animals, Performance of Experiments, Transfer and acquisition of animals for experiment, Records, Power to suspend or revoke registration, Offences and Penalties

National Pharmaceutical Pricing Authority: Drugs Price Control Order (DPCO)- 2013. Objectives, Definitions, Sale prices of bulk drugs, Retail price of formulations, Retail price and ceiling price of scheduled formulations, National List of Essential Medicines (NLEM)



UNIT-V

07 Hours

Pharmaceutical Legislations – A brief review, Introduction, Study of drugs enquiry committee, Health survey and development committee, Hathi committee and Mudaliar committee

Code of Pharmaceutical ethics Definition, Pharmacist in relation to his job, trade, medical profession and his profession, Pharmacist's oath

Medical Termination of Pregnancy Act

Right to Information Act

Introduction to Intellectual Property Rights (IPR)

Recommended books: (Latest Edition)

1. Forensic Pharmacy by B. Suresh
2. Text book of Forensic Pharmacy by B.M. Mithal
3. Hand book of drug law-by M.L. Mehra
4. A text book of Forensic Pharmacy by N.K. Jain
5. Drugs and Cosmetics Act/Rules by Govt. of India publications.
6. Medicinal and Toilet preparations act 1955 by Govt. of India publications.
7. Narcotic drugs and psychotropic substances act by Govt. of India publications
8. Drugs and Magic Remedies act by Govt. of India publication
9. Bare Acts of the said laws published by Government. Reference books (Theory) 124

BP 506 P. Industrial Pharmacy I (Practical)

4 Hours/week

1. Preformulation studies on paracetamol/aspirin/or any other drug
2. Preparation and evaluation of Paracetamol tablets
3. Preparation and evaluation of Aspirin tablets
4. Coating of tablets- film coating of tablets/granules
5. Preparation and evaluation of Tetracycline capsules



6. Preparation of Calcium Gluconate injection
7. Preparation of Ascorbic Acid injection
8. Quality control test of (as per IP) marketed tablets and capsules
9. Preparation of Eye drops/ and Eye ointments
10. Preparation of Creams (cold / vanishing cream)
11. Evaluation of Glass containers (as per IP)

Recommended Books: (Latest Editions)

1. Pharmaceutical dosage forms - Tablets, volume 1 -3 by H.A. Liberman, Leon Lachman & J.B. Schwartz
2. Pharmaceutical dosage form - Parenteral medication vol- 1&2 by Liberman & Lachman
3. Pharmaceutical dosage form disperse system VOL-1 by Liberman & Lachman
4. Modern Pharmaceutics by Gilbert S. Banker & C.T. Rhodes, 3rd Edition
5. Remington: The Science and Practice of Pharmacy, 20th edition Pharmaceutical Science (RPS)
6. Theory and Practice of Industrial Pharmacy by Liberman & Lachman
7. Pharmaceutics- The science of dosage form design by M.E. Aulton, Churchill livingstone, Latest edition
8. Introduction to Pharmaceutical Dosage Forms by H. C. Ansel, Lea & Febiger, Philadelphia, 5th edition, 2005
9. Drug stability - Principles and practice by Cartensen & C.J. Rhodes, 3rd Edition, Marcel Dekker Series, Vol 107.

BP 507 P. PHARMACOLOGY-II (Practical)

4Hrs/Week

Sr. No Experiment

1. Introduction to in-vitro pharmacology and physiological salt solutions.
2. Effect of drugs on isolated frog heart.
3. Effect of drugs on blood pressure and heart rate of dog.
4. Study of diuretic activity of drugs using rats/mice.
5. DRC of acetylcholine using frog rectus abdominis muscle.
6. Effect of physostigmine and atropine on DRC of acetylcholine using frog rectus



abdominis muscle and rat ileum respectively.

7. Bioassay of histamine using guinea pig ileum by matching method.
8. Bioassay of oxytocin using rat uterine horn by interpolation method.
9. Dose calculation in pharmacological experiments
10. Bioassay of acetylcholine using rat ileum/colon by four point bioassay.
11. Determination of PA_2 value of prazosin using rat anococcygeus muscle (by Schilds plot method).
12. Determination of PD_2 value using guinea pig ileum.
13. Effect of spasmogens and spasmolytics using rabbit jejunum.
14. Anti-inflammatory activity of drugs using carrageenan induced paw-edema model.
15. Analgesic activity using hotplate method
16. Antiallergic activity by mast cell stabilization assay
17. Clinical Case study

Note: All laboratory techniques and animal experiments are demonstrated by simulated experiments by softwares and videos

Recommended Books (Latest Editions)

1. Ghosh MN. Fundamentals of Experimental Pharmacology. Hilton & Company, Kolkata.
2. Kulkarni SK. Handbook of experimental pharmacology. Vallabh Prakashan.
3. Goyal RK. Practicals in Pharmacology, BS Shaha Prakashan.
4. Kasture SB. A handbook of experiments in pre-clinical pharmacology, Career Publications.
5. Bikas Medhi, Ajay Prakash. Practical Manual of Experimental and Clinical Pharmacology. Jaypee Publications.

BP 508 P. PHARMACOGNOSY AND PHYTOCHEMISTRY II (Practical) 4 Hours/Week

1. Morphology, histology and powder characteristics & extraction & detection of:
Cinchona, Cinnamon, Senna, Clove, Ephedra, Fennel and Coriander
2. Exercise involving isolation & detection of active principles
 - a. Caffeine - from tea dust.
 - b. Diosgenin from Dioscorea



- c. Atropine from Belladonna
- d. Sennosides from Senna
- 3. Separation of sugars by Paper chromatography
- 4. TLC of herbal extract
- 5. Distillation of volatile oils and detection of phytoconstituents by TLC
- 6. Analysis of crude drugs by chemical tests: (i) Asafoetida (ii) Benzoin (iii) Colophony (iv) Aloes (v) Myrrh

Recommended Books: (Latest Editions)

1. W.C.Evans, Trease and Evans Pharmacognosy, 16th edition, W.B. Saunders & Co., London, 2009.
2. Mohammad Ali. Pharmacognosy and Phytochemistry, CBS Publishers & Distribution, New Delhi.
3. Text book of Pharmacognosy by C.K. Kokate, Purohit, Gokhlae (2007), 37th Edition, Nirali Prakashan, New Delhi.
4. Herbal drug industry by R.D. Choudhary (1996), 1st Edn, Eastern Publisher, New Delhi.
5. Essentials of Pharmacognosy, Dr.SH.Ansari, IInd edition, Birla publications, New Delhi, 2007
6. Herbal Cosmetics by H.Pande, Asia Pacific Business press, Inc, New Delhi.
7. A.N. Kalia, Textbook of Industrial Pharmacognosy, CBS Publishers, New Delhi, 2005.
8. R Endress, Plant cell Biotechnology, Springer-Verlag, Berlin, 1994.
9. Pharmacognosy & Pharmacobiotechnology. James Bobbers, Marilyn KS, VE Tylor.
10. The formulation and preparation of cosmetic, fragrances and flavours.
11. Remington"s Pharmaceutical sciences.
12. Text Book of Biotechnology by Vyas and Dixit.
13. Text Book of Biotechnology by R.C. Dubey.



T.Y.B.PHARM SEMESTER - VI

BP601T. MEDICINAL CHEMISTRY – III (Theory)

45 Hours

Scope :

This subject is designed to impart fundamental knowledge on the structure, chemistry and therapeutic value of drugs. The subject also discusses the concept of quantitative structure activity relationship (QSAR) in drug design. The subject also emphasizes on the chemistry, mechanism of action, metabolism, adverse effects, Structure Activity Relationships (SAR), therapeutic uses and synthesis of important drugs.

Objectives:

Upon completion of the course student shall be able to

- 1 Understand the importance of drug design and different techniques of drug design.
- 2 Understand the chemistry of drugs with respect to their biological activity.
- 3 Know the metabolism, adverse effects and therapeutic value of drugs.
- 4 Know the importance of SAR of drugs.

Course Content:

Study of the development of the following classes of drugs, Classification, mechanism of action, uses of drugs mentioned in the course, Structure activity relationship of selective class of drugs as specified in the course and synthesis of drugs mentioned in bracket [] only to be covered

UNIT - I

10 Hours

Antibiotics

Historical background, Nomenclature, Stereochemistry, Structure activity relationship, Chemical degradation classification and important products of the following classes.

- a) **β -Lactam antibiotics:** Penicillins, Cephalosporins, β -Lactamase inhibitors, Monobactams
- b) **Aminoglycosides:** Streptomycin, Neomycin, Kanamycin



- c) **Tetracyclines:** Tetracycline, Oxytetracycline, Chlortetracycline, Minocycline, Doxycycline

UNIT – II **07 Hours**

a) **Antibiotics**

Macrolide: Erythromycin, Clarithromycin, Azithromycin.

Polypeptide antibiotics-Vancomycin, Bacitracin

Miscellaneous: Chloramphenicol, Clindamycin, Linzolid

b) **Antimalarials:** Etiology of malaria.

Quinolines: SAR, Quinine sulphate, Chloroquine, Amodiaquine, Primaquine phosphate, Pamaquine, Quinacrine hydrochloride, Mefloquine.

Biguanides and dihydrotriazines: Cycloguanil pamoate, Proguanil.

Miscellaneous: Pyrimethamine, Artesunate, Artemether, Atovoquone, Halofantrine, Lumefantrine.

[Chloramphenicol, Chloroquine]

UNIT – III **08 Hours**

Antimycobacterial and Antiviral agents

a) **Anti-tubercular Agents**

Synthetic anti tubercular agents: Isoniazid, Ethionamide, Ethambutol, Pyrazinamide, Para amino salicylic acid

Anti tubercular antibiotics: Rifampicin, Rifabutin, Cycloserine, Streptomycin, Capreomycin sulphate.

b) **Antileprosy agents:** Clofazimine, Dapsone, Rifamycin

c) **Antiviral agents:**

DNA virus inhibitors-Amantadine hydrochloride, Rimantadine hydrochloride, Idoxuridine trifluoridine, Acyclovir, Gancyclovir.

RNA virus inhibitors

Anti-HIV agents- Zidovudine, Didanosine, Zalcitabine, Lamivudine, Loviride, Delavirdine, Ribavirin, Saquinavir, Indinavir, Ritonavir.

[Isoniazid, Ethambutol, Acyclovir]



UNIT – IV

10 Hours

a) Antifungal agents

Antifungal antibiotics: Amphotericin-B, Nystatin, Natamycin, Griseofulvin.

Synthetic Antifungal agents: Clotrimazole, Oxiconazole, Tioconazole, Miconazole, Ketoconazole, Itraconazole, Fluconazole, Tolnaftate.

b) Anti-protozoal Agents: Metronidazole, Tinidazole, Ornidazole, Diloxanide, Iodoquinol, Atovaquone, Eflornithine.

c) Anthelmintics: Diethylcarbamazine citrate, Thiabendazole, Mebendazole, Albendazole, Niclosamide, Oxamniquine, Praziquantel, Ivermectin.

d) Synthetic anti-infective agents :

Sulphonamides: Historical development, chemistry and drug resistance

Sulfacetamide, Sulphapyridine, Sulfamethoxazole, Sulphadiazine, Sulfasalazine.

Folate reductase inhibitors: Trimethoprim

Quinolones: Nalidixic Acid, Norfloxacin, Ciprofloxacin, Ofloxacin, Lomefloxacin, Gatifloxacin, Moxifloxacin

Miscellaneous: Furazolidine, Nitrofurantoin, Methanamine.

[Fluconazole, Metronidazole, Mebendazole, Sulfamethoxazole, Trimethoprim , Ciprofloxacin]

UNIT – V

07 Hours

Anti-neoplastic agents:

Alkylating agents: Meclorothamine, Cyclophosphamide, Melphalan, Chlorambucil, Busulfan, Thiotepa

Antimetabolites: Mercaptopurine, Fluorouracil, Floxuridine, Cytarabine, Methotrexate

Antibiotics: Dactinomycin, Daunorubicin, Doxorubicin, Bleomycin

Plant products: Etoposide, Vinblastin sulphate, Vincristin sulphate

Kinase inhibitors: Gefitinib, Imatinib, Erlotinib

Monoclonal antibodies: Bedvacizumab, Cetuximab

Miscellaneous: Cisplatin, Mitotane.

[Chlorambucil, Mercaptopurine, Methotrexate]



UNIT – VI

03 Hours

Introduction to Drug Design

Various approaches used in drug design.

Physicochemical parameters used in quantitative structure activity relationship (QSAR) such as partition coefficient, Hammett's electronic parameter, Taft's steric parameter and Hansch analysis, Ferguson principle.

Recommended Books (Latest Editions)

1. Wilson and Giswold's Organic medicinal and Pharmaceutical Chemistry.
2. Foye's Principles of Medicinal Chemistry.
3. Burger's Medicinal Chemistry, Vol I to IV.
4. Introduction to principles of drug design- Smith and Williams.
5. Remington's Pharmaceutical Sciences.
6. Martindale's extra pharmacopoeia.
7. Organic Chemistry by I.L. Finar, Vol. II.
8. The Organic Chemistry of Drug Synthesis by Lednicer, Vol. 1 to 5.
9. Indian Pharmacopoeia.
10. Text book of practical organic chemistry-A.I.Vogel.
11. An Introduction to Medicinal Chemistry by Graham Patrick

BP602 T. PHARMACOLOGY-III (Theory)

45 Hours

Scope: This subject is intended to impart the fundamental knowledge on various aspects (classification, mechanism of action, therapeutic effects, clinical uses, side effects and contraindications) of drugs acting on respiratory and gastrointestinal system, infectious diseases, immuno-pharmacology and in addition, emphasis on the principles of toxicology and chronopharmacology.



Objectives: Upon completion of this course the student should be able to:

1. Understand the mechanism of drug action and its relevance in the treatment of different infectious diseases
2. Comprehend the principles of toxicology and treatment of various poisonings and appreciate correlation of pharmacology with related medical sciences.

Course Content:

UNIT-I

10hr

Pharmacology of drugs acting on Respiratory system

- a. Anti -asthmatic drugs
- b. Drugs used in the management of COPD
- c. Expectorants and antitussives
- d. Nasal decongestants
- e. Respiratory stimulants

Pharmacology of drugs acting on the Gastrointestinal Tract

- a. Antiulcer agents.
- b. Drugs for constipation and diarrhoea.
- c. Appetite stimulants and suppressants.
- d. Digestants and carminatives.
- e. Emetics and anti-emetics.

UNIT-II

Chemotherapy

10hr

- a. General principles of chemotherapy.
- b. Sulfonamides and cotrimoxazole.
- c. Antibiotics- Penicillins, cephalosporins, chloramphenicol, macrolides, quinolones and fluoroquinolins, tetracycline and aminoglycosides

UNIT-III

Chemotherapy

10hr

- a. Antitubercular agents
- b. Antileprotic agents



- c. Antifungal agents
- d. Antiviral drugs
- a. Anthelmintics
- c. Antimalarial drugs
- f. Antiamoebic agents

UNIT-IV

Chemotherapy

08hr

- a. Urinary tract infections and sexually transmitted diseases.
- b. Chemotherapy of malignancy.

Immunopharmacology

- a. Immunostimulants
- b. Immunosuppressant

Protein drugs, monoclonal antibodies, target drugs to antigen, biosimilars

UNIT-V

Principles of toxicology

07hr

- a. Definition and basic knowledge of acute, subacute and chronic toxicity.
- b. Definition and basic knowledge of genotoxicity, carcinogenicity, teratogenicity and mutagenicity
- c. General principles of treatment of poisoning
- d. Clinical symptoms and management of barbiturates, morphine, organophosphorus compound and lead, mercury and arsenic poisoning.

Chronopharmacology

- a. Definition of rhythm and cycles.
- b. Biological clock and their significance leading to chronotherapy.

Recommended Books (Latest Editions)

1. Rang H. P., Dale M. M., Ritter J. M., Flower R. J., Rang and Dale's Pharmacology, Churchill Livingstone Elsevier



2. Katzung B. G., Masters S. B., Trevor A. J., Basic and clinical pharmacology, Tata McGraw-Hill
3. Goodman and Gilman's, The Pharmacological Basis of Therapeutics
4. Marry Anne K. K., Lloyd Yee Y., Brian K. A., Robbin L.C., Joseph G. B., Wayne A.K., Bradley R.W., Applied Therapeutics, The Clinical use of Drugs. The Point LippincottWilliams &Wilkins
5. Mycek M.J, Gelnet S.B and Perper M.M. Lippincott's Illustrated Reviews- Pharmacology
6. K.D.Tripathi. Essentials of Medical Pharmacology, JAYPEE Brothers MedicalPublishers (P) Ltd, New Delhi.
7. Sharma H. L., Sharma K. K., Principles of Pharmacology, Paras medical publisher
8. Modern Pharmacology with clinical Applications, by Charles R.Craig & Robert,
9. N.Udupa and P.D. Gupta, Concepts in Chronopharmacology.

BP 603 T. HERBAL DRUG TECHNOLOGY (Theory)

Scope: This subject gives the student the knowledge of basic understanding of herbal drug industry, the quality of raw material, guidelines for quality of herbal drugs, herbal cosmetics, natural sweeteners, nutraceutical etc. The subject also emphasizes on Good Manufacturing Practices (GMP), patenting and regulatory issues of herbal drugs

Objectives: Upon completion of this course the student should be able to:

1. understand raw material as source of herbal drugs from cultivation to herbal drug product
2. know the WHO and ICH guidelines for evaluation of herbal drugs
3. know the herbal cosmetics, natural sweeteners, nutraceuticals
4. appreciate patenting of herbal drugs, GMP .

Course content:

UNIT-I

Herbs as raw materials

11 Hours



Definition of herb, herbal medicine, herbal medicinal product, herbal drug preparation Source of Herbs Selection, identification and authentication of herbal materials Processing of herbal raw material

Biodynamic Agriculture

Good agricultural practices in cultivation of medicinal plants including Organic farming.

Pest and Pest management in medicinal plants: Biopesticides/Bioinsecticides.

Indian Systems of Medicine

a) Basic principles involved in Ayurveda, Siddha, Unani and Homeopathy

b) Preparation and standardization of Ayurvedic formulations viz Aristas and Asawas, Ghutika, Churna, Lehya and Bhasma.

Pharmacognosy in various systems of medicine:

Role of Pharmacognosy in allopathy and traditional systems of medicine namely, Ayurveda, Unani, Siddha, Homeopathy and Chinese systems of medicine.

UNIT-II

7 Hours

Nutraceuticals

General aspects, Market, growth, scope and types of products available in the market. Health benefits and role of Nutraceuticals in ailments like Diabetes, CVS diseases, Cancer, Irritable bowel syndrome and various Gastro intestinal diseases.

Study of following herbs as health food: Alfaalfa, Chicory, Ginger, Fenugreek, Garlic, Honey, Amla, Ginseng, Ashwagandha, Spirulina

Study of Omega-3-polyunsaturated fatty acids, Dietary fibers, Carotenoids, proanthocyanidins, and Resveratrol

Herbal-Drug and Herb-Food Interactions: General introduction to interaction and classification. Study of following drugs and their possible side effects and interactions: Hypercium, kava-kava, Ginkobiloba, Ginseng, Garlic, Pepper & Ephedra

UNIT-III

10 Hours

Herbal Cosmetics



Market overview, Sources and description of raw materials of herbal origin used via, fixed oils, waxes, gums colours, perfumes, protective agents, bleaching agents, antioxidants in products such as skin care, hair care and oral hygiene products.

Herbal excipients:

Market overview, Herbal Excipients – Significance of substances of natural origin as excipients – colorants, sweeteners, binders, diluents, viscosity builders, disintegrants, flavors & perfumes.

Herbal formulations :

Market overview, Conventional herbal formulations like syrups, mixtures and tablets and Novel dosage forms like phytosomes

UNIT- IV

12 Hours

Evaluation of Drugs WHO & ICH guidelines for the assessment of herbal drugs Stability testing of herbal drugs.

Patenting and Regulatory requirements of natural products:

a) Definition of the terms: Patent, IPR, Farmers right, Breeder's right, Bioprospecting and Biopiracy

b) Patenting aspects of Traditional Knowledge and Natural Products. Case study of Curcuma & Neem.

Regulatory Issues - Regulations in India (ASU DTAB, ASU DCC), Regulation of manufacture of ASU drugs - Schedule Z of Drugs & Cosmetics Act for ASU drugs.

Other issues related to export of natural products (such as CITES Certificate, DGFT Notification, Negative list of herbs, TRAFFIC)

UNIT-V

05Hours

General Introduction to Herbal Industry

- Herbal drugs industry: Present scope and future prospects.
- A brief account of plant based industries and institutions involved in work on medicinal and aromatic plants in India.

Schedule T – Good Manufacturing Practice of Indian systems of medicine



- Components of GMP (Schedule – T) and its objectives
- Infrastructural requirements, working space, storage area, machinery and equipments, standard operating procedures, health and hygiene, documentation and records.

BP 604 T. BIOPHARMACEUTICS AND PHARMACOKINETICS (Theory) 45 Hours

Scope: This subject is designed to impart knowledge and skills of Biopharmaceutics and pharmacokinetics and their applications in pharmaceutical dosage form development.

Objectives: Upon completion of the course student shall be able to:

- Understand the basic concepts in biopharmaceutics and pharmacokinetics and their significance.
- Use plasma drug concentration-time data to calculate the pharmacokinetic parameters to describe the kinetics of drug absorption, distribution, metabolism, excretion, elimination.
- Understand the concepts of bioavailability and bioequivalence of drug products and their significance.
- Understand the concept of dissolution and application of in vitro in vivo correlation in drug product development.

Course Content:

UNIT-I 10 Hours

Introduction to Biopharmaceutics

Absorption: Mechanisms of drug absorption through GIT, factors influencing drug absorption through GIT, absorption of drug from Non per oral extra-vascular routes;

Distribution: Tissue permeability of drugs, binding of drugs, apparent volume of drug distribution, plasma and tissue protein binding, factors affecting protein-drug binding. Kinetics of protein binding, Clinical significance of protein binding of drugs

UNIT- II 10 Hours



Elimination: Drug metabolism and basic understanding, metabolic pathways, factors affecting drug metabolism, renal excretion of drugs, factors affecting renal excretion of drugs, renal clearance, Non renal routes of drug excretion of drugs

Biopharmaceutical classification system, theories of dissolution, dissolution test apparatus, dissolution models, *in-vitro-in-vivo* correlations

UNIT- III

10 Hours

Bioavailability and Bioequivalence: Definition and Objectives of bioavailability, absolute and relative bioavailability, measurement of bioavailability, bioequivalence studies and study designs, Review of regulatory requirements for conducting bioequivalence study, bio-waivers, methods to enhance the dissolution rates and bioavailability of poorly soluble drugs.

UNIT- IV

10 Hours

Pharmacokinetics: Definition and introduction to Pharmacokinetics, Compartment models, Non compartment models, physiological models, One compartment open model (a) Intravenous Injection (Bolus) (b) Intravenous infusion and (c) Extra vascular administrations. Pharmacokinetics parameters - K_E , $t_{1/2}$, V_d , AUC, K_a , CL_T and CL_R - definitions methods of eliminations, understanding of their significance and application. Introduction to multi-compartment model.

UNIT- V

05 Hours

Nonlinear Pharmacokinetics: Introduction, Factors causing Non-linearity, Michaelis-menten equation, Determination of V_{max} and K_m . Significance of nonlinear pharmacokinetics, Explanation with example of drugs.

Recommended Books: (Latest Editions)

1. Biopharmaceutics and Clinical Pharmacokinetics by, Milo Gibaldi.
2. Biopharmaceutics and Pharmacokinetics; By Robert F Notari
3. Applied biopharmaceutics and pharmacokinetics, Leon Shargel and Andrew B.C.YU 4th edition, Prentice-Hall International edition.USA



4. Bio pharmaceuticals and Pharmacokinetics-A Treatise, By D. M. Brahmkar and Sunil B.Jaiswal, Vallabh Prakashan Pitampura, Delhi
5. Pharmacokinetics: By Milo Gibaldi Donald, R. Merceel Dekker Inc.
6. Hand Book of Clinical Pharmacokinetics, By Milo Gibaldi and Laurie Prescott by ADIS Health Science Press.
7. Biopharmaceutics; By Swarbrick
8. Clinical Pharmacokinetics, Concepts and Applications: By Rowland M, Tozer T, Ed 4, WolterKluwers – Lippincott, Williams and Wilkins.
9. Dissolution, Bioavailability and Bioequivalence, By Abdou H.M, Mack, Publishing Company, Pennsylvania 1989.
10. Biopharmaceutics and Clinical Pharmacokinetics-An introduction 4th edition Revised and expanded by Rebert F Notari Marcel Dekker Inn, New York and Basel, 1987. Remington's Pharmaceutical Sciences, By Mack Publishing Company, Pennsylvania.

BP 605 T. PHARMACEUTICAL BIOTECHNOLOGY(Theory) 45 Hours

- Biotechnology has a long promise to revolutionize the biological sciences and technology.
- Scientific application of biotechnology in the field of genetic engineering, medicine and fermentation technology makes the subject interesting.
- Biotechnology is leading to new biological revolutions in diagnosis, prevention and cure of diseases, new and cheaper pharmaceutical drugs.
- Biotechnology has already produced transgenic crops and animals and the future promises lot more.
- It is basically a research-based subject.

Objectives: Upon completion of the subject student shall be able to;

1. Understanding the importance of Immobilized enzymes in Pharmaceutical Industries
2. Genetic engineering applications in relation to production of pharmaceuticals
3. Importance of Monoclonal antibodies in Industries
4. Appreciate the use of microorganisms in fermentation technology



Unit I

10 Hours

Brief introduction to Biotechnology with reference to Pharmaceutical Sciences.

Enzyme Biotechnology- Methods of enzyme immobilization and applications.

Biosensors- Working and applications of biosensors in Pharmaceutical Industries.

Brief introduction to Protein Engineering.

Use of microbes in industry. Production of Enzymes- General consideration - Amylase, Catalase, Peroxidase, Lipase, Protease, Penicillinase.

Basic principles of genetic engineering.

Unit II

10 Hours

Study of cloning vectors, restriction endonucleases and DNA ligase.

Recombinant DNA technology. Application of genetic engineering in medicine.

Application of r DNA technology and genetic engineering in the production of:

i) Interferon ii) Vaccines- hepatitis- B iii) Hormones-Insulin.

Brief introduction to PCR

Unit III

10 Hours

Types of immunity- humoral immunity, cellular immunity

Structure of Immunoglobulins

Structure and Function of MHC

Hypersensitivity reactions, Immune stimulation and Immune suppressions.

General method of the preparation of bacterial vaccines, toxoids, viral vaccine, antitoxins, serum-immune blood derivatives and other products relative to immunity.



Storage conditions and stability of official vaccines

Hybridoma technology- Production, Purification and Applications

Unit IV

08Hours

Immuno blotting techniques- ELISA, Western blotting, Southern blotting.

Microbial genetics including transformation, transduction, conjugation, plasmids and transposons.

Introduction to Microbial biotransformation and applications.

Mutation: Types of mutation/mutants.

Unit V

07 Hours

Fermentation methods and general requirements, study of media, equipments, sterilization methods, aeration process, stirring.

Large scale production fermenter design and its various controls.

Study of the production of - penicillins, Vitamin B12, Glutamic acid,

Blood Products: Collection, Processing and Storage of whole human blood, dried human plasma, plasma substitutes.

Recommended Books (Latest edition):

1. B.R. Glick and J.J. Pasternak: Molecular Biotechnology: Principles and Applications of Recombinant DNA: ASM Press Washington D.C.
2. RA Goldshy et. al., :Kuby Immunology.
3. J.W. Goding: Monoclonal Antibodies.
4. J.M. Walker and E.B. Gingold: Molecular Biology and Biotechnology by Royal Society of Chemistry.
5. Zaborsky: Immobilized Enzymes, CRC Press, DeGraland, Ohio.



6. S.B. Primrose: Molecular Biotechnology (Second Edition) Blackwell Scientific Publication.

7. Stanbury F., P., Whitakar A., and Hall J., S., Principles of fermentation technology, 2nd edition, Aditya books Ltd., New Delhi.

BP 606T PHARMACEUTICAL QUALITY ASSURANCE (Theory) 45 Hours

Scope:

This course deals with the various aspects of quality control and quality assurance aspects of pharmaceutical industries. It deals with the important aspects like cGMP, QC tests, documentation, quality certifications and regulatory affairs.

Objectives:

Upon completion of the course student shall be able to:

1. Understand the cGMP aspects in a pharmaceutical industry
2. Appreciate the importance of documentation
3. Understand the scope of quality certifications applicable to pharmaceutical industries
4. Understand the responsibilities of QA & QC departments

COURSE CONTENT

UNIT – I

10 Hours

Quality Assurance and Quality Management concepts: Definition and concept of Quality control, Quality assurance and GMP, Introduction to Regulatory agencies like CDSCO, USFDA, WHO, PIC/S.

Total Quality Management (TQM): Definition, elements, philosophies

ICH Guidelines: Brief overview of QSEM, ICH stability testing guidelines

Quality by design (QbD): Definition, Overview, Elements of QbD program

ISO 9000 & ISO14000: Overview, Benefits and Elements

NABL accreditation : Principles and procedures



UNIT - II**10 Hours**

Organization and personnel: Personnel responsibilities, training, hygiene and personal records.

Premises: Design, construction and plant layout, maintenance, sanitation, environmental control, utilities and maintenance of sterile areas, control of contamination.

Equipments and raw materials: Equipment selection, purchase specifications, maintenance, purchase specifications and maintenance of stores for raw materials.

UNIT - III**10 Hours**

Quality Control of Packaging material: Quality control test for containers, rubber closures and secondary packing materials.

Good Laboratory Practices & Role of CPCSEA

UNIT - IV**08 Hours**

Complaints: Complaints and evaluation of complaints, Handling of return good, recalling and waste disposal.

Document maintenance in pharmaceutical industry in brief: Batch Formula Record, Master Formula Record, SOP, distribution records.

UNIT - V**07 Hours**

Calibration and Validation: Introduction, definition and general principles of calibration, qualification and validation, importance and scope of validation, type of validation.

General principles of Analytical method Validation.

Warehousing: Good warehousing practice, materials management

Recommended Books: (Latest Edition)

1. Quality Assurance Guide by organization of Pharmaceutical Products of India.
2. Good Laboratory Practice Regulations, 2nd Edition, Sandy Weinberg Vol. 69.
3. Quality Assurance of Pharmaceuticals- A compendium of Guide lines and Related materials Vol I WHO Publications.
4. A guide to Total Quality Management- Kushik Maitra and Sedhan K Ghosh



5. How to Practice GMP's – P P Sharma.
6. ISO 9000 and Total Quality Management – Sadhank G Ghosh
7. The International Pharmacopoeia – Vol I, II, III, IV- General Methods of Analysis and Quality specification for Pharmaceutical Substances, Excipients and Dosage forms
8. Good laboratory Practices – Marcel Dekker Series
9. ICH guidelines, ISO 9000 and 14000 guidelines I 42
10. Pharmaceutical Quality Assurance – Sohan Chitlange, Sanjeevani Deshkar, Rupali Kale and Bhupesh Patil

BP607P. MEDICINAL CHEMISTRY-III (Practical)

4 Hours / week

I Preparation of drugs and intermediates (Any six)

10 turns

1. Sulphanilamide
2. 7-Hydroxy, 4-methyl coumarin
3. Chlorobutanol
4. Triphenyl imidazole
5. Tolbutamide
6. Hexamine
7. Paracetamol
8. Methyl salicylate
9. Caprolactum

II Preparation of medicinally important compounds or intermediates by Microwave synthesis (any two)

02 turns

III Drawing structures and reactions using Chem draw®

01 turn

IV Determination of physicochemical properties such as logP, clogP, MR, Molecular weight

01 turn

V Hydrogen bond donors and acceptors for class of drugs using drug design software Drug likeliness screening (Lipinski's RO5)

01 turn

Recommended Books (Latest Editions)

1. Martindale's extra pharmacopoeia.
2. Organic Chemistry by I. L. Finar Vol II



3. The Organic Chemistry of Drug Synthesis by Lednicer, Vol. 1 to 5.
4. Indian Pharmacopoeia.
5. Text book of practical organic chemistry-A.I.Vogel.
6. Medicinal Chemistry By Ashutosh Kar
7. Practical Pharmaceutical Chemistry: Part II Fourth Edition, A. H. Beckett, J. B. Stenlake.

BP 608 P. PHARMACOLOGY-III (Practical)

4Hrs/Week

Sr. No Experiment

1. Study of anti-ulcer activity of a drug using pylorus ligand (SHAY) rat model and NSAIDS induced ulcer model.
2. Study of effect of drugs on gastrointestinal motility
3. Effect of agonist and antagonists on guinea pig ileum
4. Estimation of serum biochemical parameters by using semi- autoanalyser
5. Effect of saline purgative on frog intestine
6. Hypoglycemic effect of insulin in rabbit
7. Test for pyrogens (rabbit method)
8. Determination of acute oral toxicity (LD50) of a drug from a given data
9. Determination of acute skin irritation / corrosion of a test substance
10. Determination of acute eye irritation / corrosion of a test substance
11. Calculation of pharmacokinetic parameters from a given data
12. Biostatistics methods in experimental pharmacology(student's t test, ANOVA)
13. Biostatistics methods in experimental pharmacology (Chi square test, Wilcoxon Signed Rank test)
14. Bioassay of serotonin using rat fundus strip by three point bioassay.
15. Bioassay of acetylcholine using rat ileum/colon by four point bioassay.
16. Study of mydriatic and miotic effects on rabbit eye.



*Experiments are demonstrated by simulated experiments/videos

Recommended Books (Latest Editions)

1. Ghosh MN. Fundamentals of Experimental Pharmacology. Hilton & Company, Kolkata.
2. Kulkarni SK. Handbook of experimental pharmacology. Vallabh Prakashan.
3. Goyal RK. Practicals in Pharmacology, BS Shaha Prakashan.
4. Kasture SB. A handbook of experiments in pre-clinical pharmacology, Career Publications.
5. Bikas Medhi, Ajay Prakash. Practical Manual of Experimental and Clinical Pharmacology. Jaypee Publications.

BP 609 P. HERBAL DRUG TECHNOLOGY (Practical)

4 hours/ week

1. To perform preliminary phytochemical screening of crude drugs.
2. Determination of the alcohol content of Asava and Arista
3. Evaluation of excipients of natural origin
4. Incorporation of prepared and standardized extract in cosmetic formulations like creams, lotions and shampoos and their evaluation.
5. Incorporation of prepared and standardized extract in formulations like syrups, mixtures and tablets and their evaluation as per Pharmacopoeial requirements.
6. Monograph analysis of herbal drugs from recent Pharmacopoeias
7. Determination of Aldehyde content
8. Determination of Phenol content
9. Determination of total alkaloids

Recommended Books: (Latest Editions)

1. Textbook of Pharmacognosy by Trease & Evans.
2. Textbook of Pharmacognosy by Tyler, Brady & Robber.
3. Pharmacognosy by Kokate, Purohit and Gokhale
4. Essential of Pharmacognosy by Dr.S.H.Ansari
5. Pharmacognosy & Phytochemistry by V.D.Rangari
6. Pharmacopoeal standards for Ayurvedic Formulation (Council of Research in



Indian Medicine & Homeopathy)

7. Mukherjee, P.W. Quality Control of Herbal Drugs: An Approach to Evaluation of Botanicals. Business Horizons Publishers, New Delhi, India, 2002.

8. B.A.Baviskar, S.L.Deore, Dr.S.S.Khadbadi : Experimental Phytopharmacognosy, Nirali Publication





SAVITRIBAI PHULE PUNE UNIVERSITY

**FACULTY OF
SCIENCE AND TECHNOLOGY**



COURSE STRUCTURE AND SYLLABUS

**FINAL YEAR BACHELOR OF PHARMACY (B. Pharm.) 2019 PATTERN
(EFFECTIVE FROM ACADEMIC YEAR 2022 – 2023)**



Yad
PRINCIPAL
Dr. N. J. Paulbudhe College of Pharmacy
Shaneshwarnagar, Ahmednagar-414003

CHAPTER- I: REGULATIONS

1. Short Title and Commencement

These regulations shall be called as “The Revised Regulations for the B. Pharm. Degree Program (CBCS) of the Pharmacy Council of India, New Delhi”. They shall come into effect from the Academic Year 2016-17. The regulations framed are subject to modifications from time to time by Pharmacy Council of India.

2. Minimum qualification for admission

2.1 First year B. Pharm:

Candidate shall have passed 10+2 examination conducted by the respective state/central government authorities recognized as equivalent to 10+2 examination by the Association of Indian Universities (AIU) with English as one of the subjects and Physics, Chemistry, Mathematics (P.C.M) and or Biology (P.C.B / P.C.M.B.) as optional subjects individually. Any other qualification approved by the Pharmacy Council of India as equivalent to any of the above examinations.

2.2. B. Pharm lateral entry (to third semester):

A pass in D. Pharm. course from an institution approved by the Pharmacy Council of India under section 12 of the Pharmacy Act.

3. Duration of the program

The course of study for B.Pharm shall extend over a period of eight semesters (four academic years) and six semesters (three academic years) for lateral entry students. The curricula and syllabi for the program shall be prescribed from time to time by Pharmacy Council of India, New Delhi.

4. Medium of instruction and examinations

Medium of instruction and examination shall be in English.

5. Working days in each semester:

Each semester shall consist of not less than 90 working days. The odd semesters shall be conducted from the month of June/July to November/December and the even semesters shall be conducted from December/January to May/June in every calendar year.

6. Attendance and progress

A candidate is required to put in at least 80% attendance in individual courses considering theory and practical separately. The candidate shall complete the prescribed course satisfactorily to be eligible to appear for the respective examinations.

7. Program/Course credit structure

As per the philosophy of Credit Based Semester System, certain quantum of academic work viz. theory classes, tutorial hours, practical classes, etc. are measured in terms of credits. On satisfactory completion of the courses, a candidate earns credits. The amount of credit associated with a course is dependent upon the number of hours of instruction per week in that course. Similarly, the credit associated with any of the



other academic, co/extra-curricular activities is dependent upon the quantum of work expected to be put in for each of these activities per week.

7.1. Credit assignment

7.1.1. Theory and Laboratory courses

Courses are broadly classified as Theory and Practical. Theory courses consist of lecture (L) and /or tutorial (T) hours, and Practical (P) courses consist of hours spent in the laboratory. Credits (C) for a course is dependent on the number of hours of instruction per week in that course, and is obtained by using a multiplier of one (1) for lecture and tutorial hours, and a multiplier of half (1/2) for practical (laboratory) hours. Thus, for example, a theory course having three lectures and one tutorial per week throughout the semester carries a credit of 4. Similarly, a practical having four laboratory hours per week throughout semester carries a credit of 2.

7.2. Minimum credit requirements

The minimum credit points required for award of a B. Pharm. degree is **211**. These credits are divided into Theory courses, Tutorials, Practical, Practice School and Project over the duration of eight semesters. The credits are distributed semester-wise as shown in Table IX. Courses generally progress in sequences, building competencies and their positioning indicates certain academic maturity on the part of the learners. Learners are expected to follow the semester-wise schedule of courses given in the syllabus. The lateral entry students shall get 52 credit points transferred from their D. Pharm program. Such students shall take up additional remedial courses of 'Communication Skills' (Theory and Practical) and 'Computer Applications in Pharmacy' (Theory and Practical) equivalent to 3 and 4 credit points respectively, a total of 7 credit points to attain 59 credit points, the maximum of I and II semesters.

8. Academic work

A regular record of attendance both in Theory and Practical shall be maintained by the teaching staff of respective courses.

9. Course of study

The course of study for B. Pharm shall include Semester Wise Theory & Practical as given in Table – I to VIII. The number of hours to be devoted to each theory, tutorial and practical course in any semester shall not be less than that shown in Table – I to VIII.



Table-I: Course of study for semester I

Course code	Name of the course	No. of Hours per week/Total no of hours	Tutorial	Credit points
BP101T	Human Anatomy and Physiology I – Theory	3/45	1	4
BP102T	Pharmaceutical Analysis I – Theory	3/45	1	4
BP103T	Pharmaceutics I – Theory	3/45	1	4
BP104T	Pharmaceutical Inorganic Chemistry – Theory	3/45	1	4
BP105T	Communication skills – Theory *	2/30	-	2
BP106RBT BP106RMT	Remedial Biology/ Remedial Mathematics – Theory*	2/30	-	D
BP107P	Human Anatomy and Physiology – Practical	4/60	-	2
BP108P	Pharmaceutical Analysis I – Practical	4/60	-	2
BP109P	Pharmaceutics I – Practical	4/60	-	2
BP110P	Pharmaceutical Inorganic Chemistry – Practical	4/60	-	2
BP111P	Communication skills – Practical*	2/30	-	1
BP112RBP	Remedial Biology – Practical*	2/30	-	D
Total		32/34^S/36[#]/480/510^S/540[#]	4	27

Applicable ONLY for the students who have studied Mathematics / Physics / Chemistry at HSC and appearing for Remedial Biology (RB) course. However for Remedial biology and Mathematics no credits to be allotted only 50 % passing i.e D grade will be prerequisite.

S Applicable ONLY for the students who have studied Physics / Chemistry / Botany / Zoology at HSC and appearing for Remedial Mathematics (RM) course.

* Non University Examination (NUE)



Table-II: Course of study for semester II

Course Code	Name of the course	No. of Hours per week/Total no of hours	Tutorial	Credit points
BP201T	Human Anatomy and Physiology II – Theory	3/45	1	4
BP202T	Pharmaceutical Organic Chemistry I – Theory	3/45	1	4
BP203T	Biochemistry – Theory	3/45	1	4
BP204T	Pathophysiology – Theory	3/45	1	4
BP205T	Computer Applications in Pharmacy – Theory *	3/45	-	3
BP206T	Environmental sciences – Theory *	3/45	-	3
BP207P	Human Anatomy and Physiology II – Practical	4/60	-	2
BP208P	Pharmaceutical Organic Chemistry I – Practical	4/60	-	2
BP209P	Biochemistry – Practical	4/60	-	2
BP210P	Computer Applications in Pharmacy – Practical*	4/60	-	1
Total		32/480	4	29

* Non University Examination (NUE)

Table-III: Course of study for semester III

Course code	Name of the course	No. of Hours per week/Total no of hours	Tutorial	Credit points
BP301T	Pharmaceutical Organic Chemistry II – Theory	3/45	1	4
BP302T	Physical Pharmaceutics I – Theory	3/45	1	4
BP303T	Pharmaceutical Microbiology – Theory	3/45	1	4
BP304T	Pharmaceutical Engineering – Theory	3/45	1	4
BP305P	Pharmaceutical Organic Chemistry II – Practical	4/60	-	2
BP306P	Physical Pharmaceutics I – Practical	4/60	-	2
BP307P	Pharmaceutical Microbiology – Practical	4/60	-	2
BP 308P	Pharmaceutical Engineering –Practical	4/60	-	2
Total		28/420	4	24



Table-IV: Course of study for semester IV

Course code	Name of the course	No. of Hours per week/Total no of hours	Tutorial	Credit points
BP401T	Pharmaceutical Organic Chemistry III– Theory	3/45	1	4
BP402T	Medicinal Chemistry I – Theory	3/45	1	4
BP403T	Physical Pharmaceutics II – Theory	3/45	1	4
BP404T	Pharmacology I – Theory	3/45	1	4
BP405T	Pharmacognosy and Phytochemistry I– Theory	3/45	1	4
BP406P	Medicinal Chemistry I – Practical	4/60	-	2
BP407P	Physical Pharmaceutics II – Practical	4/60	-	2
BP408P	Pharmacology I – Practical	4/60	-	2
BP409P	Pharmacognosy and Phytochemistry I – Practical	4/60	-	2
Total		31/465	5	28

Table-V: Course of study for semester V

Course code	Name of the course	No. of Hours per week/Total no of hours	Tutorial	Credit points
BP501T	Medicinal Chemistry II – Theory	3/45	1	4
BP502T	Industrial Pharmacy-I– Theory	3/45	1	4
BP503T	Pharmacology II – Theory	3/45	1	4
BP504T	Pharmacognosy and Phytochemistry II– Theory	3/45	1	4
BP505T	Pharmaceutical Jurisprudence – Theory	3/45	1	4
BP506P	Industrial Pharmacy-I - Practical	4/60	-	2
BP507P	Pharmacology II – Practical	4/60	-	2
BP508P	Pharmacognosy and Phytochemistry II – Practical	4/60	-	2
Total		27/405	5	26



Table-VI: Course of study for semester VI

Course code	Name of the course	No. of Hours per week/Total no of hours	Tutorial	Credit points
BP601T	Medicinal Chemistry III – Theory	3/45	1	4
BP602T	Pharmacology III – Theory	3/45	1	4
BP603T	Herbal Drug Technology – Theory	3/45	1	4
BP604T	Biopharmaceutics and Pharmacokinetics – Theory	3/45	1	4
BP605T	Pharmaceutical Biotechnology – Theory	3/45	1	4
BP606T	Quality Assurance –Theory	3/45	1	4
BP607P	Medicinal chemistry III – Practical	4/60	-	2
BP608P	Pharmacology III – Practical	4/60	-	2
BP609P	Herbal Drug Technology – Practical	4/60	-	2
Total		30/450	6	30

Table – VII: Course of study for semester VII

Course code	Name of the course	No. of Hours per week/Total no of hours	Tutorial	Credit points
BP701T	Instrumental Methods of Analysis – Theory	3/45	1	4
BP702T	Industrial Pharmacy-II – Theory	3/45	1	4
BP703T	Pharmacy Practice – Theory	3/45	1	4
BP704T	Novel Drug Delivery System – Theory	3/45	1	4
BP705P	Instrumental Methods of Analysis – Practical	4/60	-	2
BP706PS	Practice School*	12/180	-	6
Total		28/420	5	24

* Non University Examination (NUE)



Table – VIII: Course of study for semester VIII

Course code	Name of the course	No. of Hours per week/Total no of hours	Tutorial	Credit points
BP801T	Biostatistics and Research Methodology	3/45	1	4
BP802T	Social and Preventive Pharmacy	3/45	1	4
BP803ET	Pharma Marketing Management	3 + 3 = 6/90	1 + 1 = 2	4 + 4 = 8
BP804ET	Pharmaceutical Regulatory Science			
BP805ET	Pharmacovigilance			
BP806ET	Quality Control and Standardizations of Herbals			
BP807ET	Computer Aided Drug Design			
BP808ET	Cell and Molecular Biology			
BP809ET	Cosmetic Science			
BP810ET	Experimental Pharmacology			
BP811ET	Advanced Instrumentation Techniques			
BP812ET	Dietary Supplements and Nutraceuticals			
BP813PW	Project Work	12/180	-	6
Total		24/360	4	22

Table-IX: Semester wise credits distribution

Semester	Credit Points
I	27
II	29
III	24
IV	28
V	26
VI	30
VII	24
VIII	22
Extracurricular/ Co curricular activities	01*
Total credit points for the program	211



- * The credit points assigned for extracurricular and or co-curricular activities shall be given by the Principals of the colleges and the same shall be submitted to the University. The criteria to acquire this credit point shall be defined by the colleges from time to time.

10. Program Committee

1. The B. Pharm. program shall have a Program Committee constituted by the Head of the institution in consultation with all the Heads of the departments.
2. The composition of the Program Committee shall be as follows:
A senior teacher shall be the Chairperson; One Teacher from each department handling B.Pharm courses; and four student representatives of the program (one from each academic year), nominated by the Head of the institution.
3. Duties of the Program Committee:
 - i. Periodically reviewing the progress of the classes.
 - ii. Discussing the problems concerning curriculum, syllabus and the conduct of classes.
 - iii. Discussing with the course teachers on the nature and scope of assessment for the course and the same shall be announced to the students at the beginning of respective semesters.
 - iv. Communicating its recommendation to the Head of the institution on academic matters.
 - v. The Program Committee shall meet at least thrice in a semester preferably at the end of each Sessional exam (Internal Assessment) and before the end semester exam.

11. Examinations/Assessments

The scheme for internal assessment and end semester examinations is given in Table - X.

11.1 End semester examinations

The End Semester Examinations for each theory and practical course through semesters I to VIII shall be conducted by the university except for the subjects with asterix symbol (*) in table I and II for which examinations shall be conducted by the subject experts at college level and the marks/grades shall be submitted to the university.



Tables-X: Schemes for internal assessments and end sem exam semester wise Sem I

Course code	Name of the course	Internal Assessment				End Semester Exams		Total Marks
		Continuous Mode	Sessional Exams		Total	Marks	Duration	
			Marks	Duration				
BP101T	Human Anatomy and Physiology I – Theory	10	15	1 Hr	25	75	3 Hrs	100
BP102T	Pharmaceutical Analysis I – Theory	10	15	1 Hr	25	75	3 Hrs	100
BP103T	Pharmaceutics I – Theory	10	15	1 Hr	25	75	3 Hrs	100
BP104T	Pharmaceutical Inorganic Chemistry – Theory	10	15	1 Hr	25	75	3 Hrs	100
BP105T	Communication skills – Theory*	5	10	1 Hr	15	35	1.5 Hrs	50
BP106R BT BP106R MT	Remedial Biology/ Mathematics – Theory*	5	10	1 Hr	15	35	1.5 Hrs	50
BP107P	Human Anatomy and Physiology – Practical	5	10	4 Hrs	15	35	4 Hrs	50
BP108P	Pharmaceutical Analysis I – Practical	5	10	4 Hrs	15	35	4 Hrs	50
BP109P	Pharmaceutics I – Practical	5	10	4 Hrs	15	35	4 Hrs	50
BP110P	Pharmaceutical Inorganic Chemistry – Practical	5	10	4 Hrs	15	35	4 Hrs	50
BP111P	Communication skills – Practical*	5	5	2 Hrs	10	15	2 Hrs	25
BP112R BP	Remedial Biology – Practical*	5	5	2 Hrs	10	15	2 Hrs	25
Total		70/75⁵/80[#]	115/125⁵/130[#]	23/24⁵/26[#]11rs	185/200⁵/210[#]	490/525⁵/540[#]	31.5/33⁵/35[#]11rs	675/725⁵/750[#]

* Applicable ONLY for the students studied Mathematics / Physics / Chemistry at HSC and appearing for Remedial Biology (RB)course.

5 Applicable ONLY for the students studied Physics / Chemistry / Botany / Zoology at HSC and appearing for Remedial Mathematics (RM)course.

* Non University Examination(NUE)



Semester II

Course code	Name of the course	Internal Assessment				End Semester Exams		Total Marks
		Continu ous Mode	Sessional Exams		Total	Marks	Duration	
			Marks	Duration				
BP201T	Human Anatomy and Physiology II – Theory	10	15	1 Hr	25	75	3 Hrs	100
BP202T	Pharmaceutical Organic Chemistry I – Theory	10	15	1 Hr	25	75	3 Hrs	100
BP203T	Biochemistry – Theory	10	15	1 Hr	25	75	3 Hrs	100
BP204T	Pathophysiology – Theory	10	15	1 Hr	25	75	3 Hrs	100
BP205T	Computer Applications in Pharmacy – Theory*	10	15	1 Hr	25	50	2 Hrs	75
BP206T	Environmental sciences – Theory*	10	15	1 Hr	25	50	2 Hrs	75
BP207P	Human Anatomy and Physiology II – Practical	5	10	4 Hrs	15	35	4 Hrs	50
BP208P	Pharmaceutical Organic Chemistry I – Practical	5	10	4 Hrs	15	35	4 Hrs	50
BP209P	Biochemistry – Practical	5	10	4 Hrs	15	35	4 Hrs	50
BP210P	Computer Applications in Pharmacy – Practical*	5	5	2 Hrs	10	15	2 Hrs	25
Total		80	125	20 Hrs	205	520	30 Hrs	725

* The subject experts at college level shall conduct examinations.



Semester III

Course code	Name of the course	Internal Assessment				End Semester Exams		Total Marks
		Continuous Mode	Sessional Exams		Total	Marks	Duration	
			Marks	Duration				
BP301T	Pharmaceutical Organic Chemistry II – Theory	10	15	1 Hr	25	75	3 Hrs	100
BP302T	Physical Pharmaceutics I – Theory	10	15	1 Hr	25	75	3 Hrs	100
BP303T	Pharmaceutical Microbiology – Theory	10	15	1 Hr	25	75	3 Hrs	100
BP304T	Pharmaceutical Engineering – Theory	10	15	1 Hr	25	75	3 Hrs	100
BP305P	Pharmaceutical Organic Chemistry II – Practical	5	10	4 Hr	15	35	4 Hrs	50
BP306P	Physical Pharmaceutics I – Practical	5	10	4 Hr	15	35	4 Hrs	50
BP307P	Pharmaceutical Microbiology – Practical	5	10	4 Hr	15	35	4 Hrs	50
BP308P	Pharmaceutical Engineering – Practical	5	10	4 Hr	15	35	4 Hrs	50
Total		60	100	20	160	440	28Hrs	600

Semester IV

Course code	Name of the course	Internal Assessment				End Semester Exams		Total Marks
		Continuous Mode	Sessional Exams		Total	Marks	Duration	
			Marks	Duration				
BP401T	Pharmaceutical Organic Chemistry III – Theory	10	15	1 Hr	25	75	3 Hrs	100
BP402T	Medicinal Chemistry I – Theory	10	15	1 Hr	25	75	3 Hrs	100
BP403T	Physical Pharmaceutics II – Theory	10	15	1 Hr	25	75	3 Hrs	100
BP404T	Pharmacology I – Theory	10	15	1 Hr	25	75	3 Hrs	100
BP405T	Pharmacognosy I – Theory	10	15	1 Hr	25	75	3 Hrs	100



BP406P	Medicinal Chemistry I – Practical	5	10	4 Hr	15	35	4 Hrs	50
BP407P	Physical Pharmaceutics II – Practical	5	10	4 Hrs	15	35	4 Hrs	50
BP408P	Pharmacology I – Practical	5	10	4 Hrs	15	35	4 Hrs	50
BP409P	Pharmacognosy I – Practical	5	10	4 Hrs	15	35	4 Hrs	50
Total		70	115	21 Hrs	185	515	31 Hrs	700

Semester V

Course code	Name of the course	Internal Assessment				End Semester Exams		Total Marks
		Continuous Mode	Sessional Exams		Total	Marks	Duration	
			Marks	Duration				
BP501T	Medicinal Chemistry II – Theory	10	15	1 Hr	25	75	3 Hrs	100
BP502T	Industrial Pharmacy-I-Theory	10	15	1 Hr	25	75	3 Hrs	100
BP503T	Pharmacology II – Theory	10	15	1 Hr	25	75	3 Hrs	100
BP504T	Pharmacognosy II – Theory	10	15	1 Hr	25	75	3 Hrs	100
BP505T	Pharmaceutical Jurisprudence–Theory	10	15	1 Hr	25	75	3 Hrs	100
BP506P	Industrial Pharmacy-I – Practical	5	10	4 Hr	15	35	4 Hrs	50
BP507P	Pharmacology II – Practical	5	10	4 Hr	15	35	4 Hrs	50
BP508P	Pharmacognosy II – Practical	5	10	4 Hr	15	35	4 Hrs	50
Total		65	105	17 Hr	170	480	27 Hrs	650



Semester VI

Course code	Name of the course	Internal Assessment				End Semester Exams		Total Marks
		Continuous Mode	Sessional Exams		Total	Marks	Duration	
			Marks	Duration				
BP601T	Medicinal Chemistry III – Theory	10	15	1 Hr	25	75	3 Hrs	100
BP602T	Pharmacology III – Theory	10	15	1 Hr	25	75	3 Hrs	100
BP603T	Herbal Drug Technology – Theory	10	15	1 Hr	25	75	3 Hrs	100
BP604T	Biopharmaceutics and Pharmacokinetics – Theory	10	15	1 Hr	25	75	3 Hrs	100
BP605T	Pharmaceutical Biotechnology– Theory	10	15	1 Hr	25	75	3 Hrs	100
BP606T	Quality Assurance– Theory	10	15	1 Hr	25	75	3 Hrs	100
BP607P	Medicinal chemistry III – Practical	5	10	4 Hrs	15	35	4 Hrs	50
BP608P	Pharmacology III – Practical	5	10	4 Hrs	15	35	4 Hrs	50
BP609P	Herbal Drug Technology – Practical	5	10	4 Hrs	15	35	4 Hrs	50
Total		75	120	18 Hrs	195	555	30 Hrs	750



Semester VII

Course code	Name of the course	Internal Assessment				End Semester Exams		Total Marks
		Continuous Mode	Sessional Exams		Total	Marks	Duration	
			Marks	Duration				
BP701T	Instrumental Methods of Analysis – Theory	10	15	1 Hr	25	75	3 Hrs	100
BP702T	Industrial Pharmacy -II- Theory	10	15	1 Hr	25	75	3 Hrs	100
BP703T	Pharmacy Practice – Theory	10	15	1 Hr	25	75	3 Hrs	100
BP704T	Novel Drug Delivery System – Theory	10	15	1 Hr	25	75	3 Hrs	100
BP705 P	Instrumental Methods of Analysis – Practical	5	10	4 Hrs	15	35	4 Hrs	50
BP706 PS	Practice School*	25	-	-	25	125	5 Hrs	150
Total		70	70	8Hrs	140	460	21 Hrs	600

* The subject experts at college level shall conduct examinations



Semester VIII

Course code	Name of the course	Internal Assessment				End Semester Exams		Total Marks
		Continuous Mode	Sessional Exams		Total	Marks	Duration	
			Marks	Duration				
BP801T	Biostatistics and Research Methodology – Theory	10	15	1 Hr	25	75	3 Hrs	100
BP802T	Social and Preventive Pharmacy – Theory	10	15	1 Hr	25	75	3 Hrs	100
BP803ET	Pharma. Marketing Management–Theory	10 + 10 = 20	15 + 15 = 30	1 + 1 = 2 Hrs	25 + 25 = 50	75 + 75 = 150	3 + 3 = 6 Hrs	100 + 100 = 200
BP804ET	Pharmaceutical Regulatory Science – Theory							
BP805ET	Pharmacovigilance – Theory							
BP806ET	Quality Control and Standardizations of Herbals –Theory							
BP807ET	Computer Aided Drug Design –Theory							
BP808ET	Cell and Molecular Biology –Theory							
BP809ET	Cosmetic Science – Theory							
BP810ET	Experimental Pharmacology							
BP811ET	Advanced Instrumentation Techniques – Theory							
BP812ET	Dietary Suppliments and Nutraceuticals							
BP813PW	Project Work	-	-	-	-	150	4 Hrs	150
Total		40	60	4 Hrs	100	450	16 Hrs	550



11.2 Internal assessment: Continuous mode

The marks allocated for Continuous mode of Internal Assessment shall be awarded as per the scheme given below.

Table-XI: Scheme for awarding internal assessment: Continuous mode

Theory		
Criteria	Maximum Marks	
Attendance (Refer Table – XII)	4	2
Academic activities (Average of any 2 activities e.g. quiz, assignment, open book test, field work, group discussion and seminar)	4	03
Student – Teacher interaction	2	
Total	10	5
Practical		
Attendance (Refer Table – XII)	2	
Based on Practical Records, Regular viva voce, etc.	3	
Total	5	

Table- XII: Guidelines for the allotment of marks for attendance

Percentage of Attendance	Theory	Practical
95 – 100	4	2
90 – 94	3	1.5
85 – 89	2	1
80 – 84	1	0.5
Less than 80	0	0

11.2.1. Sessional Exams

Two Sessional exams shall be conducted for each theory / practical course as per the schedule fixed by the college(s). The scheme of question paper for theory and



practical Sessional examinations is given below. The average marks of two Sessional exams shall be computed for internal assessment as per the requirements given in tables – X.

Sessional exam shall be conducted for 30 marks for theory and shall be computed for 15 marks. Similarly Sessional exam for practical shall be conducted for 40 marks and shall be computed for 10 marks. The duration for the conduct of the exam is as below

Exam Type	Marks allotted	Duration
Theory	30	1.5 Hr
Practical	40	04 Hr

Question paper pattern for theory Sessional

For subjects having University exams

I. Objective Type Questions (Answer 05 out of 7)	=5 x 2 = 10
II. Long Answers (Answer 1 out of 2)	=1 x 10 = 10
III. Short Answers (Answer 2 out of 3)	=2 x 5 = 10
Total	30 marks

For subjects having Non University Examination

I. Long Answers (Answer 1 out of 2)	=1 x 10 = 10
II. Short Answers (Answer 4 out of 6)	=4 x 5 = 20
Total	30 marks

Question paper pattern for practical sessional examinations

I. Synopsis	= 10
II. Experiments	= 25
III. Viva voce	= 05
Total	40 marks

12. Promotion and award of grades

A student shall be declared PASS and eligible for getting grade in a course of B.Pharm. program if he/she secures at least 50% marks in that particular course



including internal assessment .For example, to be declared as PASS and to get grade, the student has to secure a minimum of 50 marks for the total of 100 including continuous mode of assessment and end semester theory examination and has to secure a minimum of 25 marks for the total 50 including internal assessment and end semester practical examination.

13. Carry forward of marks

In case a student fails to secure the minimum 50% in any Theory or Practical course as specified in 12, then he/she shall reappear for the end semester examination of that course. However his/her marks of the Internal Assessment shall be carried over and he/she shall be entitled for grade obtained by him/her on passing.

14. Improvement of internal assessment

A student shall have the opportunity to improve his/her performance only once in the Sessional exam component of the internal assessment. The re-conduct of the Sessional exam shall be completed before the commencement of next end semester theory examinations.

15. Re-examination of end semester examinations

Reexamination of end semester examination shall be conducted as per the schedule given in table XIII. The exact dates of examinations shall be notified from time to time.

Table-XIII: Tentative schedule of end semester examinations

Semester	For Regular Candidates	For Failed Candidates
I, III, V and VII	November / December	May / June
II, IV, VI and VIII	May / June	November / December

Question paper pattern for end semester theory examinations

For 75 marks paper

I. Objective Type Questions (Answer 5 out of 7)	=5x 3= 15
II. Long Answers (Answer 2 out of 4)	= 2 x 10 = 20
III. Short Answers (Answer 8 out of 10)	= 8 x 5 = 40
Total	= 75marks

For 50 marks paper



I. Long Answers (Answer 2 out of 3)	= 2 x 10 = 20
II. Short Answers (Answer 6 out of 8)	= 6 x 5 = 30
Total	= 50 marks

For 35 marks paper

I. Long Answers (Answer 1 out of 2)	= 1 x 10 = 10
II. Short Answers (Answer 5 out of 7)	= 5 x 5 = 25
Total	= 25marks

Question paper pattern for end semester practical examinations

I. Synopsis	= 5
II. Experiments	= 25
III. Viva voce	= 05
Total	= 35marks

16. Academic Progression:

No student shall be admitted to any examination unless he/she fulfills the norms given in 6. Academic progression rules are applicable as follows:

A student shall be eligible to carry forward all the courses of I, II and III semesters till the IV semester examinations. However, he/she shall not be eligible to attend the courses of V semester until all the courses of I and II semesters are successfully completed.

A student shall be eligible to carry forward all the courses of III, IV and V semesters till the VI semester examinations. However, he/she shall not be eligible to attend the courses of VII semester until all the courses of I, II, III and IV semesters are successfully completed.

A student shall be eligible to carry forward all the courses of V, VI and VII semesters till the VIII semester examinations. However, he/she shall not be eligible to get the course completion certificate until all the courses of I, II, III, IV, V and VI semesters are successfully completed.

A student shall be eligible to get his/her CGPA upon successful completion of the courses of I to VIII semesters within the stipulated time period as per the norms specified in 26.

A lateral entry student shall be eligible to carry forward all the courses of III, IV and V semesters till the VI semester examinations. However, he/she shall not be eligible to attend the courses of VII semester until all the courses of III and IV semesters are successfully completed.



A lateral entry student shall be eligible to carry forward all the courses of V, VI and VII semesters till the VIII semester examinations. However, he/she shall not be eligible to get the course completion certificate until all the courses of III, IV, V and VI semesters are successfully completed.

A lateral entry student shall be eligible to get his/her CGPA upon successful completion of the courses of III to VIII semesters within the stipulated time period as per the norms specified in 26.

Any student who has given more than 4 chances for successful completion of I / III semester courses and more than 3 chances for successful completion of II / IV semester courses shall be permitted to attend V / VII semester classes

ONLY during the subsequent academic year as the case may be. In simpler terms there shall NOT be any ODD BATCH for any semester.

Note: Grade AB should be considered as failed and treated as one head for deciding academic progression. Such rules are also applicable for those students who fail to register for examination(s) of any course in any semester.

Rules for Carry Forward:

The curriculum (including regulations, structure and syllabi) is in force from academic year 2018-19 and onwards for First Year B. Pharm, for academic

year 2019- 20 onwards for Second Year B. Pharm., for academic year 2020-21 and onwards for Third Year B. Pharm., and for academic year 2021-22 and onwards for Final Year B. Pharm.

The learners who were admitted to First Year B. Pharm. of 2015 pattern during the academic year 2017-18 or before & failed in the First Year B.Pharm. of 2015 pattern examination will have to take admission to Semester-III of Second Year B. Pharm. of 2018 pattern in academic year 2019-20 or onwards, provided that

- a. Their result of F. Y. B. Pharm of 2015 pattern is either pass or fails with A. T. K. T.

The said students will have to take up additional remedial courses as follows.

- b. The learners who were admitted to S.Y B. Pharm. of 2015 pattern during the academic year 2018-19 or before and fail in the S.Y B.Pharm. of 2015 pattern examination will have to take admission to Semester-V of Third Year B. Pharm. of 2018 pattern in academic year 2020-21 or onwards, provided that Their result of S. Y. B. Pharm of 2015 pattern is either pass or fails with A. T. K. T. The said students will have to take up additional remedial course as follows.

17. Grading of performances:

Letter grades and grade points allocations:

Based on the performances, each student shall be awarded a final letter grade at the end of the semester for each course. The letter grades and their corresponding grade points are given in Table –XII.



Table – XIV: Letter grades and grade points equivalent to Percentage of marks and performances

Percentage of Marks Obtained	Letter Grade	Grade Point	Performance
90.00 – 100	O	10	Outstanding
80.00 – 89.99	A	9	Excellent
70.00 – 79.99	B	8	Good
60.00 – 69.99	C	7	Fair
50.00 – 59.99	D	6	Average
Less than 50	F	0	Fail
Absent	AB	0	Fail

A learner who remains absent for any end semester examination shall be assigned a letter grade of AB and a corresponding grade point of zero. He/she should reappear for the said evaluation/examination in due course.

18. The Semester grade point average(SGPA)

The performance of a student in a semester is indicated by a number called ‘Semester Grade Point Average’ (SGPA). The SGPA is the weighted average of the grade points obtained in all the courses by the student during the semester. For example, if a student takes five courses(Theory/Practical) in a semester with credits C₁, C₂, C₃, C₄ and C₅ and the student’s grade points in these courses are G₁, G₂, G₃, G₄ and G₅, respectively, and then students’ SGPA is equal to:

$$SGPA = \frac{C_1G_1 + C_2G_2 + C_3G_3 + C_4G_4 + C_5G_5}{C_1 + C_2 + C_3 + C_4 + C_5}$$

The SGPA is calculated to two decimal points. It should be noted that, the SGPA for any semester shall take into consideration the F and ABS grade awarded in that semester. For example if a learner has a F or ABS grade in course 4, the SGPA shall then be computed as:

$$SGPA = \frac{C_1G_1 + C_2G_2 + C_3G_3 + C_4 * ZERO + C_5G_5}{C_1 + C_2 + C_3 + C_4 + C_5}$$



19. **Cumulative Grade Point Average(CGPA)**

The CGPA is calculated with the SGPA of all the VIII semesters to two decimal points and is indicated in final grade report card/final transcript showing the grades of all VIII semesters and their courses. The CGPA shall reflect the failed status in case of F grade(s), till the course(s) is/are passed. When the course(s) is/are passed by obtaining a pass grade on subsequent examination(s) the CGPA shall only reflect the new grade and not the fail grades earned earlier. The CGPA is calculated as:

$$\text{CGPA} = \frac{C1S1 + C2S2 + C3S3 + C4S4 + C5S5 + C6S6 + C7S7 + C8S8}{C1 + C2 + C3 + C4 + C5 + C6 + C7 + C8}$$

where C₁, C₂, C₃,... is the total number of credits for semester I,II,III,...
and S₁, S₂, S₃,... is the SGPA of semester I,II,III,....

20. **Declaration of class**

The class shall be awarded on the basis of CGPA as follows

First Class with Distinction	= CGPA of. 7.50 and above
First Class	= CGPA of. 6.00 to 7.49
Second Class	= CGPA of. 5.00 to 5.99

21. **Project work**

A) **Selection of the Project Topic**

All the students shall undertake a project under the supervision of a teacher and submit a report. The project can be based on Lab oriented (small part of original research work) Study / Survey oriented or Computational studies or oriented. / Review topic/ Extension of Practice school work etc., based on Current Trends in Pharmaceutical science. The project shall be carried out in group not exceeding 5 in number. The project report shall be submitted in triplicate (typed & hard bound copy not less than 25 pages).

The internal and external examiner appointed for evaluation of the project shall be approved teachers of SPPU / Industrial Experts appointed by Principal of the respective institute. Students shall be evaluated in groups for four hours (i.e., about half an hour for a group of five students). The projects shall be evaluated as per the criteria given below

Evaluation of Dissertation Book:

Objective(s) of the work done	15Marks
Methodology adopted	20Marks
Results and Discussions	20Marks
Conclusions and Outcomes	20Marks

Total

75Marks



Evaluation of Presentation:	
Presentation of work	25Marks
Communications kills	20Marks
Question and answers kills	30Marks
Total	75Marks

Explanation: All the students should be evaluated thoroughly based on their performance in the Laboratory /Literature work and presentation done as individual student under given criteria.

B] Practice School /Project Coordinator:

One of the Staff members shall be assigned as the Project coordinator for a given Academic Year.

Duties of the Coordinator:

- Overall co-ordination
- Facilitator in Guide-Student allotment.
- Preparation of schedules and Time – tables.
- All relevant documentation and filing
- Submission of marks to and communication with College and University exam sections.

22. Industrial training (Desirable)

Every candidate shall be required to work for at least 150 hours spread over four weeks in a Pharmaceutical Industry/Hospital. It includes Production unit, Quality Control department, Quality Assurance department, Analytical laboratory, Chemical manufacturing unit, Pharmaceutical R&D, Hospital (Clinical Pharmacy), Clinical Research Organization, Community Pharmacy, etc. After the Semester – VI and before the commencement of Semester – VII, and shall submit satisfactory report of such work and certificate duly signed by the authority of training organization to the head of the institute.

AND/OR

Every candidate shall be required to undergo any one of the Skill development modules mentioned below (**Duration – Min. 04 weeks**)

- Hands on Training (Central instrumentation lab/Machine room etc)
- UGC/AICTE recognized online courses (SWAYAM/NPTEL etc)

After the successful completion of the module the candidate shall submit satisfactory report and certificate duly signed by the authority of training organization/Head of the institute



23. Practice School

In the VII semester, every candidate shall undergo practice school for a period of 150 hours evenly distributed throughout the semester. The student shall opt any one of the domains for practice school declared by the program committee from time to time.

At the end of the practice school, every student shall submit a printed report (in triplicate) on the practice school he/she attended (not more than 25 pages). Along with the exams of semester VII, the report submitted by the student, knowledge and skills acquired by the student through practice school shall be evaluated by the subject experts at college level and grade point shall be awarded.

24. Award of Ranks

Ranks and Medals shall be awarded on the basis of final CGPA. However, candidates who fail in one or more courses during the B.Pharm program shall not be eligible for award of ranks. Moreover, the candidates should have completed the B. Pharm program in minimum prescribed number of years, (four years) for the award of Ranks.

25. Award of degree

Candidates who fulfill the requirements mentioned above shall be eligible for award of degree during the ensuing convocation.

26. Duration for completion of the program of study

The duration for the completion of the program shall be fixed as double the actual duration of the program and the students have to pass within the staid period, otherwise they have to get fresh Registration.

27. Re-admission after break of study

Candidate who seeks re-admission to the program after break of study has to get the approval from the university by paying a condonation fee.

No condonation is allowed for the candidate who has more than 2 years of break up period and he/she has to rejoin the program by paying the required fees.



FINAL YEAR B. PHARM SEMESTER – VII

BP701T	INSTRUMENTAL METHODS OF ANALYSIS (Theory)	45 Hours
<p>Scope:</p> <p>This subject deals with the application of instrumental methods in qualitative and quantitative analysis of drugs. This subject is designed to impart a fundamental knowledge on the principles and instrumentation of spectroscopic and chromatographic technique. This also emphasizes on theoretical and practical knowledge on modern analytical instruments that are used for drug testing.</p> <p>Objectives:</p> <p>Upon completion of the course the student shall be able to:</p> <ol style="list-style-type: none"> 1. Upon completion of the course the student shall be able to 2. Illustrate the interaction of matter with electromagnetic radiations and justify its applications in drug analysis 3. Classify the chromatographic separation methods and choose appropriate technique for analysis of drugs. 4. Design methods for performing quantitative & qualitative analysis of drugs using various analytical instruments. <p>Course Content:</p>		
<p>UNIT - I</p> <p>UV Visible spectroscopy</p> <p>Introduction to spectroscopy, Electronic transitions, chromophores, auxochromes, spectral shifts, solvent effect on absorption spectra, Beer and Lambert's law, Derivation and deviations.</p> <p>Instrumentation - Sources of radiation, wavelength selectors, sample cells, detectors- Photo tube, Photomultiplier tube, Photo voltaic cell, Silicon Photodiode.</p> <p>Applications - Spectrophotometric titrations, Single component and multi component Analysis</p> <p>Fluorimetry</p> <p>Theory, Concepts of singlet, doublet and triplet electronic states, internal and external conversions, factors affecting fluorescence, quenching, instrumentation and applications</p>		<p>10 Hours</p>



<p>UNIT –II</p> <p>FTIR spectroscopy</p> <p>Introduction, fundamental modes of vibrations in poly atomic molecules, sample handling, factors affecting vibrations</p> <p>Instrumentation - Sources of radiation, wavelength selectors, detectors - Golay cell, Bolometer, Thermocouple, Thermister, Pyroelectric detector, FTIR instrument, sample handling attachments –DRS and ATR and applications</p> <p>Flame Photometry</p> <p>Principle, interferences, instrumentation and applications</p> <p>Atomic absorption spectroscopy</p> <p>Principle, interferences, instrumentation and Applications</p> <p>Nepheloturbidimetry</p> <p>Introduction</p>	<p>10 Hours</p>
<p>UNIT –III</p> <p>Introduction to chromatography -</p> <p>Adsorption and partition column chromatography:</p> <p>Methodology, advantages, disadvantages and applications.</p> <p>Paper chromatography:</p> <p>Introduction, methodology, development techniques, advantages, disadvantages and applications</p> <p>Thin layer chromatography:</p> <p>Introduction, Principle, Methodology, Rf values, advantages, disadvantages and applications.</p> <p>HPTLC:</p> <p>Introduction, Instrumentation and applications</p>	<p>10 Hours</p>
<p>UNIT –IV</p> <p>Theory of Chromatography</p> <p>Plate theory, Rate theory, System suitability parameters</p> <p>Gas chromatography</p> <p>Introduction, theory, instrumentation, temperatureprogramming,advantages, disadvantages andapplications</p> <p>High performance liquid chromatography (HPLC)</p> <p>Introduction, theory, instrumentation, advantages and applications.</p>	<p>08 Hours</p>



<p>UNIT –V</p> <p>Ion exchange chromatography- Introduction, classification, ion exchange resins, properties, mechanism of ion exchange process, factors affecting ion exchange, methodology and applications</p> <p>Gel chromatography- Introduction, theory, instrumentation and applications Affinity chromatography- Introduction</p>	<p>07 Hours</p>
<p>Recommended Books (Latest Editions):</p> <ol style="list-style-type: none"> 1. Instrumental Methods of Chemical Analysis by B.K Sharma 2. Organic spectroscopy by Y.R.Sharma 3. Text book of Pharmaceutical Analysis by Kenneth A.Connors 4. Vogel’s Text book of Quantitative Chemical Analysis by A.I.Vogel 5. Practical Pharmaceutical Chemistry by A.H. Beckett and J.B.Stenlake 6. Organic Chemistry by I. L.Finar 7. Organic spectroscopy by WilliamKemp 8. Quantitative Analysis of Drugs by D. C.Garrett 9. Quantitative Analysis of Drugs in Pharmaceutical Formulations by P. D.Sethi 10. Spectrophotometric identification of Organic Compounds bySilverstein. 	



BP702T	INDUSTRIAL PHARMACY -II (Theory)	45 Hours
<p>Scope: This course is designed to impart fundamental knowledge on pharmaceutical product development and translation from laboratory to market.</p> <p>Objectives: Upon completion of the course, the student shall be able to:</p> <ol style="list-style-type: none"> 1. Know the process of pilot plant and scale up of pharmaceutical dosage forms 2. Understand the process of technology transfer from lab scale to commercial batch 3. Know different Laws and Acts that regulate pharmaceutical industry 4. Understand the approval process and regulatory requirements for drug products <p>Course Content:</p>		
<p>UNIT-I Pilot plant scale up techniques:</p> <p>General considerations - including significance of personnel requirements, space requirements, raw materials, Pilot plant scale up considerations for solids, liquid orals, semi solids and relevant documentation, SUPAC guidelines, Introduction to platform technology.</p>		10 Hours
<p>UNIT-II Technology development and transfer:</p> <p>WHO guidelines for Technology Transfer (TT): Terminology, Technology transfer protocol, Quality risk management, Transfer from R & D to production (Process, packaging and cleaning), Granularity of TT Process (API, excipients, finished products, packaging materials) Documentation, Premises and equipments, qualification and validation, quality control, analytical method transfer, Approved regulatory bodies and agencies, Commercialization- practical aspects and problems (case studies), TT agencies in India - APCTD, NRDC, TIFAC, BCIL, TBSE / SIDBI; TT related documentation - confidentiality agreement, licensing, MoU's, legal issues</p>		10 Hours



<p>UNIT-III</p> <p>Regulatory affairs: Introduction, Historical overview of Regulatory Affairs, Regulatory authorities, Role of Regulatory affairs department, Responsibility of Regulatory Affairs Professionals</p> <p>Regulatory requirements for drug approval:</p> <p>Drug Development Teams, Non-Clinical Drug Development, Pharmacology, Drug Metabolism and Toxicology, General considerations of Investigational New Drug (IND) Application, Investigator's Brochure (IB) and New Drug Application (NDA), Clinical research / BE studies, Clinical Research Protocols, Biostatistics in Pharmaceutical</p> <p>Product Development, Data Presentation for FDA Submissions, Management of Clinical Studies.</p>	<p>10 Hours</p>
<p>UNIT-IV</p> <p>Indian Regulatory Requirements:</p> <p>Central Drug Standard Control Organization (CDSCO) and State Licensing Authority: Organization, Responsibilities, Certificate of Pharmaceutical Product (COPP), Regulatory requirements and approval procedures for New Drugs.</p>	<p>07 Hours</p>
<p>UNIT-V</p> <p>Quality management systems:</p> <p>Quality management & Certifications: Concept of Quality, Total Quality Management, Quality by Design (QbD), Six Sigma concept, Out of Specifications (OOS), Change control, Introduction to ISO 9000 series of quality systems standards, ISO 14000, NABL, GLP</p>	<p>08 Hours</p>
<p>Recommended Books: (Latest Editions)</p> <ol style="list-style-type: none"> 1. Regulatory Affairs from Wikipedia, the free encyclopedia modified on 7th April available at http://en.wikipedia.org/wiki/Regulatory_Affairs. 2. International Regulatory Affairs Updates, 2005. available at http://www.iraup.com/about.php 3. Douglas J Pisano and David S. Mantus. Text book of FDA Regulatory Affairs a Guide for Prescription Drugs, Medical Devices, and Biologics' Second Edition. 4. Regulatory Affairs brought by learning plus, inc. available at http://www.cgmp.com/ra.htm. 	



BP703T	PHARMACY PRACTICE (Theory)	45 Hour s
<p>Scope:</p> <p>In the changing scenario of pharmacy practice in India, for successful practice of Hospital Pharmacy, the students are required to learn various skills like drug distribution, drug information, and therapeutic drug monitoring for improved patient care. In community pharmacy, students will be learning various skills such as dispensing of drugs, responding to minor ailments by providing suitable safe medication, patient counseling for improved patient care in the community setup.</p> <p>Objectives:</p> <p>Upon completion of the course, the student shall be able to:</p> <ol style="list-style-type: none"> 1. Know various drug distribution methods in a hospital 2. Appreciate the pharmacy stores management and inventory control 3. Monitor drug therapy of patient through medication chart review and clinical review. 4. Obtain medication history interview and counsel the patients 5. Identify drug related problems 6. Detect and assess adverse drug reactions 7. Interpret selected laboratory results (as monitoring parameters in therapeutics) of specific disease states 8. Know pharmaceutical care services 9. Do patient counseling in community pharmacy; 10. Appreciate the concept of rational drug therapy. <p>Course Content:</p>		
<p>UNIT-I</p> <p>Hospital and its organization</p> <p>Definition, Classification of hospital- Primary, Secondary and Tertiary hospitals, Classification based on clinical and non- clinical basis, Organization Structure of a Hospital, and Medical staffs involved in the hospital and their functions.</p> <p>Hospital pharmacy and its organization</p> <p>Definition, functions of hospital pharmacy, Organization structure, Location, Layout and staff requirements, and Responsibilities and functions of hospital pharmacists.</p> <p>Adverse drug reaction</p> <p>Classifications - Excessive pharmacological effects, secondary pharmacological effects, idiosyncrasy, allergic drug reactions, genetically determined toxicity, toxicity following sudden withdrawal of drugs, Drug interaction- beneficial interactions, adverse interactions, and pharmacokinetic drug interactions, Methods for detecting drug interactions, spontaneous case reports and record linkage</p>		<p>10 Hours</p>



studies, and Adverse drug reaction reporting and management.	
<p>Community Pharmacy Organization and structure of retail and wholesale drug store, types and design, Legal requirements for establishment and maintenance of a drug store, Dispensing of proprietary products, maintenance of records of retail and wholesale drugstore.</p>	
<p>UNIT-II Drug distribution system in a hospital Dispensing of drugs to inpatients, types of drug distribution systems, charging policy and labelling, dispensing of drugs to ambulatory patients, and Dispensing of controlled drugs. Hospital formulary Definition, contents of hospital formulary, Differentiation of hospital formulary and Drug list, preparation and revision, and addition and deletion of drug from hospital formulary. Therapeutic drug monitoring Need for Therapeutic Drug Monitoring, Factors to be considered during the Therapeutic Drug Monitoring, and Indian scenario for Therapeutic Drug Monitoring. Medication adherence Causes of medication non-adherence, pharmacist role in the medication adherence, and monitoring of patient medication adherence. Patient medication history interview Need for the patient medication history interview, medication interview forms. Community pharmacy management Financial, materials, staff, and infrastructure requirements.</p>	<p>10 Hours</p>
<p>UNIT-III Pharmacy and therapeutic committee Organization, functions, Policies of the pharmacy and therapeutic committee in including drugs into formulary, inpatient and outpatient prescription, automatic stop order, and emergency drug list preparation. Drug information services Drug and Poison information centre, Sources of drug information, Computerized services, and storage and retrieval of information. Patient counseling Definition of patient counseling; steps involved in patient counseling, and Special cases that require the pharmacist Education and training program in the hospital Role of pharmacist in the education and training program, Internal and external training program, Services to the nursing homes/clinics, Code of ethics for community pharmacy, and Role of pharmacist in the interdepartmental communication and community health education. Prescribed medication order and communication skills Prescribed medication order- interpretation and legal requirements, and Communication skills- communication with prescribers and patients.</p>	<p>10 Hours</p>



<p>UNIT-IV</p> <p>Budget preparation and implementation Budget preparation and implementation Clinical Pharmacy</p> <p>Introduction to Clinical Pharmacy, Concept of clinical pharmacy, functions and responsibilities of clinical pharmacist ,Drug therapy monitoring-medication chart review, clinical review, pharmacist intervention, Ward round participation, Medication history and Pharmaceutical care.</p> <p>Dosing pattern and drug therapy based on Pharmacokinetic & disease pattern.</p> <p>Over the counter (OTC) sales</p> <p>Introduction and sale of over the counter, and Rational use of common over the counter medications.</p>	<p>08 Hour s</p>
<p>UNIT-V</p> <p>Drug store management and inventory control</p> <p>Organization of drug store, types of materials stocked and storage conditions, Purchase and inventory control: principles, purchase procedure, purchase order, procurement and stocking, Economic order quantity, Reorder quantity level, and Methods used for the analysis of the drug expenditure.</p> <p>Investigational use of drugs</p> <p>Description,principals involved, classification, control, identification, role of hospital pharmacist, advisory committee.</p> <p>Interpretation of Clinical Laboratory Tests</p> <p>Blood chemistry, hematology, and urinalysis</p>	<p>07 Hour s</p>
<p>Recommended Books (Latest Edition):</p> <ol style="list-style-type: none"> 1. Merchant S.H. and Dr. J. S. Quadry. A textbook of hospital pharmacy, 4th ed. Ahmadabad: B.S. Shah Prakakshan;2001. 2. Parthasarathi G, Karin Nyfort-Hansen, Milap C Nahata. A textbook of Clinical Pharmacy Practice- essential concepts and skills, 1st ed. Chennai: Orient Longman Private Limited;2004. 3. William E. Hassan. Hospital pharmacy, 5th ed. Philadelphia: Lea &Febiger;1986. 4. Tipnis Bajaj. Hospital Pharmacy, 1st ed. Maharashtra: Career Publications;2008. 5. Scott LT. Basic skills in interpreting laboratory data, 4thed. American Society of Health System Pharmacists Inc;2009. 6. Parmar N.S. Health Education and Community Pharmacy, 18th ed. India: 	



CBS Publishers & Distributers;2008.

Journals:

1. Therapeutic drug monitoring. ISSN:0163-4356
2. Journal of pharmacy practice. ISSN:0974-8326
3. American journal of health system pharmacy. ISSN: 1535-2900(online)
4. Pharmacy times (Monthly magazine)



BP704T	NOVEL DRUG DELIVERY SYSTEM (Theory)	45 Hours
<p>Scope: This subject is designed to impart basic knowledge on the area of novel drug delivery systems.</p> <p>Objectives: Upon completion of the course student shall be able</p> <ol style="list-style-type: none"> To understand various approaches for development of novel drug delivery systems. To understand the criteria for selection of drugs and polymers for the development of novel drug delivery systems, their formulation and evaluation. <p>Course Content:</p>		
<p>UNIT-I</p> <p>Controlled drug delivery systems: Introduction, terminology/definitions and rationale, advantages, disadvantages, selection of drug candidates. Approaches to design controlled release formulations based on diffusion, dissolution and ion exchange principles. Physicochemical and biological properties of drugs relevant to controlled release formulations</p> <p>Polymers: Introduction, classification, properties, advantages and application of polymers in formulation of controlled release drug delivery systems.</p>		10 Hours
<p>UNIT-II</p> <p>Microencapsulation: Definition, advantages and disadvantages, microspheres /microcapsules, microparticles, methods of microencapsulation, applications</p> <p>Mucosal Drug Delivery system: Introduction, Principles of bioadhesion / mucoadhesion, concepts, advantages and disadvantages, transmucosal permeability and formulation considerations of buccal delivery systems</p> <p>Implantable Drug Delivery Systems: Introduction, advantages and disadvantages, concept of implants and osmotic pump.</p>		10 Hours



<p>UNIT-III</p> <p>Transdermal Drug Delivery Systems:</p> <p>Introduction, Permeation through skin, factors affecting permeation, permeation enhancers, basic components of TDDS, formulation approaches.</p> <p>Gastroretentive drug delivery systems:</p> <p>Introduction, advantages, disadvantages, approaches for GRDDS – Floating, high density systems, inflatable and gastro adhesive systems and their applications</p> <p>Nasopulmonary drug delivery system:</p> <p>Introduction to Nasal and Pulmonary routes of drug delivery ,Formulation of Inhalers(dry powder and metered dose), nasal sprays,nebulizers.</p>	<p>10 Hours</p>
<p>UNIT-IV</p> <p>Targeted drug Delivery:</p> <p>Concepts and approaches advantages and disadvantages, introduction to liposomes, niosomes, nanoparticles, monoclonal antibodies and their applications.</p>	<p>08 Hours</p>
<p>UNIT-V</p> <p>Ocular Drug Delivery Systems:</p> <p>Introduction, intra ocular barriers and methods to overcome –Preliminary study, ocular formulations and ocuserts</p> <p>Intrauterine Drug Delivery Systems:</p> <p>Introduction, advantages and disadvantages, development of intra uterine devices (IUDs) and applications</p>	<p>07 Hours</p>
<p>Recommended Books: (Latest Editions)</p> <ol style="list-style-type: none"> 1. Y W. Chien, Novel Drug Delivery Systems, 2nd edition, revised and expanded, Marcel Dekker, Inc., New York, 1992. 2. Robinson, J. R., Lee V. H. L, Controlled Drug Delivery Systems, Marcel Dekker, Inc., New York, 1992. 3. Encyclopedia of Controlled Delivery. Edith Mathiowitz, Published by Wiley Interscience Publication, John Wiley and Sons, Inc, New York. Chichester/Weinheim 4. N.K. Jain, Controlled and Novel Drug Delivery, CBS Publishers & Distributors, New Delhi, First edition 1997 (reprint in 2001). 5. S.P. Vyas and R.K. Khar, Controlled Drug Delivery -concepts and advances, VallabhPrakashan, New Delhi, First edition 2002. 	



Journals 1. Indian Journal of Pharmaceutical Sciences(IPA) 2. Indian Drugs(IDMA) 3. Journal of Controlled Release (Elsevier Sciences) 4. Drug Development and Industrial Pharmacy (Marcel & Decker) International Journal of Pharmaceutics (Elsevier Sciences)		
BP705P	INSTRUMENTAL METHODS OF ANALYSIS (Practical)	04 Hours/Week
1. Weights and measures and pharmacopoeia in analysis 2. Determination of absorption maxima and effect of solvent on absorption maxima of organic compounds 3. Assay of Drug product as per IP (Assay of Paracetamol tablet by UV-Spectrophotometry) 4. Assay of Drug product by Calibration curve method 5. Assay of any drug/drug product by colorimetry. 6. Simultaneous estimation of multicomponent formulation by UV spectroscopy (SE/Q analysis) 7. Estimation of drug by fluorimetry 8. Study of quenching of fluorescence 9. Determination of sodium and potassium by flame photometry 10. Separation of amino acids by paper chromatography 11. Separation of sugars by thin layer chromatography 12. Separation of plant pigments by column chromatography 13. Demonstration of HPLC instrument 14. Demonstration of FTIR instrument 15. Interpretation of spectra of organic compounds by IR spectroscopy as per pharmacopoeia		



Recommended Books (Latest Editions)

1. Instrumental Methods of Chemical Analysis by B.K.Sharma
2. Organic spectroscopy by Y.R.Sharma
3. Text book of Pharmaceutical Analysis by Kenneth A. Connors
4. Vogel's Text book of Quantitative Chemical Analysis by A.I.Vogel
5. Practical Pharmaceutical Chemistry by A.H. Beckett and J.B.Stenlake
6. Organic Chemistry by I. L.Finar
7. Organic spectroscopy by William Kemp
8. Quantitative Analysis of Drugs by D. C. Garrett
9. Quantitative Analysis of Drugs in Pharmaceutical Formulations by P. D. Sethi
10. HPLC by P.D.Sethi
11. HPTLC by P.D. Sethi
12. Spectrophotometric identification of Organic Compounds by Silverstein

BP706PS**PRACTICE SCHOOL*****150 Hours**

In the VII semester, every candidate shall undergo practice school for a period of 150 hours evenly distributed throughout the semester. The student shall opt any one of the domains for practice school declared by the program committee from time to time.

At the end of the practice school, every student shall submit a printed report (in triplicate) on the practice school he/she attended (not more than 25 pages). Along with the exams of semester VII, the report submitted by the student, knowledge and skills acquired by the student through practice school shall be evaluated by the subject experts at college level and grade point shall be awarded.



SEMESTER – VIII

BP801T	BIostatISTICS AND RESEARCH METHODOLOGY (Theory)	45 Hours
<p>Scope: To understand the applications of Biostatistics in Pharmacy. This subject deals with descriptive statistics, Graphics, Correlation, Regression, logistic regression Probability theory, Sampling technique, Parametric tests, Non Parametric tests, ANOVA, Introduction to Design of Experiments, Phases of Clinical trials and Observational and Experimental studies, SPSS, R and MINITAB statistical software's, analyzing the statistical data using Excel.</p> <p>Objectives: Upon completion of the course the student shall be able to</p> <ol style="list-style-type: none"> 1. Know the operation of M.S. Excel, SPSS, R and MINITAB®, DoE (Design of Experiment) 2. Know the various statistical techniques to solve statistical problems 3. Appreciate statistical techniques in solving the problems. <p align="center">Course content:</p>		
<p>UNIT-I Introduction: Statistics, Biostatistics, Frequency distribution Measures of central tendency: Mean, Median, Mode- Pharmaceutical examples Measures of dispersion: Dispersion, Range, standard deviation, Pharmaceutical problems Correlation: Definition, Karl Pearson's coefficient of correlation, Multiple correlation- Pharmaceuticals examples</p>		<p>10 Hours</p>
<p>UNIT-II Regression: Curve fitting by the method of least squares, fitting the lines $y = a + bx$ and $x = a + by$, Multiple regression, standard error of regression- Pharmaceutical Examples Probability: Definition of probability, Binomial distribution, Normal distribution, Poisson's distribution, properties- problems, Sample, Population, large sample, small sample, Null hypothesis, alternative hypothesis, sampling, essence of sampling, types of sampling, Error-I type, Error-II type, Standard error of mean (SEM) - Pharmaceutical examples Parametric test: t-test (Sample, Pooled or Unpaired and Paired), ANOVA, (Oneway and Two way), Least Significance difference</p>		<p>10 Hours</p>



<p>UNIT-III Non Parametric tests: Wilcoxon Rank Sum Test, Mann-Whitney U test, Kruskal-Wallis test, Friedman Test Introduction to Research: Need for research, Need for design of Experiments, Experiential Design Technique, plagiarism Graphs: Histogram, Pie Chart, Cubic Graph, response surface plot, Counter Plot graph Designing the methodology: Sample size determination and Power of a study, Report writing and presentation of data, Protocol, Cohort studies, Observational studies, Experimental studies, Designing clinical trial, various phases.</p>	10 Hours
<p>UNIT-IV Blocking and confounding system for Two-level factorials Regression modeling: Hypothesis testing in Simple and Multiple regression models Introduction to Practical components of Industrial and Clinical Trials Problems: Statistical Analysis Using Excel, SPSS, MINITAB®, DESIGN OF EXPERIMENTS, R - Online Statistical Software's to Industrial and Clinical trial approach</p>	08 Hours
<p>UNIT-V Design and Analysis of experiments: Factorial Design: Definition, 2^2, 2^3 design. Advantage of factorial design Response Surface methodology: Central composite design, Historical design, Optimization Techniques</p>	07 Hours
<p>Recommended Books (Latest edition):</p> <ol style="list-style-type: none"> 1. Pharmaceutical statistics- Practical and clinical applications, Sanford Bolton, publisher Marcel Dekker Inc. New York. 2. Fundamental of Statistics – Himalaya Publishing House-S.C.Guptha 3. Design and Analysis of Experiments – PHI Learning Private Limited, R. Pannerselvam, 4. Design and Analysis of Experiments – Wiley Students Edition, Douglas and C. Montgomery 	



BP802T	SOCIAL AND PREVENTIVE PHARMACY (Theory)	45 Hours
<p>Scope: The purpose of this course is to introduce to students a number of health issues and their challenges. This course also introduced a number of national health programmes. The roles of the pharmacist in these contexts are also discussed.</p> <p>Objectives: After the successful completion of this course, the student shall be able to:</p> <ol style="list-style-type: none"> 1. Acquire high consciousness/realization of current issues related to health and pharmaceutical problems within the country and worldwide. 2. Develop a critical way of thinking based on current health care development. 3. Evaluate alternative ways of solving problems related to health and pharmaceutical issues. <p>Course Content:</p>		
<p>UNIT-I Concept of health and disease: Definition, concepts and evaluation of public health. Understanding the concept of prevention and control of disease, social causes of diseases and social problems of the sick.</p> <p>Sociology and health Socio cultural factors related to health and disease, Impact of urbanization on health and disease, Poverty and health</p> <p>Hygiene and health Personal hygiene and health care; avoidable habits.</p>		10 Hours
<p>UNIT-II Preventive medicine General principles of prevention and control of diseases such as cholera, SARS, Ebola virus, influenza, acute respiratory infections, malaria, chicken guinea, dengue, lymphatic filariasis, pneumonia, hypertension, diabetes mellitus, cancer, drug addiction-drug substance abuse</p>		10 Hours
<p>UNIT-III National health programs, its objectives, functioning and outcome of the following: HIV AND AIDS control programme, TB, Integrated disease surveillance program (IDSP), National leprosy control programme, National mental health program, National programme for prevention and control of deafness, Universal immunization programme, National programme for control of blindness, Pulse polio programme.</p>		10 Hours
<p>UNIT-IV National health intervention programme for mother and child, National family welfare programme, National tobacco control programme, National Malaria Prevention Program, National programme for the health care for the elderly, Social health programme; role of WHO in Indian national program</p>		08 Hours



<p>UNIT-V Community services in rural, urban and school health: Functions of PHC, Improvement in rural sanitation, national urban health mission, Health promotion and education in school.</p>	<p>07 Hours</p>
<p>Recommended Books (Latest edition):</p> <ol style="list-style-type: none"> 1. Short Textbook of Preventive and Social Medicine, Prabhakara GN, 2nd Edition, 2010, ISBN: 9789380704104, JAYPEE Publications 2. Textbook of Preventive and Social Medicine (Mahajan and Gupta), Edited by Roy Rabindra Nath, Saha Indranil, 4th Edition, 2013, ISBN: 9789350901878, JAYPEE Publications 3. Review of Preventive and Social Medicine (Including Biostatistics), Jain Vivek, 6th Edition, 2014, ISBN: 9789351522331, JAYPEE Publications 4. Essentials of Community Medicine: A Practical Approach, Hiremath Lalita D, Hiremath Dhananjaya A, 2nd Edition, 2012, ISBN: 9789350250440, JAYPEE Publications 5. Park Textbook of Preventive and Social Medicine, K Park, 21st Edition, 2011, ISBN- 14: 9788190128285, BANARSIDAS BHANOT PUBLISHERS. 6. Community Pharmacy Practice, Ramesh Adepu, BSP publishers, Hyderabad <p>Recommended Journals:</p> <ol style="list-style-type: none"> 1. Research in Social and Administrative Pharmacy, Elsevier, Ireland 	



BP803ET	PHARMACEUTICAL MARKETING (Theory)	45 Hours
<p>Scope: The pharmaceutical industry not only needs highly qualified researchers, chemists and, technical people, but also requires skilled managers who can take the industry forward by managing and taking the complex decisions which are imperative for the growth of the industry. The Knowledge and Know-how of marketing management groom the people for taking a challenging role in Sales and Product management.</p> <p>Objective: The course aims to provide an understanding of marketing concepts and techniques and their applications in the pharmaceutical industry.</p> <p>Course Content:</p>		
<p>UNIT-I</p> <p>Marketing: Definition, general concepts and scope of marketing; Distinction between marketing & selling; Marketing environment; Industry and competitive analysis; Analyzing consumer buying behavior; industrial buying behavior.</p> <p>Pharmaceutical market: Quantitative and qualitative aspects; size and composition of the market; demographic descriptions and socio-psychological characteristics of the consumer; market segmentation & targeting. Consumer profile; Motivation and prescribing habits of the physician; patients 'choice of physician and retail pharmacist. Analyzing the Market; Role of market research.</p>		10 Hours
<p>UNIT-II</p> <p>Product decision: Classification, product line and product mix decisions, product life cycle, product portfolio analysis; product positioning; New product decisions; Product branding, packaging and labelling decisions, Product management in pharmaceutical industry.</p>		10 Hours
<p>UNIT-III</p> <p>Promotion: Methods, determinants of promotional mix, promotional budget; An overview of personal selling, advertising, direct mail, journals, sampling, retailing, medical exhibition, public relations, online promotional techniques for OTC Products.</p>		10 Hours



<p>UNIT-IV</p> <p>Pharmaceutical marketing channels:</p> <p>Designing channel, channel members, selecting the appropriate channel, conflict in channels, physical distribution management: Strategic importance, tasks in physical distribution management.</p> <p>Professional sales representative (PSR):</p> <p>Duties of PSR, purpose of detailing, selection and training, supervising, norms for customer calls, motivating, evaluating, compensation and future prospects of the PSR.</p>	<p>08 Hours</p>
<p>UNIT-V</p> <p>Pricing:</p> <p>Meaning, importance, objectives, determinants of price; pricing methods and strategies, issues in price management in pharmaceutical industry. An overview of DPCO (Drug Price Control Order) and NPPA (National Pharmaceutical Pricing Authority).</p> <p>Emerging concepts in marketing:</p> <p>Vertical & Horizontal Marketing; Rural Marketing; Consumerism; Industrial Marketing; Global Marketing.</p>	<p>07 Hours</p>
<p>Recommended Books: (Latest Editions)</p> <ol style="list-style-type: none"> 1. Philip Kotler and Kevin Lane Keller: Marketing Management, Prentice Hall of India, New Delhi 2. Walker, Boyd and Larreche : Marketing Strategy- Planning and Implementation, Tata MC Graw Hill, New Delhi. 3. Dhruv Grewal and Michael Levy: Marketing, Tata MC Graw Hill 4. Arun Kumar and N Menakshi: Marketing Management, Vikas Publishing, India 5. Rajan Saxena: Marketing Management; Tata MC Graw-Hill (India Edition) 6. Ramaswamy, U.S. & Nanakamari, S.: Marketing Management: Global Perspective, Indian Context, Macmillan India, New Delhi. 7. Shanker, Ravi: Service Marketing, Excell Books, New Delhi 8. Subba Rao Changanti, Pharmaceutical Marketing in India (GIFT – Excel series) Excel Publications. 	



BP804ET	PHARMACEUTICAL REGULATORY SCIENCE (Theory)	45 Hours
<p>Scope: This course is designed to impart the fundamental knowledge on the regulatory requirements for approval of new drugs, and drug products in regulated markets of India & other countries like US, EU, Japan, Australia, UK etc. It prepares the students to learn in detail on the regulatory requirements, documentation requirements, and registration procedures for marketing the drug products.</p> <p>Objectives: Upon completion of the subject student shall be able to;</p> <ol style="list-style-type: none"> 1. Know about the process of drug discovery and development 2. Know the regulatory authorities and agencies governing the manufacture and sale of pharmaceuticals 3. Know the regulatory approval process and their registration in Indian and international markets. <p>Course content:</p>		
<p>UNIT-I New Drug Discovery and development Stages of drug discovery, Drug development process, pre-clinical studies, non-clinical activities, clinical studies, Innovator and generics, Concept of generics, Generic drug product development.</p>		10 Hours
<p>UNIT-II Regulatory Approval Process Approval processes and timelines involved in Investigational New Drug (IND), New Drug Application (NDA), Abbreviated New Drug Application (ANDA). Changes to an approved NDA / ANDA.</p> <p>Regulatory authorities and agencies Overview of regulatory authorities of India, United States, European Union, Australia, Japan, Canada (Organization structure and types of applications)</p>		10 Hours
<p>UNIT-III Registration of Indian drug product in overseas market Procedure for export of pharmaceutical products, Technical documentation, Drug Master Files (DMF), Common Technical Document (CTD), electronic Common Technical Document (eCTD), ASEAN Common Technical Document (ACTD) research.</p>		10 Hours



<p>UNIT-IV</p> <p>Clinical trials</p> <p>Developing clinical trial protocols, Institutional Review Board / Independent Ethics committee - formation and working procedures, Informed consent process and procedures, GCP obligations of Investigators, sponsors & Monitors, Managing and Monitoring clinical trials, Pharmacovigilance -safety monitoring in clinical trials</p>	<p>08 Hours</p>
<p>UNIT-V</p> <p>Regulatory Concepts</p> <p>Basic terminology, guidance, guidelines, regulations, Laws and Acts, Orange book, Federal Register, Code of Federal Regulatory, Purple book</p>	<p>07 Hours</p>
<p>Recommended books (Latest edition):</p> <ul style="list-style-type: none"> • Drug Regulatory Affairs by SachinItkar, Dr. N.S. Vyawahare, NiraliPrakashan. • The Pharmaceutical Regulatory Process, Second Edition Edited by Ira R. Berry and Robert P. Martin, Drugs and the Pharmaceutical Sciences, Vol.185. InformaHealth carepublishers. • New Drug Approval Process: Accelerating Global Registrations By Richard A Guarino,MD,5thedition, Drugsand the Pharmaceutical Sciences, Vol.190. • Guidebook for drug regulatory submissions / Sandy Weinberg. By John Wiley & Sons. Inc. • FDA Regulatory Affairs: a guide for prescription drugs, medical devices, andbiologics /edited by Douglas J. Pisano, David Mantus. • Generic Drug Product Development, Solid Oral Dosage forms, Leon Shargeland IsaderKaufer, Marcel Dekker series,Vol.143 • Clinical Trials and Human Research: A Practical Guide to RegulatoryCompliance By Fay A. Rozovsky and Rodney K.Adams • Principles and Practices of Clinical Research, Second Edition Edited by Johnl. Gallin and Frederick P.Ognibene • Drugs: From Discovery to Approval, Second Edition By RickNg 	



BP805ET	PHARMACOVIGILANCE (Theory)	45 Hours
<p>Scope:</p> <p>This paper will provide an opportunity for the student to learn about development of pharmacovigilance as a science, basic terminologies used in pharmacovigilance, global scenario of Pharmacovigilance, train students on establishing pharmacovigilance programme in an organization, various methods that can be used to generate safety data and signal detection. This paper also develops the skills of classifying drugs, diseases and adverse drug reactions</p> <p>Objectives:</p> <ul style="list-style-type: none"> • At completion of this paper it is expected that students will be able to (know, do, and appreciate): • Understand importance of drug safety monitoring. • Explain History, development, National and international scenario of pharmacovigilance & comprehend dictionaries, coding and terminologies used in pharmacovigilance • Understand detection and assessment of new adverse drug reactions, Adverse drug reaction reporting systems and communication in pharmacovigilance, Pharmacovigilance Program of India (PvPI) requirement for ADR reporting in India ICH guidelines for ICSR, PSUR, expedited reporting, pharmacovigilance planning. CIOMS requirements for ADR reporting • Comprehend methods of safety data during pre-clinical, clinical and post approval phases of drugs' lifecycle. • Write case narratives of adverse events and their quality. <p>Course Content:</p>		
<p>UNIT-I</p> <p>Introduction to Pharmacovigilance</p> <p>History and development of Pharmacovigilance, Importance of safety monitoring of Medicine, WHO international drug monitoring programme, Pharmacovigilance Program of India (PvPI)</p> <p>Introduction to adverse drug reactions</p> <p>Definitions and classification of ADRs, Detection and reporting, Methods in Causality assessment, Severity and seriousness assessment, Predictability and preventability assessment, Management of adverse drug reactions</p> <p>Basic terminologies used in pharmacovigilance</p> <p>Terminologies of adverse medication related events, Regulatory terminologies</p>		10 Hours



<p>UNIT-II</p> <p>Drug and disease classification</p> <p>Anatomical, therapeutic and chemical classification of drugs, International classification of diseases, Daily defined doses, International Nonproprietary Names for drugs</p> <p>Drug dictionaries and coding in pharmacovigilance</p> <p>WHO adverse reaction terminologies, MedDRA and Standardized MedDRA queries, WHO drug dictionary, Eudravigilance medicinal product dictionary</p> <p>Information resources in pharmacovigilance</p> <p>Basic drug information resources, Specialized resources for ADRs</p> <p>Establishing pharmacovigilance programme</p> <p>Establishing in a hospital, Establishment & operation of drug safety department in industry, Contract Research Organizations (CROs), Establishing a national programme.</p>	<p>10 Hours</p>
<p>UNIT-III</p> <p>Vaccine safety surveillance</p> <p>Vaccine Pharmacovigilance, Vaccination failure, Adverse events following immunization</p> <p>Pharmacovigilance methods</p> <p>Passive surveillance – Spontaneous reports and case series, Stimulated reporting, Active surveillance – Sentinel sites, drug event monitoring and registries, Comparative observational studies – Cross sectional study, case control study and cohort study, Targeted clinical investigations</p> <p>Communication in pharmacovigilance</p> <p>Effective communication in Pharmacovigilance, Communication in Drug Safety Crisis management, Communicating with Regulatory Agencies, Business Partners, Healthcare facilities & Media</p>	<p>10 Hours</p>
<p>UNIT-IV</p> <p>Safety data generation</p> <p>Pre-clinical phase, Clinical phase, Post approval phase (PMS)</p> <p>ICH Guidelines for Pharmacovigilance</p> <p>Organization and objectives of ICH, Expedited reporting, Individual case safety reports, Periodic safety update reports, Post approval expedited reporting, Pharmacovigilance planning, Good clinical practice in pharmacovigilance studies</p>	<p>08 Hours</p>



<p>UNIT-V</p> <p>Pharmacogenomics of adverse drug reaction</p> <p>Genetics related ADR with example focusing PK parameters.</p> <p>CIOMS</p> <p>CIOMS Working Groups, CIOMS Form CDSCO (India) and Pharmacovigilance D&C Act and Schedule Y</p> <p>Differences in Indian and global pharmacovigilance requirements</p>	<p>07 Hours</p>
<p>Recommended Books (Latest edition):</p> <ol style="list-style-type: none"> 1. Textbook of Pharmacovigilance: S K Gupta, Jaypee Brothers, Medical Publishers. 2. Practical Drug Safety from A to Z By Barton Cobert, Pierre Biron, Jones and Bartlett Publishers. 3. Mann's Pharmacovigilance: Elizabeth B. Andrews, Nicholas, Wiley Publishers. 4. Stephens' Detection of New Adverse Drug Reactions: John Talbot, Patrick Walle, Wiley Publishers. 5. An Introduction to Pharmacovigilance: Patrick Waller, Wiley Publishers. 6. Cobert's Manual of Drug Safety and Pharmacovigilance: Barton Cobert, Jones & Bartlett Publishers. 7. Textbook of Pharmacoepidemiology edited by Brian L. Strom, Stephen E Kimmel, Sean Hennessy, Wiley Publishers. 8. A Textbook of Clinical Pharmacy Practice -Essential Concepts and Skills:G. Parthasarathi, Karin Nyfort Hansen, Milap C. Nahata 9. National Formulary of India 10. Text Book of Medicine by Yashpal Munjal 11. Text book of Pharmacovigilance: concept and practice by GP Mohanta and PK Manna 12. http://www.whoumc.org/DynPage.aspx?id=105825&mn1=7347&mn2=7259&mn3=7297 13. http://www.ich.org/ 14. http://www.cioms.ch/ 15. http://cdsco.nic.in/ 16. http://www.who.int/vaccine_safety/en/ 17. http://www.ipc.gov.in/PvPI/pv_home.html 	



BP806ET	QUALITY CONTROL AND STANDARDIZATION OF HERBALS(Theory)	45 Hours
<p>Scope: In this subject the student learns about the various methods and guidelines for evaluation and standardization of herbs and herbal drugs. The subject also provides an opportunity for the student to learn cGMP, GAP and GLP in traditional system of medicines.</p> <p>Objectives: Upon completion of the subject student shall be able to;</p> <ol style="list-style-type: none"> 1. Know WHO guidelines for quality control of herbal drugs 2. Know Quality assurance in herbal drug industry 3. Know the regulatory approval process and their registration in Indian and international markets 4. Appreciate EU and ICH guidelines for quality control of herbal drugs <p>Course Content</p>		
<p>UNIT-I Basic tests for drugs – Pharmaceutical substances, Medicinal plants materials and dosage forms, WHO guidelines for quality control of herbal drugs, Evaluation of commercial crude drugs intended for use</p>		10 Hours
<p>UNIT-II</p> <ul style="list-style-type: none"> • Quality assurance in herbal drug industry of cGMP, GAP, GMP and GLP in traditional system of medicine • WHO guidelines on current Good Manufacturing Practices (cGMP) for Herbal Medicines, WHO guidelines on GACP for Medicinal Plants. 		10 Hours
<p>UNIT-III</p> <ul style="list-style-type: none"> • EU and ICH guidelines for quality control of herbal drugs. • Research Guidelines for Evaluating the Safety and Efficacy of Herbal Medicines 		10 Hours
<p>UNIT-IV</p> <ul style="list-style-type: none"> • Stability testing of herbal medicines. Application of various chromatographic techniques in standardization of herbal products. • Preparation of documents for new drug application and export registration • GMP requirements and Drugs & Cosmetics Act provisions. 		08 Hours



<p>UNIT-V</p> <p>Regulatory requirements for herbal medicines.</p> <p>WHO guidelines on safety monitoring of herbal medicines in pharmacovigilance systems.</p> <p>Comparison of various Herbal Pharmacopoeias.</p> <p>Recommended Books (Latest Editions)</p> <ul style="list-style-type: none"> • Role Pharmacognosy by Trease and Evans • Pharmacognosy by Kokate, Purohit and Gokhale • Rangari, V.D., Text book of Pharmacognosy and Phytochemistry Vol. I, Carrier Pub., 2006. • Aggrawal, S.S., Herbal Drug Technology. Universities Press, 2002. • EMEA. Guidelines on Quality of Herbal Medicinal Products/Traditional Medicinal Products, • Mukherjee, P.W. Quality Control of Herbal Drugs: An Approach to Evaluation of Botanicals. Business Horizons Publishers, New Delhi, India, 2002. • Shinde M.V., Dhalwal K., Potdar K., Mahadik K. Application of quality control principles to herbal drugs. International Journal of Phytomedicine 1(2009); p.4-8. • WHO. Quality Control Methods for Medicinal Plant Materials, World Health Organization, Geneva, 1998. WHO. Guidelines for the Appropriate Use of Herbal Medicines. WHO Regional Publications, Western Pacific Series No 3, WHO Regional office for the Western Pacific, Manila, 1998. • WHO. The International Pharmacopeia, Vol. 2: Quality Specifications, 3rd edn. World Health Organization, Geneva, 1981. • WHO. Quality Control Methods for Medicinal Plant Materials. World Health Organization, Geneva, 1999. • WHO. WHO Global Atlas of Traditional, Complementary and Alternative Medicine. 2 vol. set. Vol. 1 contains text and Vol. 2, maps. World Health Organization, Geneva, 2005. • WHO. Guidelines on Good Agricultural and Collection Practices (GACP) for Medicinal Plants. World Health Organization, Geneva, 2004. 	<p>07 Hours</p>
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BP807ET	COMPUTER AIDED DRUG DESIGN (Theory)	45 Hours
<p>Scope: This subject is designed to provide detailed knowledge of rational drug design process and various techniques used in rational drug design process.</p> <p>Objectives: Upon completion of the course, the student shall be able to understand</p> <ol style="list-style-type: none"> 1. Understand the design and discovery of leadmolecules 2. Classify the role of drug design tools for drug discoveryprocess 3. Understand and analyse concepts of QSAR anddocking 4. Analyse and apply various strategies to develop new drug likemolecules. 5. Use various molecular modeling software to design new drugmolecule <p>Course Content</p>		
<p>UNIT-I Introduction to Drug Discovery and Development - Stages of drug discovery and development, Lead discovery approaches - Rational approaches to lead discovery based on traditional medicine, Random screening, Non-random screening, serendipitous drug discovery, lead discovery based on drug metabolism, lead discovery based on clinical observation. Introduction to Ligand based and Structure Based DD Analog Based Drug Design - Bioisosterism, Bioisosteric replacement Case studies - Ligand based (Design of inhibitors of tubulin polymerization eg. Colchicine), Structure based (Design of HMG-CoA reductase inhibitors. eg. Statins) and Analog based DD (Design of H2 histamine antagonist eg. Cimetidine)</p>		14 Hours
<p>UNIT- II Introduction to Computational tools Molecular Modeling - Introduction to molecular mechanics and quantum mechanics. Energy Minimization methods and Conformational Analysis, global conformational minima determination. Molecular docking - Rigid docking, flexible docking, manual docking, Docking based screening.</p>		10 Hours
<p>UNIT- III Quantitative Structure Activity Relationship (QSAR) and Pharmacophore modeling Introduction - SAR versus QSAR, History and development of QSAR, Types of physicochemicalparameters 2D QSAR - Experimental and theoretical approaches for the determination of physicochemical parameters such as Partition coefficient, Hammett's substituent constant and Taft's steric constant. Hansch's analysis, Free Wilson analysis 3D-QSAR approaches - COMFA and COMSIA. Pharmacophore modeling - Drug likeness screening, Concept of Pharmacophore mapping and Pharmacophore based screening</p>		14 Hours



BP808ET	CELL AND MOLECULAR BIOLOGY (Theory)	45 Hours
<p>Scope: Cell biology is a branch of biology that studies cells—their physiological properties, their structure, the organelles they contain, interactions with their environment, their lifecycle, division, death and cell function. This is done both on a microscopic and molecular level. Cell biology research encompasses both the great diversity of single-celled organisms like bacteria and protozoa, as well as the many specialized cells in multi-cellular organisms such as humans, plants, and sponges.</p> <p>Objectives: Upon completion of the subject student shall be able to:</p> <ol style="list-style-type: none"> 1. Summarize cell and molecular biology history, cellular functioning and Composition & describe the chemical foundations of cell biology. 2. Describe cellular membrane structure and function properties and functions of DNA, Cell Cycle. 3. Describe basic molecular genetics mechanisms. 4. Understand the cell signaling pathways with their regulations and role in disease process. <p>Course contents</p>		
<p>UNIT-I Cell and Molecular Biology: Definitions theory and basics and Applications. Cell and Molecular Biology: History and Summation. Properties of cells and cell membrane, Prokaryotic versus Eukaryotic, Cellular Reproduction, Chemical Foundations – an Introduction and Reactions (Types)</p>		10 Hours
<p>UNIT-II DNA and the Flow of Molecular Information, DNA Functioning, DNA and RNA, Types of RNA, Transcription and Translation</p>		10 Hours
<p>UNIT-III Proteins: Defined and Amino Acids, Protein Structure, Regularities in Protein Pathways, Cellular Processes, Positive Control and significance of Protein Synthesis</p>		10 Hours
<p>UNIT-IV Science of Genetics, Transgenics and Genomic Analysis, Cell Cycle analysis, Mitosis and Meiosis, Cellular Activities and Checkpoints Clinical phase, Post approval phase (PMS)</p>		08 Hours



UNIT-V Cell Signals: Introduction, Receptors for Cell Signals, Signaling Pathways: Overview, Misregulation of Signaling Pathways, Protein-Kinases: Functioning	07 Hours
Recommended Books (latest edition): <ol style="list-style-type: none"> 1. W.B. Hugo and A.D. Russel: Pharmaceutical Microbiology, Blackwell Scientific publications, Oxford London. 2. Prescott and Dunn., Industrial Microbiology, 4th edition, CBS Publishers & Distributors, Delhi. 3. Pelczar, Chan Kreig, Microbiology, Tata McGraw Hill edn. 4. Malcolm Harris, Balliere Tindall and Cox: Pharmaceutical Microbiology. Rose: Industrial Microbiology. 5. Probisher, Hinsdill et al: Fundamentals of Microbiology, 9th ed. Japan 6. Cooper and Gunn's: Tutorial Pharmacy, CBS Publisher and Distribution. Pepler: Microbial Technology. 7. Edward: Fundamentals of Microbiology. 8. N.K. Jain: Pharmaceutical Microbiology, Vallabh Prakashan, Delhi 9. Bergeys manual of systematic bacteriology, Williams and Wilkins- A Waverly Company 10. B.R. Glick and J.J. Pasternak: Molecular Biotechnology: Principles and Applications of Recombinant DNA: ASM Press Washington D.C. RA Goldshy et. al., : Kuby Immunology. 11. 	



BP809ET	COSMETIC SCIENCE (Theory)	45 Hours
<p>Scope: This course is designed to impart fundamental knowledge of cosmetic and cosmeceutical products & their formulation studies.</p> <p>Objectives: Upon completion of the course, the student shall be able to:</p> <ol style="list-style-type: none"> 1. Understand the concepts of cosmetics; anatomy of skin v/s hair, general excipients used in cosmetics. 2. Explain the concept of cosmeceuticals, history, difference between cosmetics & cosmeceuticals & cosmeceuticals agents 3. Know different Laws and Acts that regulate pharmaceutical industry 4. Understand the approval process and regulatory requirements for drug products <p>Course contents</p>		
<p>UNIT-I Classification of cosmetic and cosmeceutical products, Definition of cosmetics as per Indian and EU regulations, Evolution of cosmeceuticals from cosmetics, cosmetics as quasi and OTC drugs</p> <p>Cosmetic excipients: Surfactants, rheology modifiers, humectants, emollients, preservatives. Classification and application</p> <p>Skin: Basic structure and function of skin.</p> <p>Hair: Basic structure of hair. Hair growth cycle.</p> <p>Oral Cavity: Common problem associated with teeth and gums.</p>		10 Hours
<p>UNIT-II Principles of formulation and building blocks of skin care products: Face wash, Moisturizing cream, Cold Cream, Vanishing cream and their advantages and disadvantages. Application of these products in formulation of cosmeceuticals.</p> <p>Antiperspirants & deodorants- Actives & mechanism of action. Principles of formulation and building blocks of Hair care products: Conditioning shampoo, Hair conditioner, anti-dandruff shampoo. Hair oils, Chemistry and formulation of Para-phenylene diamine based hair dye.</p> <p>Principles of formulation and building blocks of oral care products: Toothpaste for bleeding gums, sensitive teeth. Teeth whitening, Mouthwash.</p>		10 Hours



<p>UNIT-III</p> <p>Sun protection, Classification of Sunscreens and SPF.</p> <p>Role of herbs in cosmetics:</p> <p>Skin Care: Aloe and turmeric Hair care: Henna and amla. Oral care: Neem and clove Analytical cosmetics:</p> <p>BIS specification and analytical methods for shampoo, skin cream and toothpaste.</p>	<p>10 Hours</p>
<p>UNIT-IV</p> <p>Principles of Cosmetic Evaluation: Principles of sebumeter, corneometer.</p> <p>Measurement</p> <p>of TEWL, Skin Color, Hair tensile strength, Hair combing properties, Soaps and syndet bars. Evolution and skin benefits.</p>	<p>08 Hours</p>
<p>UNIT-V</p> <p>Oily and dry skin, causes leading to dry skin, skin moisturisation. Basic understanding of the terms Comedogenic, dermatitis. Cosmetic problems associated with Hair and scalp: Dandruff, Hair fall causes</p> <p>Cosmetic problems associated with skin: blemishes, wrinkles, acne, prickly heat and body odor.</p> <p>Antiperspirants and Deodorants- Actives and mechanism of action</p>	<p>07 Hours</p>
<p>References</p> <ol style="list-style-type: none"> 1) Harry's Cosmeticology, Wilkinson, Moore, Seventh Edition, George Godwin. 2) Cosmetics – Formulations, Manufacturing and Quality Control, P.P. Sharma, 4th Edition, Vandana Publications Pvt. Ltd., Delhi. 3) Text book of cosmeticology by Sanju Nanda & Roop K. Khar, Tata Publishers. 	



BP810ET	EXPERIMENTAL PHARMACOLOGY (Theory)	45 Hours
<p>Scope: This subject is designed to impart the basic knowledge of preclinical studies in experimental animals including design, conduct and interpretations of results.</p> <p>Objectives Upon completion of the course the student shall be able to,</p> <ol style="list-style-type: none"> 1. Understand the applications of various commonly used laboratory animals. 2. Demonstrate the various screening methods used in preclinical research. 3. Comprehend and demonstrate the importance of biostatistics and research methodology. 4. Design and execute a research hypothesis independently. <p>Course contents</p>		
<p>UNIT-I Laboratory Animals: Study of CPCSEA and OECD guidelines for maintenance, breeding and conduct of experiments on laboratory animals, Common lab animals: Description and applications of different species and strains of animals. Popular transgenic and mutant animals. Techniques for collection of blood and common routes of drug administration in laboratory animals, Techniques of blood collection and euthanasia.</p>		10 Hours
<p>UNIT-II Preclinical screening models</p> <ol style="list-style-type: none"> a. Introduction: Dose selection, calculation and conversions, preparation of drug solution/suspensions, grouping of animals and importance of sham negative and positive control groups. Rationale for selection of animal species and sex for the study. b. Study of screening animal models for Diuretics, nootropics, anti-Parkinson's, antiasthmatics, Preclinical screening models: for CNS activity- analgesic, antipyretic, anti-inflammatory, general anaesthetics, sedative and hypnotics, antipsychotic, antidepressant, antiepileptic, antiparkinsonism, alzheimer's disease. 		10 Hours
<p>UNIT-III Preclinical screening models: For ANS activity, sympathomimetics, sympatholytics, parasympathomimetics, parasympatholytics, skeletal muscle relaxants, drugs acting on eye, local anaesthetics</p>		10 Hours



<p>UNIT-IV</p> <p>Preclinical screening models: for CVS activity- antihypertensives, diuretics, antiarrhythmic, antidyslipidemic, anti aggregatory, coagulants, and anticoagulants</p> <p>Preclinical screening models for other important drugs like antiulcer, antidiabetic, anticancer and antiasthmatics</p>	<p>08 Hours</p>
<p>UNIT-V</p> <p>Research methodology and Bio-statistics.</p> <p>Selection of research topic, review of literature, research hypothesis and study design Pre- clinical data analysis and interpretation using Students't' test and One-way ANOVA. Graphical representation of data</p>	<p>07 Hours</p>
<p>Recommended Books (latest edition):</p> <ol style="list-style-type: none"> 1. Fundamentals of experimental Pharmacology-byM. N.Ghosh 2. Hand book of Experimental Pharmacology-S.K. Kulkarni 3. CPCSEA guidelines for laboratory animal facility. 4. Drug discovery and Evaluation by Vogel H.G. 5. Drug Screening Methods by Suresh Kumar Gupta and S. K.Gupta 6. Introduction to biostatistics and research methods by PSS Sundar Rao and J Richard 	



BP811ET	ADVANCED INSTRUMENTATION TECHNIQUES (Theory)	45 Hours
<p>Scope: This subject deals with the application of instrumental methods in qualitative and quantitative analysis of drugs. This subject is designed to impart advanced knowledge on the principles and instrumentation of spectroscopic and chromatographic hyphenated techniques. This also emphasizes on theoretical and practical knowledge on modern analytical instruments that are used for drugtesting.</p> <p>Objectives: Upon completion of the course the student shall be able to</p> <ol style="list-style-type: none"> 1. Express the principle of the advanced instruments used and justify its applications in drug analysis 2. Understand the principles of analytical techniques and its application in analysis of drugs 3. Explain the importance and methods for the calibration of various analytical instruments 4. Formulate and justify techniques for the analysis of drugs using various analytical instruments. <p>Course contents</p>		
<p>UNIT-I Nuclear Magnetic Resonance spectroscopy Principles of ¹H-NMR, chemical shift, factors affecting chemical shift, coupling constant, Spin - spin coupling, relaxation, instrumentation and applications ¹³C-NMR- Introduction to ¹³C-NMR spectroscopy Mass Spectrometry Principles, , Ionization techniques –Electron impact, chemical ionization, MALDI, FAB, Analyzers-Time of flight and Quadrupole, instrumentation, Fragmentation, applications Simple structural elucidation problems</p>		14 Hours
<p>UNIT-II Thermal Methods of Analysis Principles, instrumentation and applications of Thermogravimetric Analysis (TGA), Differential Thermal Analysis (DTA), Differential Scanning Calorimetry (DSC)</p>		07 Hours
<p>UNIT-III Electrophoresis Introduction, factors affecting electrophoretic mobility, Techniques of paper, gel, capillary electrophoresis, applications X-Ray Diffraction Methods</p>		10 Hours



<p>Origin of X-rays, basic aspects of crystals, Xray Crystallography, rotating crystal technique, single crystal diffraction, powder diffraction, and applications.</p> <p>Calibration of following Instruments Electronic balance, UV-Visible spectrophotometer, IR spectrophotometer, Fluorimeter, HPLC.</p>	
<p>UNIT-IV</p> <p>Radio immuno assay Principle, different methods, Importance, various components, Limitation and Applications of Radioimmunoassay</p> <p>Extraction techniques General principle and procedure involved in the solid phase extraction and liquid-liquid extraction.</p>	06 Hours
<p>UNIT-V</p> <p>Hyphenated techniques Introduction to hyphenated techniques and types of techniques Details of LC-MS, GC-MS, HPTLC-MS, MS/MS.</p>	08 Hours



Recommended Books (Latest Editions)		
<ol style="list-style-type: none"> 1. Instrumental Methods of Chemical Analysis by B.K.Sharma 2. Organic spectroscopy by Y.R.Sharma 3. Text book of Pharmaceutical Analysis by Kenneth A. Connors 4. Vogel's Text book of Quantitative Chemical Analysis by A.I.Vogel 5. Practical Pharmaceutical Chemistry by A.H. Beckett and J.B.Stenlake 6. Organic spectroscopy by William Kemp 7. Quantitative Analysis of Drugs by D. C. Garrett 8. Spectrophotometric identification of Organic Compounds by Silverstein 9. Introduction to Spectroscopy by Donald Pavia 10. Spectroscopy of Organic compounds by P.S.Kalsi 11. Introduction to Spectroscopy by Donald Pavia 12. Spectroscopy of Organic compounds by P.S.Kalsi 		
BP812ET	DIETARY SUPPLEMENTS AND NUTRACEUTICALS (Theory)	45 Hours
<p>Scope: This subject covers foundational topic that are important for understanding the need and requirements of dietary supplements among different groups in the population.</p> <p>Objective: This module aims to provide an understanding of the concepts behind the theoretical applications of dietary supplements. By the end of the course, students should be able to:</p> <ol style="list-style-type: none"> 1. Understand the need of supplements by the different group of people to maintain healthy life. 2. Understand the outcome of deficiencies in dietary supplements. 3. Recognize the components in dietary supplements and the application. 4. Acquaint with the regulatory and commercial aspects of dietary supplements including healthclaims. <p>Course content:</p>		
UNIT-I		
Definitions of Functional foods, Nutraceuticals and Dietary supplements. Classification of Nutraceuticals, Health problems and diseases that can be		07 Hours



<p>prevented or cured by Nutraceuticals i.e. weight control, diabetes, cancer, heart disease, stress, osteoarthritis, hypertension etc.</p> <p>Public health nutrition, maternal and child nutrition, nutrition and ageing, nutrition education in community.</p> <p>Source, Name of marker compounds and their chemical nature, Medicinal uses and health benefits of following used as nutraceuticals/functional foods: Spirulina, Soyabean, Ginseng, Garlic, Broccoli, Gingko, Flaxseeds</p>	
<p>UNIT-II</p> <p>Phytochemicals as nutraceuticals: Occurrence and characteristic features (chemical nature medicinal benefits) of following</p> <p>Carotenoids- α and β-Carotene, Lycopene, Xanthophylls, leutin</p> <p>Sulfides: Diallyl sulfides, Allyl trisulfide.</p> <p>Polyphenolics: Resveratrol</p> <p>Flavonoids- Rutin , Naringin, Quercitin, Anthocyanidins, catechins, Flavones</p> <p>Prebiotics / Probiotics.: Fructo oligosaccharides, Lacto bacillum Phytoestrogens : Isoflavones, daidzein, Geebustin, lignans Tocopherols</p> <p>Proteins, vitamins, minerals, cereal, vegetables and beverages as functional foods: oats, Wheat bran, rice bran, sea foods, coffee, tea and the like.</p>	15 Hours
<p>UNIT-III</p> <p>Introduction to free radicals: Free radicals, reactive oxygen species, production of free radicals in cells, damaging reactions of free radicals on lipids, proteins, Carbohydrates, nucleic acids.</p> <p>Dietary fibres and complex carbohydrates as functional food ingredients.</p>	07 Hours
<p>UNIT-IV</p> <p>Free radicals in Diabetes mellitus, Inflammation, Ischemic reperfusion injury, Cancer, Atherosclerosis, Free radicals in brain metabolism and pathology, kidney damage, muscle damage. Free radicals involvement in other disorders. Free radicals theory of ageing.</p> <p>Antioxidants: Endogenous antioxidants – enzymatic and nonenzymatic antioxidant defense, Superoxide dismutase, catalase, Glutathione peroxidase, Glutathione Vitamin C, Vitamin E, α- Lipoic acid, melatonin Synthetic antioxidants: Butylated hydroxy Toluene, Butylated hydroxy Anisole.</p> <p>Functional foods for chronic disease prevention.</p>	10 Hours



<p>UNIT-V</p> <p>Effect of processing, storage and interactions of various environmental factors on the potential of nutraceuticals.</p> <p>Regulatory Aspects; FSSAI, FDA, FPO, MPO, AGMARK. HACCP and GMPs on Food Safety. Adulteration of foods.</p> <p>Pharmacopoeial Specifications for dietary supplements and nutraceuticals.</p>	<p>06 Hours</p>
<p>References:</p> <ol style="list-style-type: none"> 1. Dietetics by SriLakshmi 2. Role of dietary fibres and neutraceuticals in preventing diseases by K.T Agusti and P.Faizal: BSPublication. 3. Advanced Nutritional Therapies by Cooper. K.A.,(1996). 4. The Food Pharmacy by Jean Carper, Simon & Schuster, UK Ltd.,(1988). 5. Prescription for Nutritional Healing by James F.Balchand Phyllis A.Balch^{2nd}Edn., Avery Publishing Group, NY(1997). 6. G. Gibson and C.williams Editors <i>2000 Functional foods</i> Woodhead Publ. Co.London. 7. Goldberg, I. <i>Functional Foods</i>. 1994. Chapman and Hall, NewYork. 8. Labuza, T.P. <i>2000 Functional Foods and Dietary Supplements: Safety, Good Manufacturing Practice (GMPs) and Shelf Life Testing in Essentials of Functional Foods</i> M.K. Sachmidl and T.P. Labuza eds. AspenPress. 9. Handbook of Nutraceuticals and Functional Foods, Third Edition (Modern Nutrition) 10. Shils, ME, Olson, JA, Shike, M. 1994 <i>Modern Nutrition in Health and Disease</i>. Eighth edition. Lea andFebiger 	

BP 813 PW PROJECT WORK

150 Hours

A) Selection of the Project Topic

All the students shall undertake a project under the supervision of a teacher and submit a report. The project can be based on Lab oriented (small part of original research work) Study / Survey oriented or Computational studies or oriented. / Review topic/ Extension of Practice school work etc., based on Current Trends in Pharmaceutical science. The project shall be carried out in group not exceeding 5 in number. The project report shall be submitted in triplicate (typed & hard bound copy not less than 25 pages).

The internal and external examiner appointed for evaluation of the project shall be approved teachers of SPPU /Industrial Experts appointed by Principal of the respective institute. Students shall be evaluated in groups for four hours (i.e., about



half an hour for a group of five students). The projects shall be evaluated as per the criteria given below

B] Evaluation of Dissertation Book:

Objective(s) of the work done	15Marks
Methodology adopted	20Marks
Results and Discussions	20Marks
Conclusions and Outcomes	20Marks

Total 75Marks

C] Evaluation of Presentation:

Presentation of work	25Marks
Communication skills	20Marks
Question and answer skills	30Marks

Total 75Marks

Explanation: All the students should be evaluated thoroughly based on their performance in the Laboratory /Literature work and presentation done as individual student under given criteria.





Seva Shikshan Prasarak Mandal's



Dr. N. J. Paulbudhe College of Pharmacy

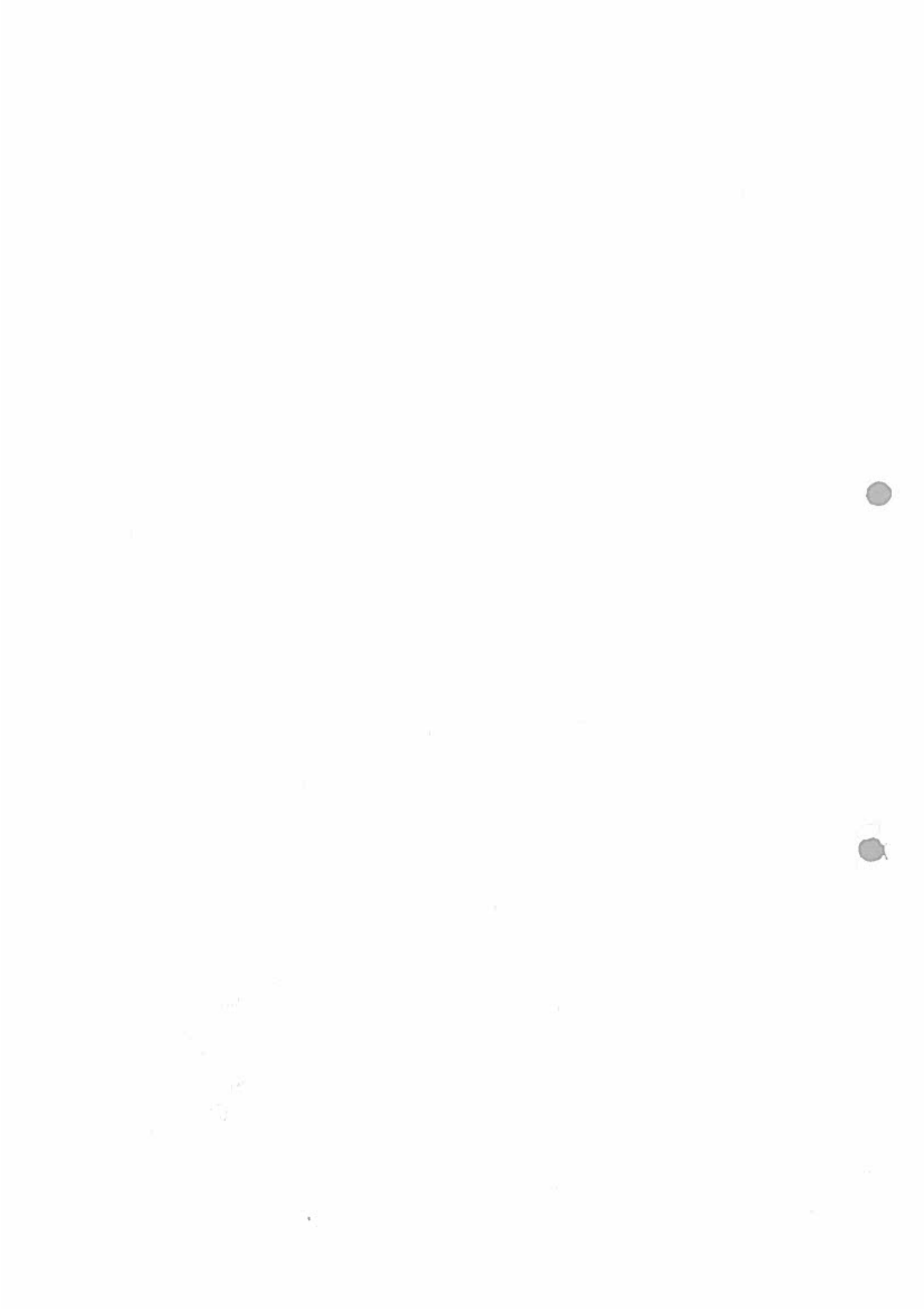
Shaneshwar Nagar, Vasant Tekadi, Savedi, Ahmednagar, Pin: 414003

Mobile. No: 7774036749, Ph. No: (0241) 2423640 | E - mail: bpharmacydnjp@gmail.com | www.bpharmacy.sspmonline.org | DTE Code: 5451 | AISHE Code C-59365 | PCI 2002

COURSE STRUCTURE 2018 PATTERN



Approved By: P. C. I, New Delhi, Ref No: F.No.02.297/2018-PCI, AICTE: F.No. Western/2017-1-3359523301,
Affiliated to Savitribai Phule Pune University – Ref. No. PU/AN/PHARM/145/2017



SAVITRIBAI PHULE PUNE UNIVERSITY

FACULTY OF SCIENCE AND TECHNOLOGY



RULES & SYLLABUS

**FIRST YEAR BACHELOR OF PHARMACY (B. Pharm.) COURSE
(EFFECTIVE FROM ACADEMIC YEAR 2018-2019)**



NJ
PRINCIPAL
Dr. N. J. Paulbudhe College of Pharmacy
Shaneshwarnagar, Ahmednagar-414003

CHAPTER- I: REGULATIONS

1. Short Title and Commencement

These regulations shall be called as “The Revised Regulations for the B. Pharm. Degree Program (CBCS) of the Pharmacy Council of India, New Delhi”. They shall come into effect from the Academic Year 2016-17. The regulations framed are subject to modifications from time to time by Pharmacy Council of India.

2. Minimum qualification for admission

2.1 First year B. Pharm:

Candidate shall have passed 10+2 examination conducted by the respective state/central government authorities recognized as equivalent to 10+2 examination by the Association of Indian Universities (AIU) with English as one of the subjects and Physics, Chemistry, Mathematics (P.C.M) and or Biology (P.C.B / P.C.M.B.) as optional subjects individually. Any other qualification approved by the Pharmacy Council of India as equivalent to any of the above examinations.

2.2. B. Pharm lateral entry (to third semester):

A pass in D. Pharm. course from an institution approved by the Pharmacy Council of India under section 12 of the Pharmacy Act.

3. Duration of the program

The course of study for B.Pharm shall extend over a period of eight semesters (four academic years) and six semesters (three academic years) for lateral entry students. The curricula and syllabi for the program shall be prescribed from time to time by Pharmacy Council of India, New Delhi.

4. Medium of instruction and examinations

Medium of instruction and examination shall be in English.

5. Working days in each semester

Each semester shall consist of not less than 100 working days. The odd semesters shall be conducted from the month of June/July to November/December and the even semesters shall be conducted from December/January to May/June in every calendar year.

6. Attendance and progress

A candidate is required to put in at least 80% attendance in individual courses considering theory and practical separately. The candidate shall complete the prescribed course satisfactorily to be eligible to appear for the respective examinations.



7. Program/Course credit structure

As per the philosophy of Credit Based Semester System, certain quantum of academic work viz. theory classes, tutorial hours, practical classes, etc. are measured in terms of credits. On satisfactory completion of the courses, a candidate earns credits. The amount of credit associated with a course is dependent upon the number of hours of instruction per week in that course. Similarly, the credit associated with any of the other academic, co/extra-curricular activities is dependent upon the quantum of work expected to be put in for each of these activities per week.

7.1. Credit assignment

7.1.1. Theory and Laboratory courses

Courses are broadly classified as Theory and Practical. Theory courses consist of lecture (L) and /or tutorial (T) hours, and Practical (P) courses consist of hours spent in the laboratory. Credits (C) for a course is dependent on the number of hours of instruction per week in that course, and is obtained by using a multiplier of one (1) for lecture and tutorial hours, and a multiplier of half (1/2) for practical (laboratory) hours. Thus, for example, a theory course having three lectures and one tutorial per week throughout the semester carries a credit of 4. Similarly, a practical having four laboratory hours per week throughout semester carries a credit of 2.

7.2. Minimum credit requirements

The minimum credit points required for award of a B. Pharm. degree is 208. These credits are divided into Theory courses, Tutorials, Practical, Practice School and Project over the duration of eight semesters. The credits are distributed semester-wise as shown in Table IX. Courses generally progress in sequences, building competencies and their positioning indicates certain academic maturity on the part of the learners. Learners are expected to follow the semester-wise schedule of courses given in the syllabus.

The lateral entry students shall get 52 credit points transferred from their D. Pharm program. Such students shall take up additional remedial courses of 'Communication Skills' (Theory and Practical) and 'Computer Applications in Pharmacy' (Theory and Practical) equivalent to 3 and 4 credit points respectively, a total of 7 credit points to attain 59 credit points, the maximum of I and II semesters.

8. Academic work

A regular record of attendance both in Theory and Practical shall be maintained by the teaching staff of respective courses.



9. Course of study

The course of study for B. Pharm shall include Semester Wise Theory & Practical as given in Table – I to VIII. The number of hours to be devoted to each theory, tutorial and practical course in any semester shall not be less than that shown in Table – I to VIII.

Table-I: Course of study for semester I

Course code	Name of the course	No. of hours	Tutorial	Credit points
BP101T	Human Anatomy and Physiology I– Theory	3	1	4
BP102T	Pharmaceutical Analysis I – Theory	3	1	4
BP103T	Pharmaceutics I – Theory	3	1	4
BP104T	Pharmaceutical Inorganic Chemistry – Theory	3	1	4
BP105T	Communication skills – Theory *	2	-	2
BP106RBT BP106RMT	Remedial Biology/ Remedial Mathematics – Theory*	2	-	2
BP107P	Human Anatomy and Physiology – Practical	4	-	2
BP108P	Pharmaceutical Analysis I – Practical	4	-	2
BP109P	Pharmaceutics I – Practical	4	-	2
BP110P	Pharmaceutical Inorganic Chemistry – Practical	4	-	2
BP111P	Communication skills – Practical*	2	-	1
BP112RBP	Remedial Biology – Practical*	2	-	1
Total		32/34^S/36[#]	4	27/29^S/30[#]

*Applicable ONLY for the students who have studied Mathematics / Physics / Chemistry at HSC and appearing for Remedial Biology (RB)course.

^SApplicable ONLY for the students who have studied Physics / Chemistry / Botany / Zoology at HSC and appearing for Remedial Mathematics (RM)course.

* Non University Examination (NUE)



Table-II: Course of study for semester II

Course Code	Name of the course	No. of hours	Tutorial	Credit points
BP201T	Human Anatomy and Physiology II – Theory	3	1	4
BP202T	Pharmaceutical Organic Chemistry I – Theory	3	1	4
BP203T	Biochemistry – Theory	3	1	4
BP204T	Pathophysiology – Theory	3	1	4
BP205T	Computer Applications in Pharmacy – Theory *	3	-	3
BP206T	Environmental sciences – Theory *	3	-	3
BP207P	Human Anatomy and Physiology II –Practical	4	-	2
BP208P	Pharmaceutical Organic Chemistry I– Practical	4	-	2
BP209P	Biochemistry – Practical	4	-	2
BP210P	Computer Applications in Pharmacy – Practical*	2	-	1
Total		32	4	29

*Non University Examination (NUE)

Table-III: Course of study for semester III

Course code	Name of the course	No. of hours	Tutorial	Credit points
BP301T	Pharmaceutical Organic Chemistry II – Theory	3	1	4
BP302T	Physical Pharmaceutics I – Theory	3	1	4
BP303T	Pharmaceutical Microbiology – Theory	3	1	4
BP304T	Pharmaceutical Engineering – Theory	3	1	4
BP305P	Pharmaceutical Organic Chemistry II – Practical	4	-	2
BP306P	Physical Pharmaceutics I – Practical	4	-	2
BP307P	Pharmaceutical Microbiology – Practical	4	-	2
BP 308P	Pharmaceutical Engineering –Practical	4	-	2
Total		28	4	24



Table-IV: Course of study for semester IV

Course code	Name of the course	No. of hours	Tutorial	Credit points
BP401T	Pharmaceutical Organic Chemistry III– Theory	3	1	4
BP402T	Medicinal Chemistry I – Theory	3	1	4
BP403T	Physical Pharmaceutics II – Theory	3	1	4
BP404T	Pharmacology I – Theory	3	1	4
BP405T	Pharmacognosy and Phytochemistry I– Theory	3	1	4
BP406P	Medicinal Chemistry I – Practical	4	-	2
BP407P	Physical Pharmaceutics II – Practical	4	-	2
BP408P	Pharmacology I – Practical	4	-	2
BP409P	Pharmacognosy and Phytochemistry I – Practical	4	-	2
Total		31	5	28

Table-V: Course of study for semester V

Course code	Name of the course	No. of hours	Tutorial	Credit points
BP501T	Medicinal Chemistry II – Theory	3	1	4
BP502T	Industrial PharmacyI– Theory	3	1	4
BP503T	Pharmacology II – Theory	3	1	4
BP504T	Pharmacognosy and Phytochemistry II– Theory	3	1	4
BP505T	Pharmaceutical Jurisprudence – Theory	3	1	4
BP506P	Industrial PharmacyI – Practical	4	-	2
BP507P	Pharmacology II – Practical	4	-	2
BP508P	Pharmacognosy and Phytochemistry II – Practical	4	-	2
Total		27	5	26



Table-VI: Course of study for semester VI

Course code	Name of the course	No. of hours	Tutorial	Credit points
BP601T	Medicinal Chemistry III – Theory	3	1	4
BP602T	Pharmacology III – Theory	3	1	4
BP603T	Herbal Drug Technology – Theory	3	1	4
BP604T	Biopharmaceutics and Pharmacokinetics – Theory	3	1	4
BP605T	Pharmaceutical Biotechnology – Theory	3	1	4
BP606T	Quality Assurance – Theory	3	1	4
BP607P	Medicinal chemistry III – Practical	4	-	2
BP608P	Pharmacology III – Practical	4	-	2
BP609P	Herbal Drug Technology – Practical	4	-	2
Total		30	6	30

Table-VII: Course of study for semester VII

Course code	Name of the course	No. of hours	Tutorial	Credit points
BP701T	Instrumental Methods of Analysis – Theory	3	1	4
BP702T	Industrial PharmacyII – Theory	3	1	4
BP703T	Pharmacy Practice – Theory	3	1	4
BP704T	Novel Drug Delivery System – Theory	3	1	4
BP705P	Instrumental Methods of Analysis – Practical	4	-	2
BP706PS	Practice School*	12	-	6
Total		28	5	24

* Non University Examination (NUE)



Table-VIII: Course of study for semester VIII

Course code	Name of the course	No. of hours	Tutorial	Credit points
BP801T	Biostatistics and Research Methodology	3	1	4
BP802T	Social and Preventive Pharmacy	3	1	4
BP803ET	Pharma Marketing Management	3 + 3 = 6	1 + 1 = 2	4 + 4 = 8
BP804ET	Pharmaceutical Regulatory Science			
BP805ET	Pharmacovigilance			
BP806ET	Quality Control and Standardization of Herbals			
BP807ET	Computer Aided Drug Design			
BP808ET	Cell and Molecular Biology			
BP809ET	Cosmetic Science			
BP810ET	Experimental Pharmacology			
BP811ET	Advanced Instrumentation Techniques			
BP812ET	Dietary Supplements and Nutraceuticals			
BP813PW	Project Work	12	-	6
Total		24	4	22

Table-IX: Semester wise credits distribution

Semester	Credit Points
I	27/29 ^S /30 [#]
II	29
III	26
IV	28
V	26
VI	26
VII	24
VIII	22
Extracurricular/ Co curricular activities	01*
Total credit points for the program	209/211^S/212[#]

* The credit points assigned for extracurricular and or co-curricular activities shall be given by the Principals of the colleges and the same shall be submitted to the University. The criteria to acquire this credit point shall be defined by the colleges from time to time.

^SApplicable ONLY for the students studied Physics / Chemistry / Botany / Zoology at HSC and appearing for Remedial Mathematics course.

[#]Applicable ONLY for the students studied Mathematics / Physics / Chemistry at HSC and appearing for Remedial Biology course.



10. Program Committee

1. The B. Pharm. program shall have a Program Committee constituted by the Head of the institution in consultation with all the Heads of the departments.
2. The composition of the Program Committee shall be as follows:

A senior teacher shall be the Chairperson; One Teacher from each department handling B.Pharm courses; and four student representatives of the program (one from each academic year), nominated by the Head of the institution.

3. Duties of the Program Committee:
 - i. Periodically reviewing the progress of the classes.
 - ii. Discussing the problems concerning curriculum, syllabus and the conduct of classes.
 - iii. Discussing with the course teachers on the nature and scope of assessment for the course and the same shall be announced to the students at the beginning of respective semesters.
 - iv. Communicating its recommendation to the Head of the institution on academic matters.
 - v. The Program Committee shall meet at least thrice in a semester preferably at the end of each Sessionalexam (Internal Assessment) and before the end semester exam.

11. Examinations/Assessments

The scheme for internal assessment and end semester examinations is given in Table – X.

11.1. End semester examinations

The End Semester Examinations for each theory and practical course through semesters I to VIII shall be conducted by the university except for the subjects with asterix symbol (*) in table I and II for which examinations shall be conducted by the subject experts at college level and the marks/grades shall be submitted to the university.



Tables-X: Schemes for internal assessments and end semester examinations semester wise

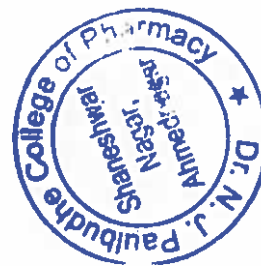
Semester I

Course code	Name of the course	Internal Assessment				End Semester Exams			Total Marks
		Continuous Mode	Sessional Exams		Total	Marks	Duration		
			Marks	Duration					
BP101T	Human Anatomy and Physiology I – Theory	10	15	1 Hr	25	75	3 Hrs	100	
BP102T	Pharmaceutical Analysis I – Theory	10	15	1 Hr	25	75	3 Hrs	100	
BP103T	Pharmaceutics I – Theory	10	15	1 Hr	25	75	3 Hrs	100	
BP104T	Pharmaceutical Inorganic Chemistry – Theory	10	15	1 Hr	25	75	3 Hrs	100	
BP105T	Communication skills – Theory *	5	10	1 Hr	15	35	1.5 Hrs	50	
BP106RBT BP106RMT	Remedial Biology/ Mathematics – Theory *	5	10	1 Hr	15	35	1.5 Hrs	50	
BP107P	Human Anatomy and Physiology – Practical	5	10	4 Hrs	15	35	4 Hrs	50	
BP108P	Pharmaceutical Analysis I – Practical	5	10	4 Hrs	15	35	4 Hrs	50	
BP109P	Pharmaceutics I – Practical	5	10	4 Hrs	15	35	4 Hrs	50	
BP110P	Pharmaceutical Inorganic Chemistry – Practical	5	10	4 Hrs	15	35	4 Hrs	50	
BP111P	Communication skills – Practical *	5	5	2 Hrs	10	15	2 Hrs	25	
BP112RBP	Remedial Biology – Practical *	5	5	2 Hrs	10	15	2 Hrs	25	
Total		70/75/80⁴	115/125/130⁴	23/24/26⁴ Hrs	185/200⁵/210⁴	490/525⁵/ 540⁴	31.5/33⁵/ 35⁴ Hrs	675/725⁵/ 750⁴	

⁴ Applicable ONLY for the students studied Mathematics / Physics / Chemistry at HSC and appearing for Remedial Biology (RB) course.

⁵ Applicable ONLY for the students studied Physics / Chemistry / Botany / Zoology at HSC and appearing for Remedial Mathematics (RM) course.

* Non University Examination (NUE)



Semester II

Course code	Name of the course	Internal Assessment			End Semester Exams			Total Marks
		Continuous Mode	Sessional Exams Marks	Duration	Total	Marks	Duration	
BP201T	Human Anatomy and Physiology II – Theory	10	15	1 Hr	25	75	3 Hrs	100
BP202T	Pharmaceutical Organic Chemistry I – Theory	10	15	1 Hr	25	75	3 Hrs	100
BP203T	Biochemistry – Theory	10	15	1 Hr	25	75	3 Hrs	100
BP204T	Pathophysiology – Theory	10	15	1 Hr	25	75	3 Hrs	100
BP205T	Computer Applications in Pharmacy – Theory*	10	15	1 Hr	25	50	2 Hrs	75
BP206T	Environmental sciences – Theory*	10	15	1 Hr	25	50	2 Hrs	75
BP207P	Human Anatomy and Physiology II – Practical	5	10	4 Hrs	15	35	4 Hrs	50
BP208P	Pharmaceutical Organic Chemistry I – Practical	5	10	4 Hrs	15	35	4 Hrs	50
BP209P	Biochemistry – Practical	5	10	4 Hrs	15	35	4 Hrs	50
BP210P	Computer Applications in Pharmacy – Practical*	5	5	2 Hrs	10	15	2 Hrs	25
Total		80	125	20 Hrs	205	520	30 Hrs	725

* The subject experts at college level shall conduct examinations



Semester III

Course code	Name of the course	Internal Assessment			End Semester Exams			Total Marks
		Continuous Mode	Sessional Exams		Total	Marks	Duration	
			Marks	Duration				
BP301T	Pharmaceutical Organic Chemistry II – Theory	10	15	1 Hr	25	75	3 Hrs	100
BP302T	PhysicalPharmaceuticals I –Theory	10	15	1 Hr	25	75	3 Hrs	100
BP303T	Pharmaceutical Microbiology – Theory	10	15	1 Hr	25	75	3 Hrs	100
BP304T	Pharmaceutical Engineering – Theory	10	15	1 Hr	25	75	3 Hrs	100
BP305P	Pharmaceutical Organic Chemistry II – Practical	5	10	4 Hr	15	35	4 Hrs	50
BP306P	Physical Pharmaceuticals I – Practical	5	10	4 Hr	15	35	4 Hrs	50
BP307P	Pharmaceutical Microbiology – Practical	5	10	4 Hr	15	35	4 Hrs	50
BP308P	Pharmaceutical Engineering – Practical	5	10	4 Hr	15	35	4 Hrs	50
Total		60	100	20	160	440	28Hrs	600



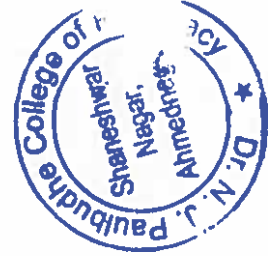
Semester IV

Course code	Name of the course	Continuous Mode	Internal Assessment		Total	End Semester Exams		Total Marks
			Sessional Marks	Sessional Duration		Marks	Duration	
BP401T	Pharmaceutical Organic Chemistry III – Theory	10	15	1 Hr	25	75	3 Hrs	100
BP402T	Medicinal Chemistry I – Theory	10	15	1 Hr	25	75	3 Hrs	100
BP403T	Physical Pharmaceutics II – Theory	10	15	1 Hr	25	75	3 Hrs	100
BP404T	Pharmacology I – Theory	10	15	1 Hr	25	75	3 Hrs	100
BP405T	Pharmacognosy I – Theory	10	15	1 Hr	25	75	3 Hrs	100
BP406P	Medicinal Chemistry I – Practical	5	10	4 Hr	15	35	4 Hrs	50
BP407P	Physical Pharmaceutics II – Practical	5	10	4 Hrs	15	35	4 Hrs	50
BP408P	Pharmacology I – Practical	5	10	4 Hrs	15	35	4 Hrs	50
BP409P	Pharmacognosy I – Practical	5	10	4 Hrs	15	35	4 Hrs	50
Total		70	115	21 Hrs	185	515	31 Hrs	700



Semester V

Course code	Name of the course	Internal Assessment				End Semester Exams		Total Marks
		Continuous Mode	Sessional Exams		Total	Marks	Duration	
			Marks	Duration				
BP501T	Medicinal Chemistry II – Theory	10	15	1 Hr	25	75	3 Hrs	100
BP502T	Industrial Pharmacy I – Theory	10	15	1 Hr	25	75	3 Hrs	100
BP503T	Pharmacology II – Theory	10	15	1 Hr	25	75	3 Hrs	100
BP504T	Pharmacognosy II – Theory	10	15	1 Hr	25	75	3 Hrs	100
BP505T	Pharmaceutical Jurisprudence – Theory	10	15	1 Hr	25	75	3 Hrs	100
BP506P	Industrial Pharmacy I – Practical	5	10	4 Hr	15	35	4 Hrs	50
BP507P	Pharmacology II – Practical	5	10	4 Hr	15	35	4 Hrs	50
BP508P	Pharmacognosy II – Practical	5	10	4 Hr	15	35	4 Hrs	50
Total		65	105	17 Hr	170	480	27 Hrs	650



Semester VI

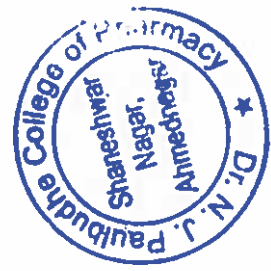
Course code	Name of the course	Internal Assessment			End Semester Exams		Total Marks
		Continuous Mode	Sessional Exams Marks	Duration	Marks	Duration	
BP601T	Medicinal Chemistry III – Theory	10	15	1 Hr	75	3 Hrs	100
BP602T	Pharmacology III – Theory	10	15	1 Hr	75	3 Hrs	100
BP603T	Herbal Drug Technology – Theory	10	15	1 Hr	75	3 Hrs	100
BP604T	Biopharmaceutics and Pharmacokinetics – Theory	10	15	1 Hr	75	3 Hrs	100
BP605T	Pharmaceutical Biotechnology – Theory	10	15	1 Hr	75	3 Hrs	100
BP606T	Quality Assurance – Theory	10	15	1 Hr	75	3 Hrs	100
BP607P	Medicinal chemistry III – Practical	5	10	4 Hrs	35	4 Hrs	50
BP608P	Pharmacology III – Practical	5	10	4 Hrs	35	4 Hrs	50
BP609P	Herbal Drug Technology – Practical	5	10	4 Hrs	35	4 Hrs	50
Total		75	120	18 Hrs	555	30 Hrs	750



Semester VII

Course code	Name of the course	Internal Assessment			End Semester Exams			Total Marks
		Continuous Mode	Sessional Exams Marks	Duration	Total	Marks	Duration	
BP701T	Instrumental Methods of Analysis – Theory	10	15	1 Hr	25	75	3 Hrs	100
BP702T	Industrial Pharmacy – Theory	10	15	1 Hr	25	75	3 Hrs	100
BP703T	Pharmacy Practice – Theory	10	15	1 Hr	25	75	3 Hrs	100
BP704T	Novel Drug Delivery System – Theory	10	15	1 Hr	25	75	3 Hrs	100
BP705 P	Instrumental Methods of Analysis – Practical	5	10	4 Hrs	15	35	4 Hrs	50
BP706 PS	Practice School*	25	-	-	25	125	5 Hrs	150
Total		70	70	8Hrs	140	460	21 Hrs	600

* The subject experts at college level shall conduct examinations



Semester VIII

Course code	Name of the course	Internal Assessment			End Semester Exams		Total Marks
		Continuous Mode	Sessional Exams Marks	Duration	Total	Marks	
BP801T	Biostatistics and Research Methodology – Theory	10	15	1 Hr	25	75	100
BP802T	Social and Preventive Pharmacy – Theory	10	15	1 Hr	25	75	100
BP803ET	Pharmaceutical Marketing – Theory						
BP804ET	Pharmaceutical Regulatory Science – Theory						
BP805ET	Pharmacovigilance – Theory						
BP806ET	Quality Control and Standardization of Herbals – Theory						
BP807ET	Computer Aided Drug Design – Theory	10 + 10 = 20	15 + 15 = 30	1 + 1 = 2 Hrs	25 + 25 = 50	75 + 75 = 150	100 + 100 = 200
BP808ET	Cell and Molecular Biology – Theory						
BP809ET	Cosmetic Science – Theory						
BP810ET	Experimental Pharmacology – Theory						
BP811ET	Advanced Instrumentation Techniques – Theory						
BP812PW	Project Work	-	-	-	-	150	150

Total	40	60	4 Hrs	100	450	16 Hrs	550
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11.2. Internal assessment: Continuous mode

The marks allocated for Continuous mode of Internal Assessment shall be awarded as per the scheme given below.

Table-XI: Scheme for awarding internal assessment: Continuous mode

Theory		
Criteria	Maximum Marks	
Attendance (Refer Table - XII)	4	2
Academic activities (Average of any 3 activities e.g. quiz, assignment, open book test, field work, group discussion and seminar)	3	1.5
Student – Teacher interaction	3	1.5
Total	10	5
Practical		
Attendance (Refer Table - XII)	2	
Based on Practical Records, Regular viva voce, etc.	3	
Total	5	

Table- XII: Guidelines for the allotment of marks for attendance

Percentage of Attendance	Theory	Practical
95 – 100	4	2
90 – 94	3	1.5
85 – 89	2	1
80 – 84	1	0.5
Less than 80	0	0

11.2.1. Sessional Exams

Two Sessional exams shall be conducted for each theory / practical course as per the schedule fixed by the college(s). The scheme of question paper for theory and practical Sessional examinations is given below. The average marks of two Sessional exams shall be computed for internal assessment as per the requirements given in tables – X.

Sessional exam shall be conducted for 30 marks for theory and shall be computed for 15 marks. Similarly Sessional exam for practical shall be conducted for 40 marks and shall be computed for 10 marks.

Question paper pattern for theory Sessional examinations

For subjects having University examination

I. Multiple Choice Questions (MCQs)	=	10 x 1 = 10
OR		OR
Objective Type Questions (5 x 2)	=	05 x 2 = 10
(Answer all the questions)		
I. Long Answers (Answer 1 out of 2)	=	1 x 10 = 10
II. Short Answers (Answer 2 out of 3)	=	2 x 5 = 10

Total = 30 marks



For subjects having Non University Examination

I. Long Answers (Answer 1 out of 2)	=	1 x 10 = 10
II. Short Answers (Answer 4 out of 6)	=	4 x 5 = 20

Total = 30 marks

Question paper pattern for practical sessional examinations

I. Synopsis	=	10
II. Experiments	=	25
III. Viva voce	=	05

Total = 40 marks

12. Promotion and award of grades

A student shall be declared PASS and eligible for getting grade in a course of B.Pharm. program if he/she secures at least 50% marks in that particular course including internal assessment. For example, to be declared as PASS and to get grade, the student has to secure a minimum of 50 marks for the total of 100 including continuous mode of assessment and end semester theory examination and has to secure a minimum of 25 marks for the total 50 including internal assessment and end semester practical examination.

13. Carry forward of marks

In case a student fails to secure the minimum 50% in any Theory or Practical course as specified in 12, then he/she shall reappear for the end semester examination of that course. However his/her marks of the Internal Assessment shall be carried over and he/she shall be entitled for grade obtained by him/her on passing.

14. Improvement of internal assessment

A student shall have the opportunity to improve his/her performance only once in the Sessional exam component of the internal assessment. The re-conduct of the Sessional exam shall be completed before the commencement of next end semester theory examinations.

15. Re-examination of end semester examinations

Reexamination of end semester examinations shall be conducted as per the schedule given in table XIII. The exact dates of examinations shall be notified from time to time.



Table-XIII: Tentative schedule of end semester examinations

Semester	For Regular Candidates	For Failed Candidates
I, III, V and VII	November / December	May / June
II, IV, VI and VIII	May / June	November / December

Question paper pattern for end semester theory examinations

For 75 marks paper

- I. Multiple Choice Questions(MCQs) = 20 x 1 = 20
OR
Objective Type Questions (10 x 2) = 10 x 2 = 20
(Answer all the questions)
- II. Long Answers (Answer 2 out of 3) = 2 x 10 = 20
III. Short Answers (Answer 7 out of 9) = 7 x 5 = 35

Total = 75 marks

For 50 marks paper

- I. Long Answers (Answer 2 out of 3) = 2 x 10 = 20
II. Short Answers (Answer 6 out of 8) = 6 x 5 = 30

Total = 50 marks

For 35 marks paper

- I. Long Answers (Answer 1 out of 2) = 1 x 10 = 10
II. Short Answers (Answer 5 out of 7) = 5 x 5 = 25

Total = 35 marks

Question paper pattern for end semester practical examinations

- I. Synopsis = 5
II. Experiments = 25
III. Viva voce = 5

Total = 35 marks



16. Academic Progression:

No student shall be admitted to any examination unless he/she fulfills the norms given in 6. Academic progression rules are applicable as follows:

A student shall be eligible to carry forward all the courses of I, II and III semesters till the IV semester examinations. However, he/she shall not be eligible to attend the courses of V semester until all the courses of I and II semesters are successfully completed.

A student shall be eligible to carry forward all the courses of III, IV and V semesters till the VI semester examinations. However, he/she shall not be eligible to attend the courses of VII semester until all the courses of I, II, III and IV semesters are successfully completed.

A student shall be eligible to carry forward all the courses of V, VI and VII semesters till the VIII semester examinations. However, he/she shall not be eligible to get the course completion certificate until all the courses of I, II, III, IV, V and VI semesters are successfully completed.

A student shall be eligible to get his/her CGPA upon successful completion of the courses of I to VIII semesters within the stipulated time period as per the norms specified in 26.

A lateral entry student shall be eligible to carry forward all the courses of III, IV and V semesters till the VI semester examinations. However, he/she shall not be eligible to attend the courses of VII semester until all the courses of III and IV semesters are successfully completed.

A lateral entry student shall be eligible to carry forward all the courses of V, VI and VII semesters till the VIII semester examinations. However, he/she shall not be eligible to get the course completion certificate until all the courses of III, IV, V and VI semesters are successfully completed.

A lateral entry student shall be eligible to get his/her CGPA upon successful completion of the courses of III to VIII semesters within the stipulated time period as per the norms specified in 26.

Any student who has given more than 4 chances for successful completion of I / III semester courses and more than 3 chances for successful completion of II / IV semester courses shall be permitted to attend V / VII semester classes ONLY during the subsequent academic year as the case may be. In simpler terms there shall NOT be any ODD BATCH for any semester.



Note: Grade AB should be considered as failed and treated as one head for deciding academic progression. Such rules are also applicable for those students who fail to register for examination(s) of any course in any semester.

17. Grading of performances

17.1. Letter grades and grade points allocations:

Based on the performances, each student shall be awarded a final letter grade at the end of the semester for each course. The letter grades and their corresponding grade points are given in Table – XII.

Table – XII: Letter grades and grade points equivalent to Percentage of marks and performances

Percentage of Marks Obtained	Letter Grade	Grade Point	Performance
90.00 – 100	O	10	Outstanding
80.00 – 89.99	A	9	Excellent
70.00 – 79.99	B	8	Good
60.00 – 69.99	C	7	Fair
50.00 – 59.99	D	6	Average
Less than 50	F	0	Fail
Absent	AB	0	Fail

A learner who remains absent for any end semester examination shall be assigned a letter grade of AB and a corresponding grade point of zero. He/she should reappear for the said evaluation/examination in due course.

18. The Semester grade point average (SGPA)

The performance of a student in a semester is indicated by a number called 'Semester Grade Point Average' (SGPA). The SGPA is the weighted average of the grade points obtained in all the courses by the student during the semester. For example, if a student takes five courses (Theory/Practical) in a semester with credits C₁, C₂, C₃, C₄ and C₅ and the student's grade points in these courses are G₁, G₂, G₃, G₄ and G₅, respectively, and then students' SGPA is equal to:

$$SGPA = \frac{C_1G_1 + C_2G_2 + C_3G_3 + C_4G_4 + C_5G_5}{C_1 + C_2 + C_3 + C_4 + C_5}$$

The SGPA is calculated to two decimal points. It should be noted that, the SGPA for any semester shall take into consideration the F and ABS grade awarded in that semester. For example if a learner has a F or ABS grade in course 4, the SGPA shall then be computed as:



$$\text{SGPA} = \frac{C_1G_1 + C_2G_2 + C_3G_3 + C_4 \text{ * ZERO} + C_5G_5}{C_1 + C_2 + C_3 + C_4 + C_5}$$

19. Cumulative Grade Point Average (CGPA)

The CGPA is calculated with the SGPA of all the VIII semesters to two decimal points and is indicated in final grade report card/final transcript showing the grades of all VIII semesters and their courses. The CGPA shall reflect the failed status in case of F grade(s), till the course(s) is/are passed. When the course(s) is/are passed by obtaining a pass grade on subsequent examination(s) the CGPA shall only reflect the new grade and not the fail grades earned earlier. The CGPA is calculated as:

$$\text{CGPA} = \frac{C_1S_1 + C_2S_2 + C_3S_3 + C_4S_4 + C_5S_5 + C_6S_6 + C_7S_7 + C_8S_8}{C_1 + C_2 + C_3 + C_4 + C_5 + C_6 + C_7 + C_8}$$

where C_1, C_2, C_3, \dots is the total number of credits for semester I, II, III, and S_1, S_2, S_3, \dots is the SGPA of semester I, II, III,

20. Declaration of class

The class shall be awarded on the basis of CGPA as follows:

First Class with Distinction	= CGPA of 7.50 and above
First Class	= CGPA of 6.00 to 7.49
Second Class	= CGPA of 5.00 to 5.99

21. Project work

All the students shall undertake a project under the supervision of a teacher and submit a report. The area of the project shall directly relate any one of the elective subject opted by the student in semester VIII. The project shall be carried out in group not exceeding 5 in number. The project report shall be submitted in triplicate (typed & bound copy not less than 25 pages).

The internal and external examiner appointed by the University shall evaluate the project at the time of the Practical examinations of other semester(s). Students shall be evaluated in groups for four hours (i.e., about half an hour for a group of five students). The projects shall be evaluated as per the criteria given below.



Evaluation of Dissertation Book:

Objective(s) of the work done	15 Marks
Methodology adopted	20 Marks
Results and Discussions	20 Marks
Conclusions and Outcomes	20 Marks

Total 75 Marks

Evaluation of Presentation:

Presentation of work	25 Marks
Communication skills	20 Marks
Question and answer skills	30 Marks

Total 75 Marks

Explanation: The 75 marks assigned to the dissertation book shall be same for all the students in a group. However, the 75 marks assigned for presentation shall be awarded based on the performance of individual students in the given criteria.

22. Industrial training (Desirable)

Every candidate shall be required to work for at least 150 hours spread over four weeks in a Pharmaceutical Industry/Hospital. It includes Production unit, Quality Control department, Quality Assurance department, Analytical laboratory, Chemical manufacturing unit, Pharmaceutical R&D, Hospital (Clinical Pharmacy), Clinical Research Organization, Community Pharmacy, etc. After the Semester – VI and before the commencement of Semester – VII, and shall submit satisfactory report of such work and certificate duly signed by the authority of training organization to the head of the institute.

23. Practice School

In the VII semester, every candidate shall undergo practice school for a period of 150 hours evenly distributed throughout the semester. The student shall opt any one of the domains for practice school declared by the program committee from time to time.

At the end of the practice school, every student shall submit a printed report (in triplicate) on the practice school he/she attended (not more than 25 pages). Along with the exams of semester VII, the report submitted by the student, knowledge and skills acquired by the student through practice school shall be evaluated by the subject experts at college level and grade point shall be awarded.



24. Award of Ranks

Ranks and Medals shall be awarded on the basis of final CGPA. However, candidates who fail in one or more courses during the B.Pharm program shall not be eligible for award of ranks. Moreover, the candidates should have completed the B. Pharm program in minimum prescribed number of years, (four years) for the award of Ranks.

25. Award of degree

Candidates who fulfill the requirements mentioned above shall be eligible for award of degree during the ensuing convocation.

26. Duration for completion of the program of study

The duration for the completion of the program shall be fixed as double the actual duration of the program and the students have to pass within the said period, otherwise they have to get fresh Registration.

27. Re-admission after break of study

Candidate who seeks re-admission to the program after break of study has to get the approval from the university by paying a condonation fee.

No condonation is allowed for the candidate who has more than 2 years of break up period and he/she has to rejoin the program by paying the required fees.





Seva Shikshan Prasarak Mandal's



Dr. N. J. Paulbudhe College of Pharmacy

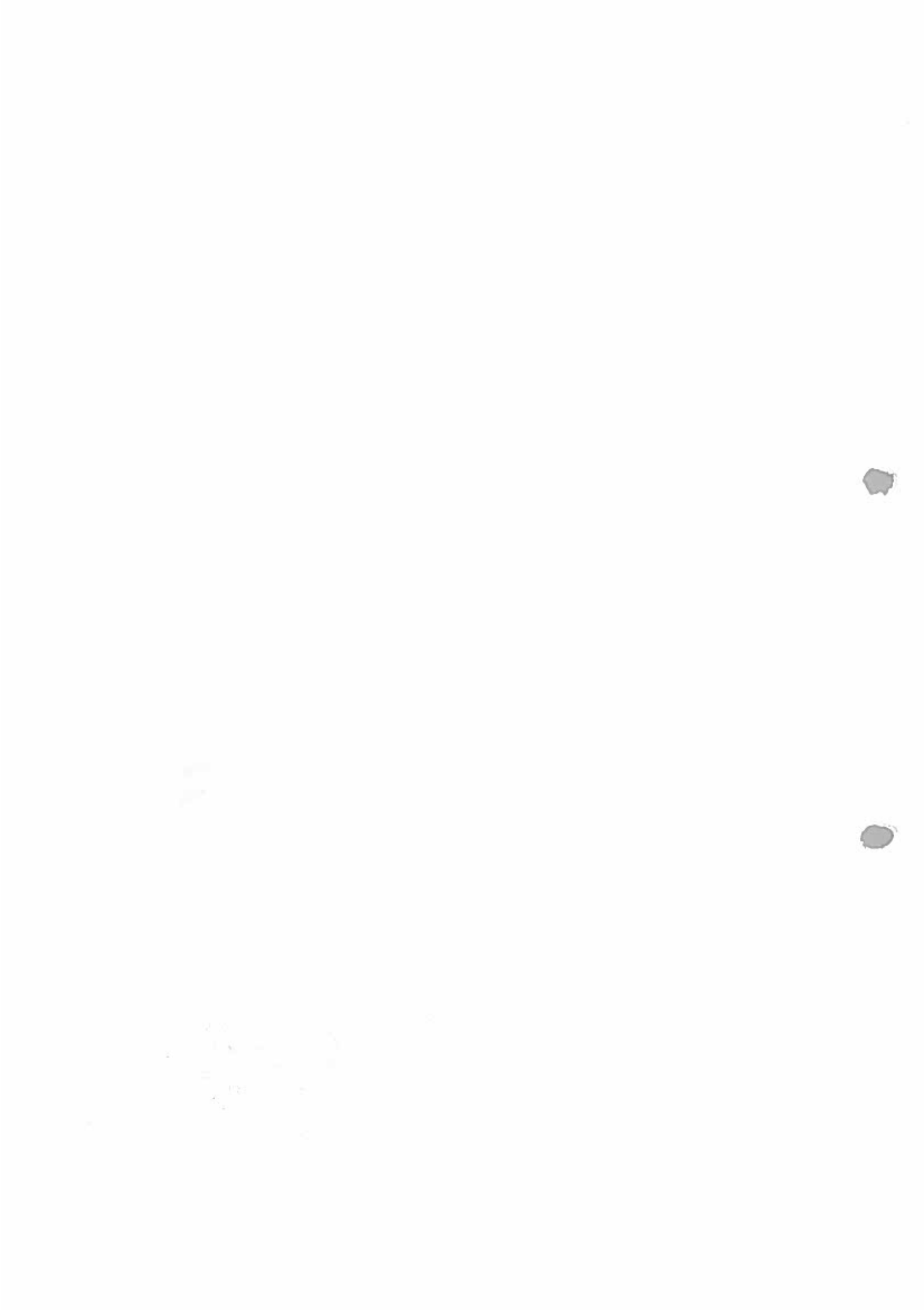
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COURSE STRUCTURE 2015 PATTERN



Approved By: P. C. I, New Delhi, Ref No: F.No.02.297/2018-PCI, AICTE: F.No. Western/2017-1-3359523301,
Affiliated to Savitribai Phule Pune University – Ref. No. PU/AN/PHARM/145/2017



SAVITRIBAI PHULE PUNE UNIVERSITY

FACULTY OF PHARMACEUTICAL SCIENCES



COURSE STRUCTURE & SYLLABI
BACHELOR OF PHARMACY (B. Pharm.) COURSE
(EFFECTIVE FROM ACADEMIC YEAR 2015-16)

Credit and Grading Based Semester System



Course Title:	Bachelor of Pharmacy
Abbreviation:	B. Pharm.
Medium of Instruction And Examination:	English
Type of Course:	A four year degree course divided into eight Semesters.
Pattern:	Semester.
Number of Years and Semester:	Four Years divided into eight semesters with two semesters per year.
Nomenclature of Semesters :	Semester-I & Semester-II First Year B. Pharm. Semester-III & Semester-IV Second Year B. Pharm. Semester-V & Semester-VI Third Year B. Pharm. Semester-VII & Semester-VIII Final Year B. Pharm.
Award of the Degree :	Degree will be awarded to those passing in all the eight semesters as per the rules and regulations.
Duration of Semester :	Each Semester will be normally of 15 weeks duration for class room teaching and practicals and internal evaluation.



Definitions:

1. **University** means Savitribai Phule Pune University until and otherwise specified.
2. **The college/Institute** is any college conducting B. Pharmacy course affiliated to Savitribai Phule Pune University.
3. **State Govt.:** Govt. of Maharashtra
4. **Admission Authority:** An authority responsible for effecting admissions to B. Pharm course as prescribed by Govt. of Maharashtra
5. **DTE – Directorate of Technical Education, Maharashtra State.**
6. **AICTE – All India Council for Technical Education, New Delhi**
7. **Academic Year:** Two consecutive (one odd + one even) semesters constitute one academic year.
8. **Course:** Usually referred to, as ‘papers’ is a component of a programme. All courses need not carry the same weight. The courses should define learning objectives and learning outcomes. A course may be designed to comprise lectures/ tutorials/laboratory work/ field work/ outreach activities/ project work/ vocational training/viva/ seminars/term papers/assignments/ presentations/ self-study etc. or a combination of some of these.
9. **Credit Based Semester System (CBSS):** Under the CBSS, the requirement for awarding a degree or diploma or certificate is prescribed in terms of number of credits to be completed by the learners.
10. **Credit Point:** It is the product of grade point and number of credits for a course.
11. **Credit:** A unit by which the course work is measured. It determines the number of hours of instructions required per week. One credit is equivalent to one hour of teaching (lecture or tutorial) or two hours of practical work/field work per week.
12. **Cumulative Grade Point Average (CGPA):** It is a measure of overall cumulative performance of a learner over all semesters. The CGPA is the ratio of total credit points secured by a learner in various courses in all semesters and the sum of the total credits of all courses in all the semesters. It is expressed up to two decimal points.
13. **Grade Point:** It is a numerical weight allotted to each letter grade on a 10-point scale.
14. **Letter Grade:** It is an index of the performance of learners in a said course. Grades



are denoted by letters O, A+, A, B+, B, C, P and F.

15. **Programme:** An educational programme leading to award of a Degree, diploma or certificate.
16. **Semester Grade Point Average (SGPA):** It is a measure of performance of work done in a semester. It is ratio of total credit points secured by a learner in various courses registered in a semester and the total course credits taken during that semester. It shall be expressed up to two decimal points.
17. **Semester:** Each semester will consist of 15 weeks of academic work equivalent to 90 actual teaching days. The odd semester may be scheduled from July to December and even semester from January to June.
18. **Transcript or Grade Card or Certificate:** Based on the grades earned, a grade certificate shall be issued to all the registered learners after every semester. The grade certificate will display the course details (code, title, number of credits, grade secured) along with SGPA of that semester and CGPA earned till that semester.



R.1. AIM & OBJECTIVES OF THE COURSE

AIM:

The Pharmacy graduates are required to learn and acquire adequate knowledge, necessary skills to practice the profession of pharmacy. The graduate should have adequate knowledge of synthesis & analysis of medicinal agents, their mode and mechanism of action, drug interactions, patient counselling and adequate technical information to be exchanged with the physician and other health professionals. The graduates are required to acquire in depth knowledge of formulation, quality assurance and storage of various pharmaceutical dosage forms including herbal medicines. The graduates should also understand the concept of community pharmacy and be able to participate in health care programmes of Government and private sector. They are also required to detail the physicians and market the medicinal agents for diagnosis, prevention and therapeutic purposes. The graduate pharmacist should also act as bridge between the Physician and Patients for achieving better health of community.

OBJECTIVES:

The following objectives of the course should be achieved by acquiring an in-depth knowledge & thorough understanding, necessary skills and developing the right attitude. Therefore they are categorized into following heads.

a. Knowledge and Understanding

The graduates should acquire the following during their B. Pharm. Course.

1. Adequate knowledge and scientific information regarding basic principles of Pharmaceutical & Medicinal Chemistry, Pharmaceutics including Cosmeticology, Pharmacology, Pharmacognosy including herbal medicines.
2. Adequate knowledge of practical aspects of
 - Synthesis of APIs & its intermediates and analysis of various pharmaceutical dosage forms



- Formulation developments & quality assurance of various pharmaceutical dosage forms including those of herbal origin as per standards of official books, WHO and other regulatory agencies like USFDA, MHRA etc.
- Pharmacological screening and biological standardization and *in-vivo* drug interactions.
- Preparation & analysis of suitable plants material/extracts of medicinal importance for various herbal formulations.
- Clinical studies, patient counseling leading to physical and social well being of the patients.
- Product detailing, marketing, distribution and selling of pharmaceutical products.

b. Skills:

A graduate should be able to demonstrate following skills necessary for practice of a Pharmacy

- Able to synthesize, purify, identify and analyze medicinal agents.
- Able to formulate, store, dispense, manufacture the pharmaceutical products and analyze the prescriptions.
- Able to learn and apply the quality assurance principles in regulatory and ethical aspects
- Able to extract, purify, identify and understand the therapeutic value of herbal/crude/natural products
- Able to screen various medicinal agents using animal models for pharmacological activity.

c. Attitudes:

A graduate should develop the following attitudes during the course.

- Willing to apply the current knowledge of Pharmacy in the best interest of the patients and the community.
- Maintain high standards of professional ethics in discharging professional obligations.
- Continuously upgrade professional information and be conversant with latest advances in the field of pharmacy to serve community better.



- Willing to participate in continuing education programmes of PCI/AICTE/ Savitribai Phule Pune University to upgrade the knowledge and professional skills.
- To help and participate in the implementation of National Health Programmes.

R.2. ELIGIBILITY CRITERIA

A. In order to secure admission to Semester –I of the Four year Degree Course in Pharmacy, the candidate should fulfil the following eligibility criteria;

Candidate should be an Indian National and should have passed the HSC (Std.XII) examination of Maharashtra State Board of Secondary and Higher Secondary Education or its equivalent examination with subjects English, Physics, Chemistry and Mathematics/Biology /Biotechnology/Technical Vocational subject

AND

Secured minimum 45 % marks (minimum 40 % marks in case of candidates of Backward class categories and Persons with Disability belonging only to Maharashtra State) in the subjects Physics, Chemistry and Mathematics/ Biology/Biotechnology/Technical Vocational subject added together (Maximum of marks obtained in Mathematics/ Biology/Biotechnology/Technical Vocational subject shall be considered for the purpose of addition)

AND

Obtained a non zero score in subjects Physics, Chemistry and Mathematics/ Biology added together at MT-CET 2015.

AND

Any other eligibility criteria decided by competent authority time to time.

B. Eligibility Criteria for Admission at the entry level of Semester-III. (i.e. the first semester of Second Year B. Pharm.) Diploma holders who have passed the Diploma course in Pharmacy with minimum of 45% marks and medium of instruction as English from AICTE approved Polytechnics.



NOTE: In case of eligibility criterion decided by the Govt. of Maharashtra differs from above, University authorities shall decide the eligibility criterion from time to time. In case of foreign national learners eligibility criteria for admission to F. Y. B. Pharm should be decided by University authorities.

R.3. SCHEME OF EXAMINATION:

R.3.1. Examination conducting authority: Savitribai Phule Pune University, Pune.

R.3.2. Regular and Supplementary Examinations and time: (Tentative schedule) The University will decide exact schedule on the basis of prevailing situation.

Semester	Odd Semester Examination	Even Semester Examination
I, III, V & VII	(November/December)	(April/May)
II, IV, VI & VIII		

Duration of Examination, Marks etc See Examination scheme at *Annexure I*

R.3.3. Criteria for admitting the learner for examinations irrespective of regular or supplementary examinations:

- Learner must have been admitted to the respective Semester as per the criteria for continuation into the respective Semesters given in R-4 and has kept the term for the Semester for which he is examined.
- The learner must submit prescribed application form along with fees.
- Learner must appear for the examination at the place and time as decided by the admitting Institute/ the University as the case may be.
- Learner who has failed in a particular Semester or has ATKT will be allowed to appear for the same examination on filing new application being forwarded and after paying requisite fee.



Clarifications:

- Learner having ATKT will appear for examinations in only those subject heads in which the learner has failed except stated below.
- The learner who has passed in all the subjects but failed due to not getting overall CGPA 5 will be allowed to appear in any number of subject heads (theory) desired by the learner.
- For all the remaining cases, the learner has to appear for examination in all those subject heads in which the learner failed.

R.3.4. Sessional Examinations

- Each Semester will consist of a minimum of 15 weeks instructions.
*i.e. $15 \times 6 = 90$ instructional days (minimum instructional days)
- 75% attendance for both theory and practical classes separately shall be mandatory to appear for sessional examination and end semester examination.
- Conducting authority shall be Institutes where learner is admitted.
- In- semester assessment will be of 40 marks which includes 20 marks for theory and practical sessional and 20 marks for continuous assessment for theory and practical.
In-semester assessment of 20 marks should be continuous, procedures and marks for theory and practical examination are as follows –
 - i. For theory and practical Examination – In-semester assessment for 20 marks should be continuous and at least two tests should be conducted for full course of 3 credits for theory and 2 credits for practical and the teacher must select a variety of procedures for examination such as :
 - a) Written test and / or midterm test (not more than one or two for each course)
 - b) Term paper
 - c) Journal / Lecture / Library notes
 - d) Seminar presentation
 - e) Short Quizzes
 - f) Assignments
 - g) Extension work



h) An open book test (with the concern teacher deciding what books are to be allowed for this purpose)

or

i) Mini research project by individual learner or group of learners

The concern teacher in consultation with the head of Department shall decide the nature of question for the unit test.

Number of Sessional Examination:

- There will be a minimum of one sessional examination of 20 marks conducted in each semester after minimum eight weeks of teaching from the date of commencement of that semester in each of the theory subjects during the semester.
- One Sessional Examination will be conducted as per the examination scheme (See Annexure no. 1) for each semester. The learner who will secure less than 40% mark in the Sessional Examination or unable to appear for the scheduled Sessional Examination may be permitted for the Sessional Examination in the same semester only if approved by institutional examination committee and paying fees as prescribed by the institution. The institutional examination committee shall consist of Principal (Chairman), & four teachers nominated by the Principal.
- Practical sessional examination of 20 marks will be based on internal assessment of practical (Experimental work), viva, synopsis and laboratory record. The distribution of marks for practical examination will be as follows –

Scheme for Practical Sessional Examination

Sr. No.	Head	Marks distribution
1	Experimental work	10
2	Synopsis & Viva	06
3	Lab Record	04
	Total Marks	20
	Duration	03 Hrs.

- Daily assessment of practicals will be based on day to day attendance, learners' skills (performance), viva, laboratory record, etc.
- Theory sessional examination of 20 marks will be conducted after completion of at least two thirds syllabus of the semester.
- The distribution of marks for theory sessional examination will be as given below-



Sr. No.	Head	Marks distribution
Q. 1	2 marks X 3 questions (out of five)	= 6 marks
Q. 2	4 marks X 2 questions (out of three)	= 8 marks
Q. 3	6 marks X 1 questions (out of two)	= <u>6 marks</u>
	Total	= 20 marks

Time Schedule:

The time schedule for theory sessional examination will be 1 hour.

- The Retest/ Improvement test/ or supplementary test for the Sessional Examinations will be allowed for the failed learners in the University examination, if he/she is appearing for the University exam of that subject head.
- The Retest/ Improvement test/ or supplementary test shall be carried by the respective institution and the marks obtained by the learner shall be forwarded to the University.
- The institute conducting the course must submit the Sessional Examination marks of the respective semester to the Controller of Examinations in soft copy and print before the commencement of theory or practical examination whichever is later.

R.3.5. Scaling Down the Marks Obtained by the Learner at the Internal Examination as Compared to the Marks Obtained by the Learner in the Semester End Theory and Practical Examination in the Course Concerned

- Concept of scaling shall be applicable only for the marks obtained by the learners at all the individual courses.
- Marks obtained by the learner at the Internal Assessment and Semester End Examinations should be converted to the percentage marks course wise.
- Concept of scaling shall be applicable only in cases where the marks obtained by the learner in the Internal Assessment and Semester End Assessment Examinations differ by more than 20% in the course concerned i.e. percentage marks of the learner at a course in the Internal Assessment is 20% more than the percentage of marks



scored by the learner concerned in the Semester End Examination in the course concerned.

- Learner at the course concerned in the Internal Assessment should be scaled down to 20% plus the percentage score of the learner at the Semester End Examination.
- The concept of scaling shall be applicable only in course/s where the learner has passed the course. In case if a learner fails in one or more courses at an attempt then the concept of scaling shall be applied to the courses that the learner has passed at the attempt concerned and for the remaining courses where the learner has failed, the concept of scaling will be applicable as and when the learner passes the course or earns the credit for the course.
- The scaled marks can thus be used to calculate the Credits, Grades, Credit points earned by the learner can then be used to calculate the SGPA and CGPA.
- Concept of scaling shall not be applicable where the percentage of the marks scored by the learner at the Semester End Examination is more than the percentage marks scored by the learner in the Internal Assessment at the course concerned. One of the reasons for the learner scoring low marks at the Internal Assessment could be nonappearance for one of the components of the Internal Assessment.

Sample Case of a Learner at F.Y.B.Pharm. Semester I of B.Pharm. Programme

Marks Obtained	Max. Marks	1.1.1 T	1.1.1 P	1.1.2 T	1.1.2 P	1.1.3 T	1.1.3 P	1.1.4 T	1.1.4 P	1.1.5 T	1.1.5 P	1.1.6 T
Internal Assessment	40	28	39	38	37	40	36	37	35	31	34	32
Semester End Examination	60	33	27	24	51	25	32	45	36	26	58	55

Marks Obtained	Max. Marks	1.1.1 T	1.1.1 P	1.1.2 T	1.1.2 P	1.1.3 T	1.1.3 P	1.1.4 T	1.1.4 P	1.1.5 T	1.1.5 P	1.1.6 T
Internal Assessment	40	70%	97.5%	95%	92.5%	100%	90%	92.5%	87.5%	77.5%	85%	80%
Semester End Examination	60%	54.78%	44.82%	39.84%	84.66%	41.5%	53.12%	74.7%	59.76%	43.16%	96.28%	91.3%



Marks Obtained	Max. Marks	1.1.1 T	1.1.1 P	1.1.2 T	1.1.2 P	1.1.3 T	1.1.3 P	1.1.4 T	1.1.4 P	1.1.5 T	1.1.5 P	1.1.6 T
Revised Internal Assessment Score	40	28*	25.92	23.93	37*	24.60	29.24	37*	31.90	25.26	34*	32*
Semester End Examination	60	33	27	24	51	25	32	45	36	26	58	55

*In these cases the percentage difference in the marks of Internal Assessment and Semester End Examination is less than 20% hence the original marks are retained.

R.4.:

Continuation into the subsequent semesters after the entry level semesters. The admitting authority will be the individual institutes where the learner has been admitted into the course, and the continuation will be as per the criteria decided by the University for each semester.

The following criteria are applicable to all the learners for continuation.

R.4.1. A learner, to be eligible for the Degree will be required to pass examinations, as under:-

First year B. Pharm.	Semester-I & Semester-II
Second year B. Pharm.	Semester-III & Semester-IV
Third year B. Pharm.	Semester-V & Semester-VI
Fourth year B. Pharm.	Semester-VII & Semester-VIII

R.4.2.

No learner will be admitted to any examination unless he/she keeps term at a College affiliated to the University and produces from the Principal of the College, testimonials of satisfactory attendance at the theory, Practical and term work classes as prescribed.



R.4.3. Promotion from odd semester to even semester in the same academic year

- A Learner who fails in Semester - I examination of First Year B. Pharm. will be allowed to keep term for his/her Semester –II Examination, of First Year B. Pharm.
- A Learner who fails in Semester – III examination of Second Year B. Pharm. will be allowed to keep term for his/ her Semester – IV Examination of Second Year B. Pharm.
- A Learner who fails in Semester – V examination of Third Year B. Pharm. will be allowed to keep term for his/her Semester – VI Examination of Third Year B. Pharm.
- A Learner who fails in Semester – VII examination of Fourth Year B. Pharm. will be allowed to keep term for his Semester – VIII Examination of Fourth Year B. Pharm.

R.4.4. Promotion to subsequent academic year-

- A learner who fails in more than 7 heads (Theory & practical) of total number of subjects taken together at Semester I and Semester II /Semester III & Semester IV course examination will not be permitted to keep terms in the higher class viz. Semester III / Semester V of B. Pharm. Course examination respectively.
- A learner who fails in more than 8 heads (Theory & practical) of total number of subjects taken together at Semester V and Semester VI course examination will not be permitted to keep terms in the higher class viz. Semester VII of B. Pharm. Course examination.

R.4.5. Clarification of R.4.3. and R.4.4.

1. No learner will be admitted to the Semester III course unless he/she passes his/her Semester I and Semester II examination of B. Pharm.

OR



Fails in not more than 7 heads (Theory and Practical) at the Semester I and Semester II examination of B.Pharm.

2. No learner will be admitted to the Semester V course unless he/she passes his/her Semester I & Semester II., Semester III & Semester IV Examinations of B.Pharm.

OR

passes his/her Semester I and Semester II examination of B. Pharm. and fails in not more than 7 of total number of heads (Theory and Practical) at the Semester III & Semester IV Examinations of B. Pharm.

3. No learner will be admitted to the Semester VII course of B. Pharm. unless he/she Passes his/her Semester I & Semester II., Semester III & Semester IV., Semester V & Semester VI Examinations of B. Pharm. examinations,

OR

passes his/her Semester I & Semester II., Semester III & Semester IV Examinations of B. Pharm. and fails in not more than 8 of total number of heads (Theory and Practical) at the Semester V & Semester VI Examinations of B. Pharm.

R.4.6. Allowed to Keep Terms (ATKT) rules.

Number of subjects: ATKT will be awarded to those who have failed in 1/3 subject head (33%) as described in table given below

At the end of academic Year		Total subject heads at the end of academic year.	33 % of total subjects (To nearest full digit)
First	Theory	06+06=12	4
	Practical	05+05=10	3
Second	Theory	06+06=12	4
	Practical	05+05=10	3
Third	Theory	07+07=14	5
	Practical	05+05=10	3



R.5. Marks, Criteria for passing and other conditions.

R.5.1. Passing criteria for each subject head:

Maximum marks for each subject head and the minimum marks for passing in each of the subject head –See Examination scheme given in *Annexure I*.

No separate passing is required for sessional examination and if the learner remains absent for the test, the learner will be just treated as not appeared for the test securing zero marks. What so ever mark obtained by the learner will be added to the marks obtained by the learner in University examination as shown in scheme of examination given in *Annexure I*.

In no circumstances previous marks will be considered. If a learner's application form for reappearing in the examination in a subject head is accepted, and the learner appears in the examination (Sessional examination & Semester examination) fresh marks will be considered.

R.5.2. Passing of the semester.

Learner will be considered as passed the semester only when the learner passes in the entire subject heads and obtains overall a minimum CGPA of 5 as prescribed for the semester see Annexure I.

R 5.3. Letter Grades and Grade Points:

1. The marks are converted to grades based on pre-determined class intervals. As per recommendations of UGC. A 10-point grading system with the following letter grades as given below:



Table 1: Grades and Grade Points

Marks Obtained	Letter Grade	Grade Point
90 above	O (Outstanding)	10
80 to 89	A+(Excellent)	9
70 to 79	A(Very Good)	8
60 to 69	B+(Good)	7
50 to 59	B(Above Average)	6
46 to 49	C(Average)	5
40 to 45	P (Pass)	4
0 to 39	F(Fail)	0
N. A	Ab (Absent)	0

2. A learner obtaining Grade F shall be considered failed and will be required to reappear in the examination.
3. For non credit courses 'Satisfactory' or "Unsatisfactory' shall be indicated instead of the letter grade and this will not be counted for the computation of SGPA/CGPA.

R 5.4. Computation of SGPA and CGPA:

As per recommendation of UGC the following procedure is adopted to compute the Semester Grade Point

Average (SGPA) and Cumulative Grade Point Average (CGPA):

- i. The SGPA is the ratio of sum of the product of the number of credits with the grade points scored by a learner in all the courses taken by a learner and the sum of the number of credits of all the courses undergone by a learner, i.e

$$SGPA (S_i) = \frac{\sum(C_i \times G_i)}{\sum C_i}$$

where C_i is the number of credits of the i th course and G_i is the grade point scored by the learner in the i th course.

- ii. The CGPA is also calculated in the same manner taking into account all the courses undergone by a learner over all the semesters of a programme, i.e.

$$CGPA = \frac{\sum(C_i \times S_i)}{\sum C_i}$$



where S_i is the SGPA of the i th semester and C_i is the total number of credits in that semester.

- iii. The SGPA and CGPA shall be rounded off to 2 decimal points and reported in the transcripts.

R.5.5. Illustration of Computation of SGPA and CGPA and Format for Transcripts

- i. Computation of SGPA and CGPA

Illustration for SGPA

	Course	Credit	Grade letter	Grade point	Credit Point (Credit x Grade)
1.1.1 T	Pharmaceutics- I	3	A	8	3 X 8 = 24
1.1.1 P	Pharmaceutics- I	2	A	8	2 X 8 = 16
1.1.2 T	Modern Dispensing Practices	3	B+	7	3 X 7 = 21
1.1.2 P	Modern Dispensing Practices	2	A	8	2 X 8 = 16
1.1.3 T	Pharmaceutical Inorganic Chemistry	3	O	10	3 X 10 = 30
1.1.3 P	Pharmaceutical Inorganic Chemistry	2	O	10	2 X 10 = 20
1.1.4 T	Pharmaceutical Organic Chemistry-I	3	A	8	3 X 8 = 24
1.1.4 P	Pharmaceutical Organic Chemistry-I	2	A	8	2 X 8 = 16
1.1.5 T	Human Anatomy & Physiology-I	3	B+	7	3 X 7 = 21
1.1.5 P	Human Anatomy & Physiology-I	2	B+	7	2 X 7 = 14
1.1.6 T	Communication and soft skill development	3	B	6	3 X 6 = 18
		28			220

Thus, $SGPA = 220/28 = 7.85$

Illustration for CGPA

Semester 1	Semester 2	Semester 3	Semester 4
Credit : 28 SGPA:7.86	Credit : 28 SGPA:7.04	Credit : 28 SGPA: 6.42	Credit : 28 SGPA:7.21



Semester 5	Semester 6	Semester 7	Semester 8
Credit : 31	Credit : 31	Credit : 31	Credit : 31
SGPA:8.42	SGPA:7.24	SGPA: 6.74	SGPA:8.44

Thus,

$$\text{CGPA} = \frac{28 \times 7.89 + 28 \times 7.04 + 28 \times 6.42 + 28 \times 7.21 + 31 \times 8.42 + 31 \times 7.24 + 31 \times 6.74 + 31 \times 8.44}{236} = 7.46$$

- ii. Transcript (Format): Based on the above recommendations on Letter grades, grade points and SGPA and CGPA, the Higher Educational Institutes may issue the transcript for each semester and a consolidated transcript indicating the performance in all semesters.

Table indicating Final Grade

CGPA	Final Grade
9.10 – 10.00	O (Outstanding)
8.10 – 9.00	A+(Excellent)
7.10 – 8.00	A(Very Good)
6.51 – 7.00	B+(Good)
6.10 – 6.50	B(Above Average)
5.51 – 6.00	C(Average)
5.00 – 5.50	P (Pass)
0 – 4.99	F(Fail)
N. A	Ab (Absent)

R.5.6. Award of the degree and Grade.

Degree will be awarded to the learners who have passed all the eight semesters. Final grade will be awarded on the basis of combined CGPA at the Semester-I to Semester VIII.



A learner will be allowed to improve his/her class at B. Pharm. by reappearing for the subjects (maximum 3 theory subjects of that examination) from V to VIII Semesters of B. Pharm. Course as per prevalent policy of University.

R.5.7. With holding of results.

A learner's result will be withheld under the following situations and of the respective Semester.

1. Withholding of result for not fulfilling passing criteria for advancement to subsequent classes-

Result of Semester IV will be with held if the learner has not passed Semester-I and Semester II.

Result of Semester VI will be with held if the learner has not passed Semester-III and Semester - IV.

Result of Semester VIII will be with held if the learner has not passed Semester- V & Semester-VI.

2. Withholding of result for failure to comply University rules-

The result of learner shall be withheld if the learner is found guilty in malpractices during examinations and any other failure to comply University rules and regulation as confirmed by appropriate body of University.

R.5.8. Exemption to appear for the examination:

If a learner has got ATKT, the learner will be exempted from appearing the examination for those subject heads in which the learner has passed.

Any learner who has passed in any subject head is exempted for appearing the examination in that subject head.

Notwithstanding above if a learner has passed in all the subjects but failed due to not getting CGPA or SGPA of '5', may appear for the examination in any three theory subject heads so as to get over all CGPA or SGPA of '5'. In such cases, best



of performance will be considered. For example if the learner gets over all CGPA or SGPA of '5' but fails in one of the subject heads in which the learner had passed earlier, the learner will be treated as passed in that subject head as per previous examination and result will be declared as per the rules applicable to the passed learners. The marks of the subject head in which the learner has not appeared for the examination will be carried forward.

R.5.9. Professional/Industrial Training

Every learner shall be required to work for at least four weeks in a Pharmaceutical Industry it includes Production unit, Q. C department, Q. A department, analytical laboratory, chemical manufacturing unit, pharmaceutical R & D, hospital (Clinical Pharmacy), clinical research organization and wholesale drug store etc after the Semester- IV of the course of study, and shall submit satisfactory report of such work form industry to the head of the institute. The learner should also submit one copy to the University for the Award of Degree along with convocation form. The learner may undergo practical training in parts, each constituting not less than two weeks.



R.5.10.

The pattern for University theory examination question paper shall be as given below:

Scheme for theory Examination: - Each Theory paper should be divided in 2 sections which should be attempted in separate answer sheet.

Sr. No.	Head	Marks distribution
Section – I		
Q.1.	Long answers question	10 marks (10 mark x 1 Qs, out of 2 Qs.)
Q.2	Small answers questions – 3 marks (word limit 75 to 100 words)	12 marks (3 mark x 4 Qs, out of 7 Qs.)
Q.3	Short answers questions – 5 marks (word limit 125 to 150 words)	8 marks (4 mark x 2 Qs, out of 4 Qs.)
Section – II		
Q.4	Long answers question	10 marks (10 mark x 1 Qs, out of 2 Qs.)
Q.5	Small answers questions – 3 marks (word limit 75 to 100 words)	12 marks (3 mark x 4 Qs, out of 7 Qs)
Q.6	Short answers questions – 5 marks (word limit 125 to 150 words)	8 marks (4 mark x 2 Qs, out of 4 Qs.)
	Total maximum marks of section I and	60 marks
	Duration of examination	3 Hrs.

Note:

1. There shall be no word limit set for long answer questions.
2. Paper setters should cover entire syllabus while setting the question paper.
3. The detailed guidelines with respect to these instructions shall be given to all paper setters by the University.

Scheme for University Practical Examination

Sr. No.	Head	Marks distribution
1	Synopsis	10
2	Major experiment	25
3	Minor experiment	15
4	Viva	10
	Total Marks	60
	Duration	04 Hrs.



R-6: ENVIRONMENTAL SCIENCES

An additional course in environmental sciences shall be conducted as per following guidelines.

1. A course in Environmental Awareness with duration of six months (30 lectures of one hour duration & field work of 10 hours duration.) shall be introduced at the semester III of second year of degree course B.Pharm as a compulsory course.
2. An additional course fee of Rs. 1000 per learner shall be charged to meet the expenditure on the conduct of the course.
3. A course Coordinator shall be appointed to organize teaching and evaluation by the Principal.
4. Qualifications of a Teacher.

University approved teacher (minimum Asst. Prof.) or expert in Environmental Sciences possessing substantial knowledge to teach a course on environmental studies shall be eligible to teach the course. Principal of the College shall be authorized to determine the eligibility of the teacher on environmental studies. This course is to be introduced from the second year B. Pharm.

5. The college on behalf of the University shall conduct the examination of this subject immediately before or after Semester examinations of S.Y./T.Y./Final Year B.Pharm.
6. The learner should clear this subject before passing the Final Year B. Pharm examination.
7. A learner has to pass in this course in order to obtain degree certificate. If the learner passes in all subjects of degree course but fails in this paper, he will not be eligible to obtain degree certificate.
8. Examination: the College shall organize the evaluation as per pattern suggested below.

The Principal shall submit the result sheet to the Controller of Examination, Savitribai Phule Pune University, Pune on or before the end of the final year University Examinations of B. Pharm. course. The results of University examination of the learner who fail to get Minimum 'C' Grade in this course shall be kept in



reserve till the concerned learner complete the course and secure to require Minimum C Grade.

The question paper shall include the questions as under

- A. Multiple choice questions :50 Marks
- B. Essay type questions :25 Marks
- C. Field works :25 Marks

Total: 100 Marks Passing Marks: 40 Marks.

Following Grades shall be awarded to the learners based on their marks obtained.

Grade-O: above 75 **Grade-A:** 61 to 75 **Grade-B:** 51 to 60 **Grade-C:** 40 to 50

R-7: Rules for Carry Forward

This revised curriculum (including regulations, structure and syllabi) will be in force from academic year 2015-16 and onwards for First Year B. Pharm, for academic year 2016-17 onwards for Second Year B. Pharm., for academic year 2017-18 and onwards for Third Year B. Pharm., and for academic year 2018-19 and onwards for Final Year B. Pharm.

1. The learners who were admitted to First Year B. Pharm. of 2013 pattern during the academic year 2014-15 or before & would fail or have failed in the First Year B. Pharm. of 2013 pattern examination will have to take admission to Semester-III of Second Year B. Pharm. of 2015 pattern in academic year 2016-17 or onwards, provided that
 - a. Their result of F. Y. B. Pharm of 2013 pattern is either pass or fails with A. T. K. T.
2. The learners who will be admitted to Second Year B. Pharm. of 2013 pattern during academic year 2015-16 and who will fail in the Second Year B. Pharm. 2013 pattern



examination will have to take admission to Semester- V of T. Y. B. Pharm. of 2015 pattern in academic year 2017-18 or onwards, provided that

- a. They have passed in all subjects of F. Y. B. Pharm. of 2013 syllabus.
- b. Their result for S. Y. B. Pharm. of 2013 pattern is either Pass or Fail with A. T. K. T.

Such learners will have to pass in all the subjects of S. Y. B. Pharm. 2013 pattern before taking admission to Semester- VII of Final Year B. Pharm. 2015 pattern.

3. The learners who will be admitted to Third Year B. Pharm. of 2013 pattern during the academic year 2016-17 and who would fail in T. Y. B. Pharm. 2013 pattern examination will have to take admission to Semester- VII of Final year B. Pharm. of 2015 pattern, provided that

- a. They have passed in all subjects of S. Y. B. Pharm. of 2013 pattern
- b. Their result for T. Y. B. Pharm. 2013 pattern is Pass or Fail with A. T. K. T.



Annexure I

Scheme of Examination for eight semesters of B. Pharm. Course Name and number of heads of passing, number of paper, duration of examination, maximum marks, minimum marks for passing, Sessional Examination, duration, maximum marks.

Semester-I

Subject Code	Subject	Scheme of Teaching Hrs/Weeks	Scheme of Credit	End Semester Examination		Duration (Hours)	Min for passing	Internal Examination			Total Maximum Marks for subject	Minimum marks for passing subject
				Duration (Hours)	Maximum marks			Duration (Hours)	Sessional Maximum marks	Continuous Assessment marks		
1.1.1 T	Pharmaceutics- I	3	3	3	60	1.5	24	20	20	20	100	40
1.1.1 P	Pharmaceutics- I	3	2	4	60	3	24	20	20	20	100	40
1.1.2 T	Modern Dispensing Practices	3	3	3	60	1.5	24	20	20	20	100	40
1.1.2 P	Modern Dispensing Practices	3	2	4	60	3	24	20	20	20	100	40
1.1.3 T	Pharmaceutical Inorganic Chemistry	3	3	3	60	1.5	24	20	20	20	100	40
1.1.3 P	Pharmaceutical Inorganic Chemistry	3	2	4	60	3	24	20	20	20	100	40
1.1.4 T	Pharmaceutical Organic Chemistry-I	3	3	3	60	1.5	24	20	20	20	100	40
1.1.4 P	Pharmaceutical Organic Chemistry-I	3	2	4	60	3	24	20	20	20	100	40
1.1.5 T	Human Anatomy & Physiology-I	3	3	3	60	1.5	24	20	20	20	100	40
1.1.5 P	Human Anatomy & Physiology-I	3	2	4	60	3	24	20	20	20	100	40
1.1.6 T	Communication and soft skill development	3	3	3	60	1.5	24	20	20	20	100	40

Total Credits = 28

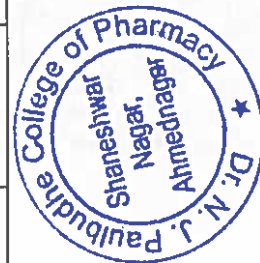


Semester-II

Class- First Yr. B. Pharmacy

Subject Code	Subject	Scheme of Teaching Hrs/Weeks	Scheme of Credit	End Semester Examination		Min for passing	Duration (Hours)	Internal Examination		Total Maximum Marks for subject	Minimum marks for passing subject
				Duration (Hours)	Maximum marks			Duration (Hours)	Maximum marks		
1.2.1 T	Pharmaceutics- II	3	3	3	60	24	1.5	20	20	100	40
1.2.1 T	Dosage form design	3	3	3	60	24	1.5	20	20	100	40
1.2.2 P	Dosage form design	3	2	4	60	24	3	20	20	100	40
1.2.3 T	Pharmaceutical Organic Chemistry-II	3	3	3	60	24	1.5	20	20	100	40
1.2.3 P	Pharmaceutical Organic Chemistry-II	3	2	4	60	24	3	20	20	100	40
1.2.4 T	Human Anatomy & Physiology-II	3	3	3	60	24	1.5	20	20	100	40
1.2.4 P	Human Anatomy & Physiology-II	3	2	4	60	24	3	20	20	100	40
1.2.5 T	Pharmacognosy	3	3	3	60	24	1.5	20	20	100	40
1.2.5 P	Pharmacognosy	3	2	4	60	24	3	20	20	100	40
1.2.6 T	Pharmaceutical Analysis I	3	3	3	60	24	1.5	20	20	100	40
1.2.6 P	Pharmaceutical Analysis I	3	2	4	60	24	3	20	20	100	40

Total Credits = 28





Semester-III

Class- Second Yr. B. Pharmacy

Subject Code	Subject	Scheme of Teaching Hrs/Weeks	Scheme of Credit	End Semester Examination		Duration (Hours)	Min for passing	Internal Examination		Total Maximum Marks for subject	Minimum marks for passing subject
				Duration (Hours)	Maximum marks			Duration (Hours)	Maximum marks		
2.3.1 T	Physical Pharmaceutics- I	3	3	3	60	1.5	24	20	20	100	40
2.3.1 P	Physical Pharmaceutics- I	3	2	4	60	3	24	20	20	100	40
2.3.2 T	Pharmaceutical Microbiology	3	3	3	60	1.5	24	20	20	100	40
2.3.2 P	Pharmaceutical Microbiology	3	2	4	60	3	24	20	20	100	40
2.3.3 T	Pharmaceutical Biochemistry	3	3	3	60	1.5	24	20	20	100	40
2.3.3 P	Pharmaceutical Biochemistry	3	2	4	60	3	24	20	20	100	40
2.3.4 T	Pharmaceutical Organic Chemistry-III	3	3	3	60	1.5	24	20	20	100	40
2.3.4 P	Pharmaceutical Organic Chemistry-III	3	2	4	60	3	24	20	20	100	40
2.3.5 T	Pharmacology-I	3	3	3	60	1.5	24	20	20	100	40
2.3.6 T	Pharmacognosy & Phytochemistry - I	3	3	3	60	1.5	24	20	20	100	40
2.3.6 P	Pharmacognosy & Phytochemistry - I	3	2	4	60	3	24	20	20	100	40

Total Credits = 28

Semester-IV

Class- Second Yr. B. Pharmacy

Subject Code	Subject	Scheme of Teaching Hrs/Weeks	Scheme of Credit	End Semester Examination		Duration (Hours)	Internal Examination		Total Maximum Marks for subject	Minimum marks for passing subject
				Duration (Hours)	Maximum marks		Min for passing	Duration (Hours)		
2.4.1 T	Physical Pharmaceutics-II	3	3	3	60	24	1.5	20	100	40
2.4.1 P	Physical Pharmaceutics-II	3	2	4	60	24	3	20	100	40
2.4.2 T	Pathophysiology & Clinical Biochemistry	3	3	3	60	24	1.5	20	100	40
2.4.2 P	Pathophysiology & Clinical Biochemistry	3	2	4	60	24	3	20	100	40
2.4.3 T	Pharmaceutical Organic Chemistry-IV	3	3	3	60	24	1.5	20	100	40
2.4.3 P	Pharmaceutical Organic Chemistry-IV	3	2	4	60	24	3	20	100	40
2.4.4 T	Pharmaceutical Analysis-II	3	3	3	60	24	1.5	20	100	40
2.4.4 P	Pharmaceutical Analysis-II	3	2	4	60	24	3	20	100	40
2.4.5 T	Pharmacognosy & Phytochemistry - II	3	3	3	60	24	1.5	20	100	40
2.4.5 P	Pharmacognosy & Phytochemistry - II	3	2	4	60	24	3	20	100	40
2.4.6 T	Pharmaceutical Engineering	3	3	3	60	24	1.5	20	100	40

Total Credits = 28



Semester-V

Class-Third Yr. B. Pharmacy

Subject Code	Subject	Scheme of Teaching Hrs/Weeks	Scheme of Credit	End Semester Examination		Internal Examination			Total Maximum Marks for subject	Minimum marks for passing subject	
				Duration (Hours)	Maximum marks	Min for passing	Duration (Hours)	Maximum marks			Continuous Assessment marks
3.5.1 T	Industrial Pharmacy-I	3	3	3	60	24	1.5	20	20	100	40
3.5.1 P	Industrial Pharmacy-I	3	2	4	60	24	3	20	20	100	40
3.5.2 T	Pharmaceutical Analysis-III	3	3	3	60	24	1.5	20	20	100	40
3.5.2 P	Pharmaceutical Analysis-III	3	2	4	60	24	3	20	20	100	40
3.5.3 T	Medicinal Chemistry-I	3	3	3	60	24	1.5	20	20	100	40
3.5.3 P	Medicinal Chemistry-I	3	2	4	60	24	3	20	20	100	40
3.5.4 T	Pharmacology-II	3	3	3	60	24	1.5	20	20	100	40
3.5.4 P	Pharmacology-II	3	2	4	60	24	3	20	20	100	40
3.5.5 T	Analytical Pharmacognosy & Extraction Technology	3	3	3	60	24	1.5	20	20	100	40
3.5.5 P	Analytical Pharmacognosy & Extraction Technology	3	2	4	60	24	3	20	20	100	40
3.5.6 T	Pharmaceutical Business Management & Disaster Management	3	3	3	60	24	1.5	20	20	100	40
3.5.7 T	Active Pharmaceutical Ingredients Technology	3	3	3	60	24	1.5	20	20	100	40

Total Credits = 31



Semester-VI

Class- Third Yr. B. Pharmacy

Subject Code	Subject	Scheme of Teaching Hrs/Weeks	Scheme of Credit	End Semester Examination		Duration (Hours)	Internal Examination		Total Maximum Marks for subject	Minimum marks for passing subject
				Duration (Hours)	Maximum marks		Min for passing	Duration (Hours)		
3.6.1 T	Industrial Pharmacy-II	3	3	3	60	24	1.5	20	100	40
3.6.1 P	Industrial Pharmacy-II	3	2	4	60	24	3	20	100	40
3.6.2 T	Pharmaceutical Analysis-IV	3	3	3	60	24	1.5	20	100	40
3.6.2 P	Pharmaceutical Analysis-IV	3	2	4	60	24	3	20	100	40
3.6.3 T	Medicinal Chemistry-II	3	3	3	60	24	1.5	20	100	40
3.6.3 P	Medicinal Chemistry-II	3	2	4	60	24	3	20	100	40
3.6.4 T	Pharmacology-III	3	3	3	60	24	1.5	20	100	40
3.6.4 P	Pharmacology-III	3	2	4	60	24	3	20	100	40
3.6.5 T	Natural Product Chemistry	3	3	3	60	24	1.5	20	100	40
3.6.5 P	Natural Product Chemistry	3	2	4	60	24	3	20	100	40
3.6.6 T	Bioorganic Chemistry & Drug Design	3	3	3	60	24	1.5	20	100	40
3.6.7 T	Pharmaceutical Biotechnology	3	3	3	60	24	1.5	20	100	40

Total Credits = 31



Semester-VII

Class- Final Yr. B. Pharmacy

Subject Code	Subject	Scheme of Teaching Hrs/Weeks	Scheme of Credit	End Semester Examination		Duration (Hours)	Internal Examination			Total Maximum Marks for subject	Minimum marks for passing subject
				Duration (Hours)	Maximum marks		Min for passing	Duration (Hours)	Maximum marks		
4.7.1 T	Sterile Products	3	3	3	60	24	1.5	20	20	100	40
4.7.1 P	Sterile Products	3	2	4	60	24	3	20	20	100	40
4.7.2 T	Pharmaceutical Analysis-V	3	3	3	60	24	1.5	20	20	100	40
4.7.2 P	Pharmaceutical Analysis-V	3	2	4	60	24	3	20	20	100	40
4.7.3 T	Medicinal Chemistry-III	3	3	3	60	24	1.5	20	20	100	40
4.7.3 P	Medicinal Chemistry-III	3	2	4	60	24	3	20	20	100	40
4.7.4 T	Pharmacology-IV	3	3	3	60	24	1.5	20	20	100	40
4.7.4 P	Pharmacology-IV	3	2	4	60	24	3	20	20	100	40
4.7.5 T	Natural Drug Technology	3	3	3	60	24	1.5	20	20	100	40
4.7.5 P	Natural Drug Technology	3	2	4	60	24	3	20	20	100	40
4.7.6 T	Bio-pharmaceutics & Pharmacokinetics	3	3	3	60	24	1.5	20	20	100	40
4.7.7 T	Pharmaceutical Jurisprudence	3	3	3	60	24	1.5	20	20	100	40

Total Credits = 31



Subject Code	Subject	Scheme of Teaching Hrs/Weeks	Scheme of Credit	End Semester Examination			Internal Examination			Total Maximum Marks for subject	Minimum marks for passing subject
				Duration (Hours)	Maximum marks	Min for passing	Duration (Hours)	Maximum marks	Continuous Assessment marks		
4.8.1 T	Advanced Drug Delivery System	3	3	3	60	24	1.5	20	20	100	40
4.8.1 P	Advanced Drug Delivery System	3	2	4	60	24	3	20	20	100	40
4.8.2 T	Cosmetic science	3	3	3	60	24	1.5	20	20	100	40
4.8.2 P	Cosmetic science	3	2	4	60	24	3	20	20	100	40
4.8.3 T	Pharmaceutical Analysis-VI	3	3	3	60	24	1.5	20	20	100	40
4.8.3 P	Pharmaceutical Analysis-VI	3	2	4	60	24	3	20	20	100	40
4.8.4 T	Medicinal Chemistry-IV	3	3	3	60	24	1.5	20	20	100	40
4.8.4 P	Medicinal Chemistry-IV	3	2	4	60	24	3	20	20	100	40
4.8.5 T	Pharmacology-V(Including Biostatistics)	3	3	3	60	24	1.5	20	20	100	40
4.8.5 P	Pharmacology-V(Including Biostatistics)	3	2	4	60	24	3	20	20	100	40
4.8.6 T	Natural Products: Commerce, Industry & Regulations	3	3	3	60	24	1.5	20	20	100	40
4.8.7 T	Quality Assurance Tech.	3	3	3	60	24	1	20	20	100	40

Total Credits = 31






सत्यमेव जयते

भारत का राजपत्र

The Gazette of India

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असाधारण
EXTRAORDINARY

भाग III—खण्ड 4
PART III—Section 4

प्राधिकार से प्रकाशित
PUBLISHED BY AUTHORITY

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NEW DELHI, FRIDAY, OCTOBER 16, 2020/ASVINA 24, 1942

भारतीय भेषजी परिषद्

अधिसूचना

नई दिल्ली, 9 अक्टूबर, 2020

फार्मैसी (भेषजी) में डिप्लोमा कोर्स के लिए शिक्षा विनियम, २०२०

भेषजी अधिनियम, १९४८ की धारा १० के तहत विनियम।

(भारत सरकार एवं स्वास्थ्य एवं परिवार कल्याण मंत्रालय के पत्रांक जेड-28020/59/2019-ए एच एस/एफ टी एस-8012809 दिनांक 7.10.2020) द्वारा अनुमोदित एवं भारतीय भेषजी परिषद् द्वारा प्रकाशित)

सं. १४-५५/२०२०- भा.भे.परि. - भेषजी अधिनियम, १९४८ (१९४८ का ८) की धारा १० द्वारा प्रदत्त शक्तियों का प्रयोग करते हुए भारतीय भेषजी परिषद् केन्द्रीय सरकार के अनुमोदन से निम्नलिखित संशोधन करती है, अर्थात:-

अध्याय - १

१. संक्षिप्त शीर्षक और प्रारंभ:-

- (१) इन विनियमों को फार्मैसी (भेषजी) में डिप्लोमा कोर्स के लिए शिक्षा विनियम, २०२० के नाम से जाना जाएगा।
- (२) ये राजपत्र में प्रकाशन की तारीख से प्रवृत्त होंगे।

२. फार्मासिस्ट के लिए योग्यता:-

फार्मैसी में डिप्लोमा (भाग-I और भाग-II) में उत्तीर्ण और फार्मैसी में डिप्लोमा (भाग-III) का संतोषजनक समापन फार्मासिस्ट के रूप में पंजीकरण के लिए आवश्यक न्यूनतम योग्यता है।



CHAPTER 1

1. Short title and commencement- (1) These regulations may be called the Education Regulations, 2020 for Diploma course in Pharmacy.

(2) They shall come into force on the date of their publication in the official Gazette.

2. Qualification for Pharmacist- The minimum qualification required for registration as a pharmacist shall be a pass in Diploma in Pharmacy (Part-I & Part-II) and satisfactory completion of Diploma in Pharmacy (Part-III).

Or

Any other qualification approved by the Pharmacy Council of India as equivalent to the above.

3. Diploma in Pharmacy (Part-I, Part-II and Part-III) shall consist of a certificate of having completed the course of study and passed the examination after satisfactory completing the practical training as prescribed in Chapter-2 and Chapter-3 of these regulations.

CHAPTER 2

4. Diploma in Pharmacy (Part-I and Part-II)-

Minimum qualification for admission to Diploma in Pharmacy-A pass in 10+2 examination (science academic stream) with Physics, Chemistry and Biology or Mathematics.

or

Any other qualification approved by the Pharmacy Council of India as equivalent to the above examination.

Provided that there shall be reservation of seats for the Scheduled Castes and the Scheduled Tribes candidates in accordance with the instructions issued by the Central Government /State Governments /Union territory administrations as the case may be from time to time.

5. Duration of the course-

(1) The duration of the course shall be for two academic years. Each academic year shall be spread over a period of not less than one hundred and eighty working days.

(2) In addition there shall be a five hundred hours of practical training spread over a period of not less than three months.

6. Course of study- The course of study for Diploma in Pharmacy Part-I and Diploma in Pharmacy Part-II shall include the subjects as given in the Tables I & II below. The number of hours devoted to each subject for its teaching in Theory and Practical, shall not be less than that noted against it in columns 2 and 3 of the Tables below. However, the course of study and practical training may be modified by the Pharmacy Council of India from time to time.

Table - I
Diploma in Pharmacy (Part - I)

Subject	Number of hours		
	Theory	Practical	Tutorial
Pharmaceutics	75	75	25
Pharmaceutical Chemistry	75	75	25
Pharmacognosy	75	75	25
Human Anatomy & Physiology	75	75	25
Social Pharmacy	75	75	25
Total	375		125



Provided that the Pharmacy Council of India shall not approve any institution under this regulation unless it provides adequate arrangements for teaching in regard to building, accommodation, equipments and teaching staff etc. as specified in Appendix-A to these regulations which may be amended by the Pharmacy Council of India from time to time.

9. Examinations-

- 1) There shall be an annual examination at the end of the academic year.
- 2) If necessary, there shall be a supplementary examination for the students who are not able to pass Diploma in Pharmacy Part-I or Part-II, as the case may be, as per the criteria specified by the examining authority.
- 3) The examinations shall be of written and practical (including viva – voce) nature, carrying maximum marks for each part of a subject, as indicated in Table IV and V below.

Table – IV
DIPLOMA IN PHARMACY (PART-I) EXAMINATION

Subject	Maximum marks for Theory			Maximum marks for Practicals		
	Examination	*Sessional	Total	Examination	*Sessional	Total
Pharmaceutics	80	20	100	80	20	100
Pharmaceutical Chemistry	80	20	100	80	20	100
Pharmacognosy	80	20	100	80	20	100
Human Anatomy & Physiology	80	20	100	80	20	100
Social Pharmacy	80	20	100	80	20	100
			500	+ 500 = 1000		

*Internal assessment

Table – V
DIPLOMA IN PHARMACY (PART-II) EXAMINATION

Subject	Maximum marks for Theory			Maximum marks for Practicals		
	Examination	*Sessional	Total	Examination	*Sessional	Total
Pharmacology	80	20	100	80	20	100
Community Pharmacy & Management	80	20	100	80	20	100
Biochemistry & Clinical Pathology	80	20	100	80	20	100
Pharmacotherapeutics	80	20	100	80	20	100



Hospital and Clinical Pharmacy	80	20	100	80	20	100
Pharmacy law & Ethics	80	20	100	-	-	-
			600	+400	+100	= 1100

*Internal assessment

10. Eligibility for appearing at the Diploma in Pharmacy Part-I and Part II examination-

Only such candidates who produce certificate from the Head of the academic institution in which he/she has undergone the Diploma in Pharmacy Part-I and Part-II course in proof of his/her having regularly and satisfactorily undergone the course of study by attending not less than 75% of the classes held both in theory and in practical separately in each subject shall be eligible for appearing at the Diploma in Pharmacy (Part-I) or (Part II) examination, as the case may be.

11. Mode of examinations-

- (1) Theory and Practical examination in the subjects mentioned in Tables – IV & V shall be of three hours duration. Both Theory and Practical are considered as two separate papers.
- (2) A candidate who fails in theory or practical examination of a subject shall re-appear for the failed subject. Theory and Practical of a particular subject are considered as individual subjects for the purpose of pass criteria.
- (3) Practical examination shall also consist of a viva- voce examination.

12. Award of sessional marks and maintenance of records-

- (1) A regular record of both theory and practical class work and examinations held in an institution imparting training for diploma in Pharmacy Part-I and diploma in Pharmacy Part-II courses, shall be maintained for each student in the institution and 20 marks for each theory and 20 marks for each practical subject shall be allotted as sessional marks.
- (2) There shall be two or more periodic sessional (internal assessment) examinations during each academic year. The highest aggregate of any two performances shall form the basis of calculating sessional marks.
- (3) The sessional marks in practicals shall be allotted on the following basis:-
 - (i) Actual performance in the sessional / spacing examination = 10 marks.
 - (ii) Day to day assessment in the practical class/spacing work = 10 marks.

13. Minimum marks for passing the examination - A student shall not be declared to have passed Diploma in Pharmacy examination unless he/she secures at least 40% marks in each of the subjects separately in the theory as well as the practical examinations, including sessional marks. The candidates securing 60% marks or above in aggregate in all subjects shall be declared to have passed in first class. The candidates securing 75% marks or above in any subject or subjects shall be declared to have passed with distinction in that subject or those subjects. The grant of first class and distinction shall be subject to the condition that the candidate shall pass all the subjects in a single attempt.

14. Eligibility for promotion to Diploma in Pharmacy (Part-II)-

All candidates who have appeared for all the subjects and passed the Diploma in Pharmacy Part-I examination are eligible for promotion to the Diploma in Pharmacy Part-II class. However failure in more than two subjects shall debar him/her from promotion to Diploma in Pharmacy Part II class.

15. Improvement of sessional marks-

The candidates who wish to improve sessional marks can do so, by appearing in two additional sessional examinations during the next academic year. The average score of the two examinations shall be the basis for improved sessional marks in theory as well as in practical. Marks and performance of a candidate for day to day assessment in the practical class cannot be improved unless he/she attends a regular course of study again.



16. Approval of examinations- The examinations mentioned in regulations 9 to 15 shall be held by an authority (hereinafter referred to as the Examining Authority) in a State, which shall be approved by the Pharmacy Council of India under sub-section (2) of section 12 of the Pharmacy Act, 1948. Such approval shall be granted only if the Examining Authority concerned fulfills the conditions as specified in Appendix-B to these regulations.

17. Certificate of passing examination for Diploma in Pharmacy (Part-II)- Certificate of having passed the examination for the Diploma in Pharmacy Part-II shall be granted by the examining authority to a successful student.

CHAPTER-3

Diploma in Pharmacy (Part-III)

(Practical Training)

18. Period and other conditions for practical training-

- (1) After having appeared in Part-II examination for the Diploma in Pharmacy held by an approved Examining Authority a candidate shall be eligible to undergo practical training in one or more of the following institutions namely:
 - (i) Hospitals/Dispensaries run by Central /State Governments.
 - (ii) A pharmacy licensed for retail sale of drugs under the Drugs and Cosmetics Rules, 1945 having the services of registered pharmacists.
 - (iii) Hospital and Dispensary other than those specified in sub-regulation (i) above for the purpose of giving practical training shall have to be recognized by Pharmacy Council of India on fulfilling the conditions specified in Appendix-C to these regulations.
- (2) The institutions referred in sub-regulation (1) shall be eligible to impart training subject to the condition that number of student pharmacists that may be taken in any hospital, dispensary or pharmacy licensed under the Drugs and Cosmetics Rules, 1945 made under the Drugs and Cosmetics Act, 1940, shall not exceed four where there is one registered pharmacist engaged in the work in which the student pharmacist is undergoing practical training, where there is more than one registered pharmacist similarly engaged, the number shall not exceed two for each additional such registered pharmacist.
- (3) In the course of practical training, the trainee shall have exposure to -
 - (i) Working knowledge of keeping of records required by various Legislative Acts concerning the profession of pharmacy; and
 - (ii) Practical experience in activities mentioned in Table III under regulation 6 of these regulations.
- (4) The practical training shall be not less than five hundred hours spread over a period of not less than three months provided that not less than two hundred and fifty hours are devoted to actual dispensing of prescriptions.

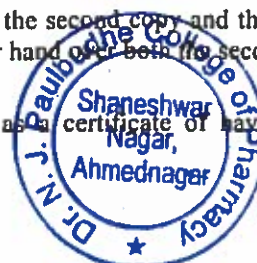
19. Procedure to be followed prior to commencement of the training-

- (1) The head of institution imparting practical training, on application, shall supply in triplicate 'Practical Training Contract Form for Pharmacist' (hereinafter referred to as the Contract Form) to the candidate eligible to undertake the said practical training. The Contract Form shall be as specified in Appendix-D to these regulations.
- (2) The head of institution imparting practical training shall fill Section I of the Contract Form. The trainee shall fill Section II of the said Contract Form and the head of the institution agreeing to impart the training (hereinafter referred to as the Apprentice Master) shall fill Section III of the said Contract form.
- (3) It shall be the responsibility of the trainee to ensure that one copy (hereinafter referred to as the first copy of the Contract Form) so filled is submitted to the head of institution imparting practical training and the other two copies (hereinafter referred to as the second copy and the third copy) shall be filed with the Apprentice Master (if he so desires) or with the trainee till completion of the training.

20. Certificate of passing Diploma in Pharmacy Part-III-

On satisfactory completion of the practical training period the Apprentice Master shall fill Section IV of the second copy and third copy of the Contract Form and forward it to the head of institution imparting practical training who shall suitably enter in the first copy of the entries from the second copy and the third copy and shall fill Section V of the three copies of Contract Form and thereafter hand over both the second copy and the third copy to the trainee.

This Contract Form, completed in all respects, shall be regarded as a certificate of having successfully completed the course of Diploma in Pharmacy (Part- III).



CHAPTER-4

21. Certificate of Diploma in Pharmacy- A certificate of Diploma in Pharmacy shall be granted by the examining authority to a successful candidate on producing certificates of having passed the Diploma in Pharmacy Part I and Part II and satisfactory completion of practical training for Diploma in Pharmacy (Part-III).

22. Repeal and Savings-

- (1) The Education Regulations, 1991 (hereinafter referred to as the said regulations) published by the Pharmacy Council of India vide No. 14-55/87(Part)-PCI/2484-2887 dt.11.7.1992 and all amendments thereto are hereby repealed.
- (2) Notwithstanding such repeal,
 - (a) Anything done or any action taken under the said regulations shall be deemed to have been done or taken under the corresponding provision of these regulations.
 - (b) A person who was admitted as a student under the said regulations to the course of training for Diploma in Pharmacy and who had not passed the examination at the commencement of these regulations shall be required to pass the examination in accordance with the provisions of the said regulations as if these regulations had not come into force:

Provided however, the Examining Authority in a particular State may fix a date after which the examinations under the said Regulations shall not be conducted.

Appendix-A

(See regulation 8)

Conditions to be fulfilled by the academic institution

Any authority in India applying to the Pharmacy Council of India for approval of courses of study for Pharmacists under sub-section (1) of section 12 of the Pharmacy Act, 1948 shall provide.

(A) ACCOMMODATION

Suitable and sufficient accommodation with adequate ventilation lighting and other hygienic conditions should be provided to the rooms for Principal /Head of the department, office, class room, library, staff, staff common room, students common room, museum, stores etc.

At least four laboratories specified below should be provided for:-

1. Pharmaceutics Lab.
2. Pharm. Chemistry Lab.
3. Physiology, Pharmacology and Pharmacognosy Lab.
4. Biochemistry, Clinical Pathology, Hospital and Clinical Pharmacy Lab.

In addition to the laboratories, balance room, aseptic room or cabinet, a machine room are also to be provided for.

Floor area of the laboratory should not be less than 30 square feet per student required to work in the laboratory at any given time subject to a minimum of 500 square feet.

Laboratories should be fitted and constructed in a manner that these can be kept reasonably clean. Gas and water fittings, shelves, fume cupboards be provided wherever necessary.

The institutions shall provide "Model Pharmacy" as per following details -

Model Pharmacy	No.	Area
Essential : Running Model Community Pharmacy	01	80 Sq. Mts. (Including 10 Sq. mt for Drug Information Centre & 10 Sq. mt. for Patient Counseling)
Desirable : Drug Model Store		



Wherever animal experimentations are prescribed in the curriculum, the required knowledge and skill should be imparted by using computer assisted modules. Animal hold area shall be as per the Committee for the Purpose of Control and Supervision of Experiments on Animals (CPCSEA) guidelines.

(B) STAFF

Principal/Director/Professor/Head of Institution /Head of the Department may be engaged in teaching upto eight hours a week, and the work load of other teaching staff should not be more than sixteen hours per week.

Staff student ratio should not exceed 1:60 in theory classes and 1:20 in practical classes. There should be two teachers for a batch of 30 students in practicals. According to the above norms, the following staff is required for an intake of 60 students:

1. Principal/Director/Professor/Head of Institution/Head of the Department	- One
2. Lecturer :	
• M.Pharm/Pharm.D	- Three
• B.Pharm with 3 years of professional experience	- Four

In addition to regular faculty, the institution can have Bachelor of Medicine and Bachelor of Surgery (M.B.B.S) faculty as visiting faculty for teaching Anatomy & Physiology and Biochemistry and Clinical Pathology.

The minimum qualification and experience of the teaching faculty including the Principal/ Director/ Professor/ Head of Institution/ Head of Department and their payscales shall be as prescribed in the Minimum Qualification for Teachers in Pharmacy Institutions Regulations, 2014.

The pay scale of teaching staff shall not be less than the scale of pay prescribed by the State Government/ University Grants Commission/ All India Council for Technical Education for similar category of posts.

Provided that the above qualifications shall not apply to the incumbents appointed under the repealed Education Regulations.

Non-Teaching Staff

List of Non-Teaching staff for the D.Pharm course:

1.	Laboratory Technician (Qualification-Diploma in Pharmacy)	2
2.	Laboratory Attendent	4
3.	Office Superintendent	1
4.	Clerk-cum-Accountant	1
5.	Store-Keeper	1
6.	Typist	1
7.	Asstt. Librarian	1
8.	Peons	2
9.	Cleaners/Sweepers	4
10.	Gardener	1

Museum

Every institution shall maintain a museum of crude drugs, herbarium sheets, botanical specimens of the drugs and plants mentioned in the course. In addition, the following are recommended:-

1. Coloured slides of medicinal plants:
2. Display of popular patent medicines; and
3. Containers of common usage in medicines.



Library

Every institution shall maintain a library which should contain books mentioned in the syllabus and also the current pharmaceutical journals. There should be adequate place in the library for students and staff to refer books.

NOTE: The above requirements are the minimum requirements and the Institution is free to provide more-physical and teaching facility.

Equipments

The list of equipments & apparatus shall be as may be decided by the Pharmacy Council of India from time to time.

Appendix-B

(See regulation 16)

Conditions to be fulfilled by the Examining Authority

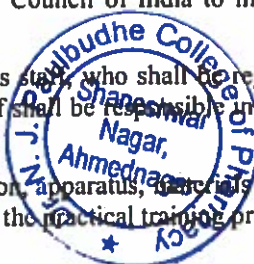
1. The Examining Authority shall be either a statutory Indian University or a body constituted by the Central or State Government. It shall ensure that discipline and decorum of the examinations are strictly observed at the examination centers.
2. It shall permit the Inspector or Inspectors of the Pharmacy Council of India to visit and inspect the examinations.
3. It shall provide:-
 - (a) adequate rooms with necessary furniture for holding written examinations;
 - (b) well-equipped laboratories for holding practical examinations;
 - (c) an adequate number of qualified and responsible examiners and staff to conduct and invigilate the examination; and
 - (d) such other facilities as may be necessary for efficient and proper conduct of examinations.
4. It shall, if so required by a candidate, furnish the statement of marks secured by a candidate in the examinations after payment of prescribed fee, if any, to the Examining Authority.
5. It shall appoint examiners whose qualifications should be similar to those of the teachers in the respective subjects as shown in Appendix-A.
6. In pursuance of sub-section (3) of section 12 of the Pharmacy Act, 1948, the Examining Authority shall communicate to the Secretary, Pharmacy Council of India not less than six weeks in advance the dates fixed for examinations, the time-table for such examinations, so as to enable the Council to arrange for inspection of the examinations.
7. The Chairman and at least one expert member of Examining Committee of the Examining Authority concerned with appointment of examiners and conduct of pharmacy examinations should be persons possessing pharmacy qualifications.

Appendix-C

[See regulations 18 (1)(iii)]

Conditions to be fulfilled by the institution to be recognised for giving practical training

1. The Institution, where practical training is given to student pharmacists, shall from time to time, if required, furnish such information as may be needed by the Pharmacy Council of India about the staff, accommodation and equipment of the Institution concerned and its working.
2. The Institution shall permit the Inspectors of the Pharmacy Council of India to inspect the premises at any reasonable time while the work is proceeding therein.
3. The Institution shall entrust some member or members of its staff, who shall be registered pharmacist (s), to look after the student pharmacists. Such members of the staff shall be responsible in this behalf to the Head of the Institution concerned.
4. The Institution shall provide such opportunity, accommodation, apparatus, materials and books of reference as may be required to enable the student pharmacists to undergo the practical training properly.



5. The number of student pharmacists that may be taken in any hospital, pharmacy and chemist and druggist licensed under the Drugs and Cosmetics Rules, 1945 made under the Drug and Cosmetics Act, 1940 shall not exceed four where there is one registered pharmacist engaged in the work in which the student pharmacist is undergoing practical training; where there is more than one registered pharmacist similarly engaged, the number shall not exceed two for each additional such registered pharmacist.
6. The Institution wishing to be recognised under regulation 18 shall apply in writing to the Secretary, Pharmacy Council of India stating its desire, to be so recognised.
7. Having satisfied that the institution shall follow the conditions laid down in these rules, the Pharmacy Council of India shall grant such recognition.
8. In the event of any question arising as to the interpretation or observance of these conditions the decision of the Pharmacy Council of India shall be final.

Appendix-D

[See regulations 19(1)]

Practical training contract form for pharmacists

SECTION I

This form has been issued to _____

(Name of student pharmacist)

son of /daughter of _____ residing at _____ who has produced evidence before me that he/she is entitled to receive the Practical Training as set out in the Education Regulations, 2020 made under section 10 of the Pharmacy Act, 1948.

Date:

**The Head of Institution imparting
practical training**

SECTION II

I _____ accept

(Name of the Student Pharmacist)

_____ of _____

(Name of the Apprentice Master)

(Name of the Institution)

(Hospital or Pharmacy)

as my Apprentice Master for the above training and agree to obey and respect him /her during the entire period of my training.

(Student Pharmacist)



SECTION III

I, _____ accept

(Name of the Apprentice Master)

_____ as a

(Name of the student pharmacist)

trainee and I agree to give him /her training facilities in my organisation so that during his /her training he /she may acquire:

1. Working knowledge of keeping of records required by the various Acts affecting the profession of pharmacy; and
2. Practical experience in -
 - 1) Stocking of Drugs and Medical Devices
 - 2) Inventory control procedures
 - 3) Handling of prescriptions
 - 4) Dispensing
 - 5) Patient counseling

I also agree that a Registered Pharmacist shall be assigned for his /her guidance.

(Apprentice Master)

(Name & address of the Institution)

SECTION IV

I certify that _____ had

(Name of student pharmacists)

has undergone _____ hours training spread over _____ months in

accordance with the details enumerated in SECTION III.

(The Head of Institution imparting practical training)



SECTION V

I certify that _____ has

(Name of student pharmacists)

completed in all respect his practical training under regulation 18 of the Education Regulations, 2020 made under section 10 of the Pharmacy Act, 1948. He had his practical training in an Institution approved by the Pharmacy Council of India.

Date:

(Head of the Academic Institution)

ARCHNA MUDGAL, Registrar-cum-Secy.

[ADVT.-III/4/Exty./298/2020-21]



Table – II
Diploma in Pharmacy (Part II)

Subject	Number of hours		
	Theory	Practical	Tutorial
Pharmacology	75	50	25
Community Pharmacy & Management	75	75	25
Biochemistry & Clinical Pathology	75	50	25
Pharmacotherapeutics	75	25	25
Hospital & Clinical Pharmacy	75	25	25
Pharmacy Law & Ethics	75	--	25
Total	450	225	150

TABLE III
Diploma in Pharmacy (Part III)
Practical Training – 500 hours

Activities

- 1) Stocking of Drugs and Medical Devices
- 2) Inventory Control Procedures
- 3) Handling of prescriptions
- 4) Dispensing (250 hours)
- 5) Patient counseling

7. Syllabus- The syllabus for each subject of study shall be as prescribed by the Pharmacy Council of India from time to time.

8. Approval of the authority conducting the course of study-

- (1) No authority in a State shall start or conduct Diploma in Pharmacy course of study without the prior approval of the Pharmacy Council of India.
- (2) The course of regular academic study prescribed under regulation 6 shall be conducted in an institution, approved by the Pharmacy Council of India under sub-section 12 of Section 12 of the Pharmacy Act, 1948.





Seva Shikshan Prasarak Mandal's

Dr. N. J. Paulbudhe College of Pharmacy

Shaneshwar Nagar, Vasant Tekadi, Savedi, Ahmednagar, Pin: 414003



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**DEPARTMENT WISE
WORKLOAD FOR
ACADEMIC YEAR 2021-22**



Approved By: P. C. I, New Delhi, Ref No: F.No.02.297/2018-PCI, AICTE: F.No. Western/2017-1-3359523301,
Affiliated to Savitribai Phule Pune University – Ref. No. PU/AN/PHARM/145/2017





Outword No. : SSPM/DRNJCP/2021-22/15

Date : 10/8/2021

Department wise workload for Academic year 2021-22

Odd Semesters (Sem I, III, V, VII)

1) Department of Pharmaceutics-

Sr. No.	Name of Subject	Class	Theory	Practical	Total
1	Pharmaceutics-I	F.Y. B. pharm Sem I	3+1	4×5	24
2	Physical Pharmaceutical-I	S.Y. B. pharm III	3+1	4×6	28
3	Pharmaceutical Microbiology	S.Y. B pharm sem III	3+1	4×6	28
4	Pharmaceutical Engineering	S.Y. B. pharm sem III	3+1	4×6	28
5	Industrial(formulative)Pharmacy I	T. Y. B pharm sem V	3+1	4×6	28
6	Industrial Pharmacy I	Final year sem VII	3+1	----	04
7	Novel Drug Delivery system	Final year semVII	3+1	----	04

2) Department of Pharmaceutical Chemistry-

Sr. No.	Name of Subject	Class	Theory	Practical	Total
1	Pharmaceutical Analysis I	F.Y. B. pharm Sem I	3+1	4×5	24
2	Pharmaceutical Inorganic Chemistry	F.Y. B. pharm Sem I	3+1	4×5	24



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3	Pharmaceutical Organic Chemistry II	S.Y. B pharm sem III	3+1	4×6	28
4	Medicinal Chemistry II	T. Y. B. pharm sem V	3+1	---	04
5	Instrumental methods of Analysis	Final year B pharm sem VII	3+1	4×6	28
6	Practice School	Final year sem VII	---	3×3	09

3) Department of pharmacology-

Sr. No.	Name of Subject	Class	Theory	Practical	Total
1	Human Anatomy and Physiology I	F.Y. B. pharm Sem I	3+1	4×5	24
2	Pharmacology II	T. Y. B. pharm sem V	3+1	4×6	28
3	Pharmaceutical Microbiology	S.Y. B pharm sem III	3+1	4×6	28

4) Department of pharmacognosy-

Sr. No.	Name of Subject	Class	Theory	Practical	Total
1	Pharmacognosy and phytochemistry II	T.Y. B. pharm Sem V	3+1	4×6	28

5) Miscellaneous

Sr. No.	Name of Subject	Class	Theory	Practical	Total
1	Communication skill	F. Y. B. pharm Sem I	2	2×5	12



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2	Remedial Biology	F. Y. B. pharm Sem I	2	2×5	12
3	Remedial Mathematics	F. Y. B. pharm Sem I	2	2×5	12
4	Pharmaceutical Jurisprudence	T. Y. B. pharm Sem V	4	---	04

Department wise Workload for Academic year 2022-23
Even Semesters (II, IV, VI, VIII)

1) Department of Pharmaceutics-

Sr. No.	Name of Subject	Class	Theory	Practical	Total
1	Physical Pharmaceutical-II	S.Y. B. pharm Sem IV	3+1	4×5	24
2	Biopharmaceutics and pharmacokinetics	T. Y. B. pharm Sem VI	3+1		04

1) Department of Pharmaceutical Chemistry-

Sr. No.	Name of Subject	Class	Theory	Practical	Total
1	Pharmaceutical Organic Chemistry I	F.Y. B. pharm Sem I	3+1	4×5	24
2	Biochemistry	F.Y. B. pharm Sem II	3+1	4×5	24
3	Pharmaceutical Organic Chemistry III	S.Y. B pharm sem IV	3+1	---	04
4	Medicinal Chemistry III	T. Y. B. pharm sem VI	3+1	4×6	28
5	Quality Assurance	T. Y. B. pharm sem VI	3+1	---	04

1) Department of pharmacology-

Sr.	Name of Subject	Class	Theory	Practical	Total
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No.					
1	Human Anatomy and Physiology II	F.Y. B. pharm Sem I	3+1	4×5	24
2	Pathophysiology	F.Y. B. pharm Sem I	3+1	---	04
3	Pharmacology I	S.Y. B pharm semIV	3+1	4×6	28
4	Pharmacology III	T.Y. B. pharm sem VI	3+1	----	04
5	Social and preventive Pharmacy	Final year sem VIII	3+1	---	04
6	Pharmacovigilance	Final year sem VIII	3+1	----	04

1) Department of pharmacognosy-

Sr. No.	Name of Subject	Class	Theory	Practical	Total
1	Pharmacognosy and phytochemistry I	S.Y. B. pharm Sem IV	3+1	4×6	28
2	Herbal Drug technology	T.Y. B. Pharm sem VI	3+1	4×6	28
3	Pharmaceutical Biotechnology	T.Y. B. Pharm sem V	3+1	----	04

1) Miscellaneous

Sr. No.	Name of Subject	Class	Theory	Practical	Total
1	Computer Applications	F. Y. B. pharm Sem II	2	2×5	12
2	Environmental Sciences	F. Y. B. pharm Sem II	2	2×5	12



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Seva Shikshan Prasarak Mandal's



Dr. N. J. Paulbudhe College of Pharmacy

Shaneshwar Nagar, Vasant Tekadi, Savedi, Ahmednagar, Pin: 414003

Mobile. No: 7774036749, Ph. No: (0241) 2423640 | E-mail: bpharmacydnjp@gmail.com | www.bpharmacy.sspmonline.org | DTE Code: 5451 | AISHE Code C-59365 | PCI 2002

**SPPU ACADEMIC
CALENDAR**



Approved By: P. C. I, New Delhi, Ref No: F.No.02.297/2018-PCI, AICTE: F.No. Western/2017-1-3359523301,
Affiliated to Savitribai Phule Pune University – Ref. No. PU/AN/PHARM/145/2017

Savitribai Phule Pune University
(Formerly University of Pune)



Circular No. 302 of 2022
Important Notification

Revised Dates of Commencement and Conclusion of terms of U.G. / P.G. Courses for the Academic Year 2022-23 for Affiliated Colleges / Recognised Institutes.

In reference to the earlier circular issued by the University bearing no. 173 dated 10.06.2022 the dates of commencement and conclusion of First Term and Second Term in the academic calendar for the academic year 2022-23, for the following courses are being revised as under.

Sr No	Name of the Courses , Faculties & Year	2022 - 2023			
		First Term		Second Term	
		Commencement	Conclusion	Commencement	Conclusion
1	Science & Technology				
	Science	20/06/2022	30/11/2022	26/12/2022	04/05/2023
	B.Engineering : II	17/08/2022	10/12/2022	02/01/2023	29/04/2023
	B.Engineering : III IV	18/07/2022	30/11/2022	02/01/2023	29/04/2023
	M.Engineering : II	18/07/2022	12/11/2022	09/01/2023	06/05/2023
	B.Architecture : II	08/08/2022	04/12/2022	19/12/2022	04/05/2023
	B.Architecture : III IV V	20/06/2022	08/11/2022	30/12/2022	15/05/2023
	M.Architecture:II	19/09/2022	07/01/2023	23/01/2023	20/05/2023
	B. Pharmacy: II III	01/08/2022	10/12/2022	02/01/2023	10/05/2023
	B. Pharmacy: IV	15/07/2022	03/12/2022	02/01/2023	10/05/2023
M. Pharmacy : II	01/08/2022	10/12/2022	26/12/2022	30/06/2023	
2	Commerce & Management				
	Commerce	20/06/2022	30/11/2022	26/12/2022	04/05/2023
	MBA II (Including SIP project of 8	01/09/2022	30/01/2023	15/02/2023	26/05/2023
	MCA II	01/09/2022	16/12/2022	02/01/2023	15/04/2023
BHMCT II III IV	01/09/2022	16/12/2022	02/01/2023	15/04/2023	
3	Humanities				
	Arts	20/06/2022	30/11/2022	26/12/2022	04/05/2023
	Mental Moral and Social Sciences				
	L.L.B. II	31/10/2022	31/01/2023	06/02/2023	15/05/2023
	L.L.B. III	04/07/2022	12/12/2022	08/01/2023	15/05/2023
	B.A. L.L.B. II	31/10/2022	31/01/2023	06/02/2023	15/05/2023
B.A. L.L.B. III IV V	04/07/2022	12/12/2022	08/01/2023	15/05/2023	
4	Inter disciplinary Studies				
	Education : II	15/09/2022	06/01/2023	17/01/2023	10/05/2023
	Physical Education : II	15/09/2022	06/01/2023	17/01/2023	10/05/2023
	B.Lib & M.Lib	15/07/2022	30/11/2022	02/01/2023	04/05/2023
	Fine Arts & Performing Art	20/06/2022	30/11/2022	26/12/2022	04/05/2023
	Journalism PG	15/07/2022	30/11/2022	02/01/2023	04/05/2023




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Dr. N. J. Paulbudhe College of Pharmacy
Ahmednagar-414003

NOTE :

1. The dates of commencement and conclusion of the University concerned Department / Affiliated Colleges / Recognised Institutes for the Academic year of all those courses whose admission was made under Common Entrance Test (CET) conducted by Government of Maharashtra / Savitribai Phule Pune University will be declared separately.

Ganeshkhind, Pune-07
Ref. No. PGS/4929
Date: 15/10/2022


Deputy Registrar
(P.G.Admission)

Copy to: for Information and necessary action

- The Deans of Faculties.
- The Registrar, Savitribai Phule Pune University, Pune.
- The Director, Examinations & Evaluation, Savitribai Phule Pune University, Pune.
- The Heads of all University Departments.
- The Principals of all Affiliated Colleges.
- The Directors of all Recognized Institutes.
- The Heads of all the Administrative Sections of the University Office.
- Asstt. Registrar, office of the Hon. Vice-Chancellor, Savitribai Phule Pune University
- Asstt. Registrar, office of the Hon. Pro-Vice-Chancellor, Savitribai Phule Pune University




PRINCIPAL
Dr. N. J. Paulbudhe College of Pharmacy
Shaneshwarnagar, Ahmednagar-414003

Savitribai Phule Pune University
(Formerly University of Pune)



Circular No. 134 of 2021

Important Notification

Dates of Commencement and Conclusion of terms of U.G. / P.G. Courses for the Academic Year 2021-22 For affiliated Colleges/recognised Institutes.

It is hereby informed that, the dates of Commencement and conclusion of terms of U.G. / P.G. Courses for the Academic Year 2021-2022, under various faculties shall be as under :

The date of Commencement and Conclusion of the academic session of the first year of all those courses whose admission was made/ will be made under Common Entrance Examination (CET) conducted by the Government/SPPU will be announced seperatly.

Sr. No.	Name of the Faculty	Name of the Courses	Year	2021 - 2022			
				First Term		Second Term	
				Commencement	Conclusion	Commencement	Conclusion
1	Science & Technology	Science	I, III	15/06/2021	20/10/2021	15/11/2021	30/04/2022
			II	01/07/2021	20/10/2021	15/11/2021	30/04/2022
		Engineering	TE, BE	15/06/2021	20/10/2021	15/11/2021	30/04/2022
			SE	20/08/2021	12/11/2021	03/01/2022	15/05/2022
		ME, MCA	II	20/08/2021	12/11/2021	03/01/2022	15/05/2022
		B.Architecture	III, IV & V	15/06/2021	20/10/2021	15/11/2021	30/04/2022
			II	20/08/2021	12/11/2021	03/01/2022	15/05/2022
		M. Architecture	II	20/08/2021	12/11/2021	03/01/2022	15/05/2022
		B. Pharmacy	III & IV	15/06/2021	20/10/2021	15/11/2021	30/04/2022
			II	20/08/2021	12/11/2021	03/01/2022	15/05/2022
M. Pharmacy	II	20/08/2021	12/11/2021	03/01/2022	15/05/2022		
2	Commerce & Management	Commerce	I, III	15/06/2021	20/10/2021	15/11/2021	30/04/2022
			II	01/07/2021	20/10/2021	15/11/2021	30/04/2022
		Management	II	15/11/2021	03/03/2022	11/03/2022	30/06/2022



Handwritten Signature
PRINCIPAL
Dr. N. J. Paulbudhe College of Pharmacy
Shaneshwarnagar, Ahmednagar-414003

Sr. No.	Name of the Faculty	Name of the Courses	Year	2021 - 2022			
				First Term		Second Term	
				Commencement	Conclusion	Commencement	Conclusion
3	Humanities	Arts & Fine Arts	I, III	15/06/2021	20/10/2021	15/11/2021	30/04/2022
			II	01/07/2021	20/10/2021	15/11/2021	30/04/2022
		Mental, Moral and Social Sciences	I, III	15/06/2021	20/10/2021	15/11/2021	30/04/2022
			II	01/07/2021	20/10/2021	15/11/2021	30/04/2022
		Law : UG & PG	III, IV & V	01/07/2021	11/12/2021	01/01/2022	20/05/2022
		B.A. LL.B. 5 Yrs	II	11/10/2021	31/01/2022	05/2/2022	31/05/2022
		LL.B. 3 Years	II	11/10/2021	31/01/2022	05/2/2022	31/05/2022
4	Inter-disciplinary Studies	Education (B.Ed.)	II	15/09/2021	06/01/2022	17/01/2022	10/05/2022
		Education (M.Ed.)	II	15/09/2021	06/01/2022	17/01/2022	10/05/2022
		Physical Education (B.P.Ed.)	II	15/09/2021	06/01/2022	17/01/2022	10/05/2022
		Physical Education (M.P.Ed.)	II	15/09/2021	06/01/2022	17/01/2022	10/05/2022

NOTE

1. In view of prevailing COVID-19 situation in the Country, Colleges / Institutes shall required to follow the guidelines / instructions issued by the Government of Maharashtra time to time.
2. In case the Principal of the Affiliated Colleges require to give additional holiday in exceptional circumstances, he may do by the compensative the same by keeping the college working on Sunday.
3. The college are required to complete the theory and practical remaining syllabus of current term of academic year 2020-21.

Uttam R. Chavan
Uttam R. Chavan
Deputy Registrar
(P.G.Admission)

Ganeshkhind, Pune-07
Ref. No. PGS/ 1961
Date: 14/05/2021

Copy to:

The Heads of all University Departments, Savitribai Phule Pune University, Pune.
The Principals of all Affiliated Colleges, Savitribai Phule Pune University, Pune.
The Directors of all Recognized Institutes, Savitribai Phule Pune University, Pune.

Copy to: for information

The Members of the Management Council , Savitribai Phule Pune University, Pune.
The Registrar, Savitribai Phule Pune University, Pune.
The Deans of Faculties, Savitribai Phule Pune University, Pune.
The Director, Examinations & Evaluation, Savitribai Phule Pune University, Pune.

God
PRINCIPAL

Dr. N. J. Paulbudhe College of Pharmacy
Shaneshwarnagar, Ahmednagar-414003



Savitribai Phule Pune University
(Formerly University of Pune)



Circular No. 284 of 2020

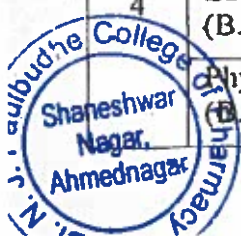
Important Notification

**Dates of Commencement and Conclusion of Ist & IInd terms for the Academic Year 2020-2021
For affiliated Colleges/recognised Institutes Only.**

It is hereby informed that, the dates of Commencement and conclusion of the Ist and IInd term of for the Academic Year 2020-2021 University Courses, under various faculties shall be as under :

Dates of Commencement and conclusion of First Year of academic session 2020-21 will be declared later.

Sr. No.	Name of the Courses and Faculties	2020-2021			
		First Term		Second Term	
		Commencement	Conclusion	Commencement	Conclusion
1	Science & Technology				
	Science	15/06/2020	05/12/2020	01/01/2021	15/05/2021
	Engineering : SE,TE,BE	15/06/2020	05/12/2020	01/01/2021	15/05/2021
	Engineering :ME - II Year. MCA- II & III Year	01/07/2020	24/12/2020	19/01/2021	31/05/2021
	B.Architecture II, III, IV & V Year.	15/06/2020	05/12/2020	01/01/2021	15/05/2021
	M. Architecture II Year.	01/07/2020	24/12/2020	19/01/2021	31/05/2021
	B. Pharmacy	15/06/2020	05/12/2020	01/01/2021	15/05/2021
	M. Pharmacy	01/07/2020	24/12/2020	19/01/2021	31/05/2021
2	Commerce & Management				
	Commerce	15/06/2020	05/12/2020	01/01/2021	15/05/2021
	Management	01/07/2020	24/12/2020	19/01/2021	31/05/2021
3	Humanities				
	Arts & Fine Arts	15/06/2020	05/12/2020	01/01/2021	15/05/2021
	Mental Moral and Social Sciences				
Law : UG & PG (II/III/IV/V Year.)	01/07/2020	24/12/2020	19/01/2021	31/05/2021	
4	Inter-disciplinary Studies				
	Education II Year. (B.Ed., M.Ed.)	01/07/2020	24/12/2020	19/01/2021	31/05/2021
	Physical Education II Year. (B.P.Ed., M.P.Ed.)	01/07/2020	24/12/2020	19/01/2021	31/05/2021



PRINCIPAL
Dr. N. J. Paulbudhe College of Pharmacy
Ahmednagar, Ahmednagar-414003

NOTE

1. In view of prevailing COVID-19 situation in the Country, Colleges / Institutes shall required to follow the guidelines / instructions issued by the Government of Maharashtra time to time.
2. In case, the Principal of the affiliated Colleges require to give additional holiday in exceptional circumstances, he may do by the compensating the same by keeping the College working on Sunday.
3. The Term & holidays for the Post-Graduate courses conducted in the Colleges/Institutes will be as per the University Department.


Deputy Registrar
(P.G.Admission)

Ganeshkhind, Pune-07
Ref. No. PGS/ 1817
Date: 15/10/2020

Copy to: for Information and necessary action

- The Members of the Management Council.
- The Deans of Faculties.
- The Registrar, Savitribai Phule Pune University, Pune.
- The Director, Examinations & Evaluation, Savitribai Phule Pune University, Pune.
- The Heads of all University Departments.
- The Principals of all Affiliated Colleges.
- The Directors of all Recognized Institutes.
- The Heads of all the Administrative Sections of the University Office.
- Asstt. Registrar, office of the Hon. Vice-Chancellor, Savitribai Phule Pune University
- Asstt. Registrar, office of the Hon. Pro-Vice-Chancellor, Savitribai Phule Pune University



Savitribai Phule Pune University
(Formerly University of Pune)



Circular No. 77 of 2019

**Dates of Commencement and Conclusion of terms for the Academic Year 2019-2020
For affiliated Colleges/recognised Institutes Only.**

It is hereby informed that, the dates of commencement and conclusion of the First and Second term of University Courses, under various faculties, for the academic year 2019-2020 shall be as under :

Sr. No.	Name of the Courses and Faculties	2019-2020			
		First Term		Second Term	
		Commencement	Conclusion	Commencement	Conclusion
1	Science & Technology				
	Science	15/06/2019	24/10/2019	20/11/2019	30/04/2020
	Engineering : SE,TE,BE & MCA- II, & III Year	15/06/2019	05/11/2019	16/12/2019	27/04/2020
	Engineering :ME - II Year.	01/07/2019	09/11/2019	13/01/2020	23/05/2020
	B.Architecture II, III, IV & V Year.	15/06/2019	16/10/2019	09/12/2019	04/04/2020
	M. Architecture II Year.	08/07/2019	02/11/2019	09/12/2019	04/04/2020
	B. Pharmacy	15/06/2019	24/10/2019	20/11/2019	30/04/2020
	M. Pharmacy	01/07/2019	07/12/2019	01/01/2020	15/05/2020
2	Commerce & Management				
	Commerce	15/06/2019	24/10/2019	20/11/2019	30/04/2020
	Management	01/07/2019	07/12/2019	01/01/2020	15/05/2020
3	Humanities				
	Arts & Fine Arts	15/06/2019	24/10/2019	20/11/2019	30/04/2020
	Mental Moral and Social Sciences				
Law : UG & PG (II/III/IV/V Year.)	01/07/2019	07/12/2019	17/01/2020	31/05/2020	
4	Inter-disciplinary Studies				
	Education II Year. (B.Ed., M.Ed.)	01/07/2019	07/12/2019	01/01/2020	15/05/2020
	Physical Education II Year. (B.P.Ed., M.P.Ed.)	01/07/2019	07/12/2019	01/01/2020	15/05/2020

Teaching will begin on the date of commencement of the terms and immediately after the finalization of admissions; however, term would stand concluded on the dates mentioned above.



PRINCIPAL

Dr. N. J. Paulbudhe College of Pharmacy
Shaneshwarnagar, Ahmednagar-414003

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27/11/2019

Savitribai Phule Pune University
(Formerly University of Pune)



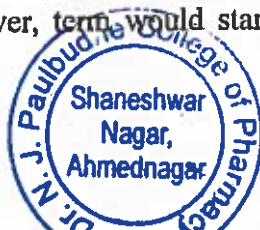
Circular No. 67 of 2018

**Dates of Commencement and Conclusion of terms for the Academic Year 2018-2019
For Affiliated Colleges Only.**

It is hereby informed that, the dates of commencement and conclusion of the First and Second term of University Courses, under various faculties, for the academic year 2018-2019 shall be as under :

Sr. No.	Name of the Courses and Faculties	2018-19			
		First Term		Second Term	
		Commencement	Conclusion	Commencement	Conclusion
1	Science & Technology				
	Science	15/06/2018	03/11/2018	29/11/2018	30/04/2019
	Engineering : SE,TE,BE & MCA- II, & III Year	15/06/2018	03/11/2018	17/12/2018	25/04/2019
	Engineering :ME - II Year.	02/07/2018	03/11/2018	15/01/2019	20/05/2019
	B.Architecture II, III, IV & V Year.	15/06/2018	03/11/2018	29/11/2018	30/04/2019
	M. Architecture II Year.	02/07/2018	03/11/2018	17/12/2018	30/04/2019
	B. Pharmacy	15/06/2018	03/11/2018	29/11/2018	30/04/2019
M. Pharmacy	02/07/2018	03/11/2018	29/11/2018	15/05/2019	
2	Commerce & Management				
	Commerce	15/06/2018	03/11/2018	29/11/2018	30/04/2019
	Management	02/07/2018	03/11/2018	29/11/2018	15/05/2019
3	Humanities				
	Arts & Fine Arts	15/06/2018	03/11/2018	29/11/2018	30/04/2019
	Mental Moral and Social Sciences				
Law : UG & PG (II/III/IV/V Year.)	15/06/2018	03/11/2018	29/11/2018	30/04/2019	
4	Inter-disciplinary Studies				
	Education II Year.	02/07/2018	03/11/2018	29/11/2018	15/05/2019
	Physical Education II Year.				

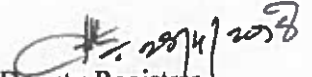
Teaching will begin on the date of commencement of the terms and immediately after the finalization of admissions; however, term would stand concluded on the dates mentioned above.



PRINCIPAL
Dr. N. J. Paulbudhe College of Pharmacy
Shaneshwarnagar, Ahmednagar-414003

NOTE

1. In case, the Principal of the Affiliated Colleges require to give additional holiday in exceptional circumstances, he/she may do so by compensating the same by keeping the College working on Sunday.
2. The Term & holidays for the Post-graduate courses conducted in the Colleges/Institutes will be as per the University Department.
3. Details of Various Activities for Engineering and Architecture Courses for the Academic Year 2018-19 attached Separately.



Deputy Registrar
(P.G.Admission)

Ganeshkhind, Pune-07
Ref. No. PGS/ 1333
Date: 23/04/2018

Copy to: for Information and necessary action

The Members of the Management Council.
The Deans of Faculties.
The Registrar, Savitribai Phule Pune University, Pune.
The Director, Examinations & Evaluation, Savitribai Phule Pune University, Pune.
The Heads of all University Departments.
The Principals of all Affiliated Colleges.
The Directors of all Recognized Institutes.
The Heads of all the Administrative Sections of the University Office.
Asstt. Registrar, office of the Hon. Vice-Chancellor, Savitribai Phule Pune University
Asstt. Registrar, office of the Hon. Pro-Vice-Chancellor, Savitribai Phule Pune University




PRINCIPAL
Dr. N. J. Paulbudhe College of Pharmacy
Shaneshwarnagar, Ahmednagar-414003

Savitribai Phule Pune University
(Formerly University of Pune)



Circular No. 79 of 2017

Dates of Commencement and Conclusion of terms for the Academic Year 2017-2018

For Affiliated Colleges Only.

It is hereby informed that, the dates of commencement and conclusion of the first and second term of University Courses, under various faculties, for the academic year 2017-2018 shall be as under :

Sr. No.	Name of the Courses	2017-18			
		First Term		Second Term	
		Commencement	Conclusion	Commencement	Conclusion
1	Arts & Fine Arts	15/06/2017	18/10/2017	13/11/2017	30/04/2018
	Mental, Moral and Social Sciences				
2	Science	15/06/2017	18/10/2017	13/11/2017	30/04/2018
	Engineering : SE, TE, BE & MCA- II, & III Year	15/06/2017	18/10/2017	18/12/2017	23/04/2018
	Engineering :ME - II Year.	01/07/2017	28/10/2017	15/01/2018	19/05/2018
	B. Architecture II, III, IV & V Year.	05/06/2017	23/09/2017	04/12/2017	24/03/2018
	M. Architecture II Year.	10/07/2017	04/11/2017	26/12/2017	13/04/2018
	B. Pharmacy	19/06/2017	30/11/2017	21/12/2017	04/05/2018
	M. Pharmacy	17/07/2017	09/12/2017	11/01/2018	30/05/2018
3	Commerce	15/06/2017	18/10/2017	13/11/2017	30/04/2018
	Management	01/07/2017	09/12/2017	26/12/2017	05/05/2018
4	Law : UG & PG (II/III/IV/V Year.)	15/06/2017	18/10/2017	13/11/2017	30/04/2018
	Education II Year.	01/07/2017	28/10/2017	23/11/2017	15/05/2018
	Physical Education II Year.				

Teaching will begin on the date of commencement of the terms and immediately after the finalization of admissions; however, term would stand concluded on the dates mentioned above.




PRINCIPAL
 Dr. N. J. Paulbudhe College of Pharmacy
 Shaneshwarnagar, Ahmednagar-414003

Seva Shikshan Prasarak Mandal's



Dr. N. J. Paulbudhe College of Pharmacy

Shaneshwar Nagar, Vasant Tekadi, Savedi, Ahmednagar, Pin: 414003



Mobile. No: 7774036749, Ph. No: (0241) 2423640 | E – mail: bpharmacydnjp@gmail.com | www.bpharmacy.sspmonline.org | DTE Code: 5451 | AISHE Code C-59365 | PCI 200

INSTITUTE ACADEMIC CALENDAR



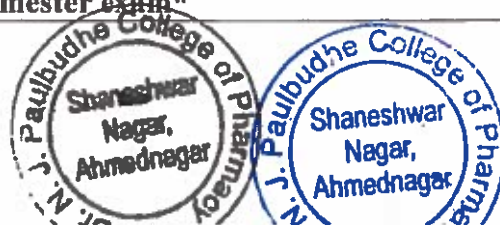
Approved By: P. C. I, New Delhi, RefNo: F.No.02.297/2018-PCI, AICTE: F.No. Western/2017-1-3359523301,
Affiliated to Savitribai Phule Pune University – Ref. No. PU/AN/PHARM/145/2017

SEVA SHIKSHAN PRASARAK MANADL'S,
DR. N. J. Paulbudhe College of Pharmacy, Ahmednagar

Academic calendar (AY: 2022-23)
 First Term schedule from 15/07/2022 to 10/12/2022

DATES	EVENTS
	JULY 2022
15/07/2022	Commencement of Academic Year: 2022-23
23/07/2022	Lokmanya Balgangadhar Tilak Jayanti
	AUGUST 2022
01/08/2022	Commencement of first term of SY/TY/Final yr B.Pharm : 3 rd /5 th /7 th sem
01/08/2022	Lokmanya Balgangadhar Tilak Jayanti & Sahityaratna Annabhau Sathe Jayanti
09/08/2022	Krantidin
15/08/2022	Independence Day flag hosting-activity
31/08/2022	Ganesh Chaturthi
	SEPTEMBER 2022
05/09/2022	Teacher's day celebration-activity
07/09/2022	Raje Umaji Naik Jayanti
06 to 19/09/2022*	First sessional exam. (TH/PR): - B.Pharm SY/TY/4 th yr: 3 rd /5 th /7 th sem
23/09/2022	Karmaveer Bhaurao Patil Jayanti
25/09/2022	World's Pharmacist Day/Week
25/09/2022	Pandit Deendayal Upadhyay Jayanti
	OCTOBER 2022
02/10/2022	Mahatma Gandhi Jayanti & Lal Bahadur Shastri Jayanti
10 to 20/10/2022*	Second sessional exam. (TH/PR): - B.Pharm SY/TY/4 th yr: 3 rd /5 th /7 th sem
15/10/2022	Dr A P J Abdul Kalam Jayanti
21 to 30/10/22	Diwali vacation
31/10/2022	Indira Gandhi Punyatithi & Rashtriya Sankalpa Din Sardar Vallabh bhai Patel Jayanti & Rashtriya Ekta Din
	NOVEMBER 2022
14/11/2022	Pandit Jawaharlal Nehru Jayanti
15/11/2022	Birsa Munda Jayanti
19/11/2022	Indira Gandhi Jayanti & Rashtriya Ekamata Din
26/11/2022	Samvidhan Din & Shahid Din
	DECEMBER 2022
10/12/2022	Conclusion of Semester
27/12/2022	Commencement of first term of First yr B.Pharm (as per DTE): 1 st sem
	End semester exam*

[Signature]
Academic In Charge
 Academic I/C
 Dr. N. J. Paulbudhe College of Pharmacy
 Ahmednagar



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PRINCIPAL
 Dr. N. J. Paulbudhe College of Pharmacy
 Shaneshwarnagar, Ahmednagar-414003

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 Shaneshwar nagar, Ahmednagar-414003

SEVA SHIKSHAN PRASARAK MANADL'S,
DR. N. J. Paulbudhe College of Pharmacy, Ahmednagar

Academic calendar (2022-23)
Second Term schedule from 02/01/2023 to 10/05/2023

DATES	EVENTS
	January 2023
02/01/2023	Commencement of first term of SY/ TY/Final yrB.Pharm (as per SPPU):4 th /6 th /8 th sem
03/01/2023	Savitribai Phule Jayanti
12/01/2023	Rajmata Jijausaheb Jayanti
12/01/2023	Swami Vivekanad Jayanti
13/01/2023	Youth day
23/01/2023	Netaji Subhash Chandra Bose Jayanti
24/01/2023	National girl child day
26/01/2023	Republic day
28/01/2023	Lala Lajpat Rai Jayanti
	February 2023
1 st week	First sessional exam. (TH/PR): - B.Pharm SY/TY/Final yr: 4 th /6 th /8 th sem
13/02/2023	Sarojini Naidu Jaiyanti
19/02/2023	Chatrapati Shivaji Maharaj Jayanti
23/02/2023	Sant Gadgebaba Maharaj Jayanti
27/02/2023	Marathi language day
28/02/2023	National science day
	March 2023
08/03/2023	International women's day
	April 2023
1 st week	Second sessional exam. (TH/PR): - B.Pharm SY/TY/4 th yr: 2 nd /4 th /6 th /8 th sem
07/04/2023	National Health Day
11/04/2023	Mahatma Jyotiba Phule Jayanti
14/04/2023	Dr. Babasaheb Ambedkar jayanti
2nd week	Second sessional exam. (TH/PR): - B.Pharm SY/TY/4 th yr: 2 nd /4 th /6 th /8 th sem
30/04/2023	RashtrasantTukdoji Maharaj Jayanti
	May 2023
01/05/2023	Maharashtra day / International workers day
08/05/2023	Rabindranath Tagore Jayanti
15/05/2023	Anti-Terrorism Day.
28/05/2023	SwatantraveerSawarkar Jayanti
31/05/2023	Ahilyadevi Holkar Jayanti
	End Semester exam

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Academic calendar (2021-22)
First Term ONLINE schedule from 17/08/2021 to 18/12/2021

DATES	EVENTS
17/08/2021	Commencement of first term of TY/Final yr B.Pharm (as per SPPU) :5 th /7 th sem
21/06/2021	International yoga day- activity
01/08/2021	Sahityaratna Annabhau Sathe Jayanti
15/08/2021	Independence Day flag hosting-activity
23/08/2021	Commencement of first term of IInd yr B.Pharm (as per SPPU) :3 rd sem
05/09/2021	Teacher's day celebration-activity
10/09/2021	Ganesh Chaturthi
13-17/09/2021	First sessional exam. (TH/PR): - B.Pharm SY/TY/4 th yr: 3 rd /5 th /7 th sem
25/09/2021	World's Pharmacist Day
02/10/2021	Mahatma Gandhi Jayanti
10-15/11/2021	Second sessional exam. (TH/PR): - B.Pharm SY/TY/4 th yr: 3 rd /5 th /7 th sem
18/12/2021	Conclusion of Semester
As per SPPU timetable	End semester exam


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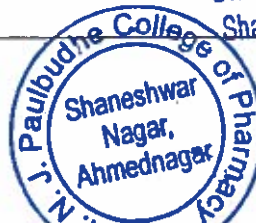

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Shameshwar Nagar, Ahmednagar

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Dr. N. J. Paulbudhe College of Pharmacy, Ahmednagar

Academic calendar (2021-22)
Second Term schedule from 03/01/2022 to 10/06/2022

DATES	EVENTS
	January 2022
03/01/2022 (17 th Jan)	Commencement of first term of FY/SY/ TY/Final yr B.Pharm (as per SPPU): 1 st /4 th /6 th /8 th sem
03/01/2022	Savitribai Phule Jayanti
12/01/2022	Rajmata Jijausaheb Jayanti
12/01/2022	Swami Vivekanad Jayanti
13/01/2022	Youth day
23/01/2022	Netaji Subhash Chandra Bose Jayanti
24/01/2022	National girl child day
26/01/2022	Republic day
28/01/2022	Lala Lajpat Rai Jayanti
	February 2022
28/03/2022 to 22/04/2022	First sessional exam. (TH/PR): - B.Pharm SY/TY/Final yr: 4 th /6 th /8 th sem
13/02/2022	Sarojini Naidu Jaiyanti
19/02/2022	Chatrapati Shivaji Maharaj Jayanti
23/02/2022	Sant Gadgebaba Maharaj Jayanti
27/02/2022	Marathi language day
28/02/2022	National science day
	March 2022
28/03/2022	Commencement of 2 nd term of FY B.Pharm (as per SPPU): 2 nd sem
08/03/2022	International women's day
	April 2022
07/04/2022	National Health Day
11/04/2022	Mahatma Jyotiba Phule Jayanti
14/04/2022	Dr. Babasaheb Ambedkar jayanti
2nd week	Second sessional exam. (TH/PR): - B.Pharm SY/TY/4 th yr: 2 nd /4 th /6 th /8 th sem
30/04/2022	Rashtrasant Tukdoji Maharaj Jayanti
	May 2022
01/05/2022	Maharashtra day / International workers day
05/05/2022 to 19/05/2022	First sessional exam. (TH/PR): - B.Pharm First yr: 1 st sem
05/05/2022 to 19/05/2022	Second sessional exam. (TH/PR): - B.Pharm SY/TY/Final yr: 4 th /6 th /8 th sem
08/05/2022	Rabindranath Tagore Jayanti
15/05/2022	Anti Terrorism Day
28/05/2022	Swatantraveer Sawarkar Jayanti
31/05/2022	Ahilyadevi Holkar Jayanti
30/05/2022 to 14/06/2022	Second sessional exam. (TH/PR): - B.Pharm First yr: 2 nd sem
	June 2022
20/06/2022 onwards	End Semester exam

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Academic calendar (2020-21)

First Term ONLINE schedule from 01/08/2020 to 20/12/2020

DATES	EVENTS
01/08/2020	Commencement of first term of SY/TY/Final yr B.Pharm
02/10/20	Mahatma Gandhi Jayanti
12/10/20 to 15/10/20	First sessional exam. (TH): - B.Pharm SY: 3 rd sem
12/10/20 to 16/10/20	First sessional exam. (TH): - B.Pharm TY: 5 th sem
19/11/20 to 23/11/20	Second sessional exam. (TH): - B.Pharm SY/TY: 3 rd 5 th sem
19/11/20 to 25/11/20	Regular sessional exam. (TH): - B.Pharm Final year (7 th sem)
13/11/200 to 22/11/20	Diwali Vacations
18/11/20 to 19/12/20	First sessional exam. (PR): - B.Pharm SY: 3 rd sem
As per SPPU timetable	End semester exam

Second Term schedule from 01/01/2021 to 15/06/2021

DATES	EVENTS
03/01/21	Commencement of FY/SY/TY/Final year of B. Pharmacy-I st , III rd , V th , VII th sem
12/01/21	Rajmata Jijausaheb Jayanti
12/01/21	Swami Vivekanad Jayanti (National Youth Day)
26/01/21	Republic day
06/02/21	Orientation programme for FY Students
19/02/21	Chatrapati Shivaji Maharaj Jayanti
12 to 15/03-21	First sessional exam. (PR): - B.Pharm TY: V th sem
12 to 16/03-21	Second sessional exam. (PR): - B.Pharm SY: III rd sem
22 to 24/03-21	Second sessional exam. (PR): - B.Pharm TY: V th sem
24 to 29/03-21	First sessional exam. (TH/PR): - B.Pharm FY: Ist sem
12 to 17/03/21	Regular sessional exam (PR): - B.Pharm Final yr (VII th sem)
01 to 07/04/21	Second sessional exam. (TH/PR): - B.Pharm FY: Ist sem
14/04/21	Dr. Babasaheb Ambedkar jayanti
15/04/21	Commencement of First year-II nd sem
01 to 11/06/21	First & Second sessional exam. (TH): - B.Pharm FY/SY/TY: II nd /IV th /VI th sem
01 to 16/06/21	First & Second sessional exam. (PR): - B.Pharm FY/SY/TY: II nd /IV th /VI th sem
04 to 08/06/21	Regular sessional exam (PR): - B.Pharm Final yr (VIII th sem)
04 to 10/06/21	Regular sessional exam (TH): - B.Pharm Final yr (VIII th sem)
As per SPPU timetable	End semester exam


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Academic Calendar (2019-20)

First Term schedule from 15/06/2019 to 15/11/2019

DATES	EVENTS
15/06/2019	Commencement of first term of SY/TY B.Pharm
05/08/2019	Commencement of first term of FY B.Pharm
15/08/2019	Independence Day
26/08/2019	Welcome function for B.Pharm first yr students
02/09/19	Ganesh festival
05/09/2019	Teacher's day celebration-activity
13/09/19 to 17/09/19	First sessional exam. (PR): - B.Pharm SY
26/09/19 to 01/10/19	First sessional exam. (TH): - B.Pharm FY/SY
03/10/19 to 10/10/19	First sessional exam. (PR): - B.Pharm FY
14-18/10/19	Second sessional exam. (TH): - B.Pharm FY/SY
11-18/10/19	Regular sessional exam. (TH): - B.Pharm TY
24/10/19 to 03/11/19	Vacations
04/11/19 to 08/11/19	Regular Sessional exam. (PR): - B.Pharm TY
06/11/19 to 11/11/19	Second sessional exam. (PR): - B.Pharm FY/SY
As per SPPU timetable	University exam

Second Term schedule from 01/01/2020 to 30/04/2020

DATES	EVENTS
01/01/20	Commencement of second term of all year of B.Pharmacy
03/01 to 09/01/20	Cultural activities
26/01/20	Republic day
08/02 TO 13/02/20	First sessional exam. (PR): - B.Pharm FY/SY
17/02 /20TO 24/02/20	First sessional exam. (TH): - B.Pharm FY/SY
23/03/20 TO 28/03/20	Second sessional exam. (TH): - B.Pharm FY/SY Regular sessional exam (TH): - B.Pharm TY
30/03/20 TO 09/04/20	Second sessional exam. (PR): - B.Pharm FY/SY Regular sessional exam (PR): - B.Pharm TY
As per SPPU timetable	University exam

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SEVA SHIKSHAN PRASARAK MANADL'S,
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Academic calendar (2018-19)

Second Term schedule from 26/12/2018 to 30/05/2019

DATES	EVENTS
26/12/2018	Commencement of second term of SY B.Pharm
01/01/19	Commencement of second term of FY B.Pharm
03/01/19	Savitribai Phule Jayanti
12/01/19	World Youth Day
12/01/19	Rajmata Jijau Bhosale Jayanti
12/01/19	Swami Vivekanand Jayanti
26/01/19	Republic day
3 rd week	Cultural activities
19/02/19	Chatrapati Shiyaji Maharaj Jayanti
25/02/19- 01/03/19	First sessional exam. (PR): - B.Pharm first year
05/03/19- 11/03/19	First sessional exam. (TH): - B.Pharm first year
08/03/2019	International Women's day
01/04/19- 04/04/19	Second sessional exam. (PR): - B.Pharm first year
25/03/19- 30/03/19	Second sessional exam. (TH): - B.Pharm first year
18/03/19- 23/03/19	First sessional exam. (PR): - B.Pharm second year
25/03/19- 30/03/19	First sessional exam. (TH): - B.Pharm second year
Last week	University exam.
As per SPPU timetable	End Semester Exam



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Academic calendar (2018-19)

First Term schedule from 19/06/2018 to 03/11/2018

DATES	EVENTS
20/06/2018	Commencement of first term of SY B.Pharm
21/06/2018	International yoga day- activity
27/07/2018	Guru Pournima
01/08/2018	Commencement of first term of FY B.Pharm
01/08/2018	Lokmanya Tilak Punyatithi
12/08/2018	Health check-up camp
13/08/18	Organ Donation Day
23/08/2018	Welcome function for B.Pharm first year students
17-22/09/2018	First sessional exam. (PR): - B.Pharm first year
24-29/09/2018	First sessional exam. (TH): - B.Pharm first year
25/09/2018	World's pharmacist day- activity
02/10/2018	Mahatma Gandhi Jayanti- activity
13-19/10/2018	First sessional exam. (PR): - B.Pharm Ist sem
	Sessional exam. (PR): - B.Pharm IIIrd sem
22-27/10/2018	Sessional exam. (TH): - B.Pharm IIIrd sem
03-10/11/2018	Vacations
19-24/11/2018	Second sessional exam. (TH): - B.Pharm Ist sem
	University exam.
21/11/2018 to 06/12/2018	B.Pharm Second year practical exam
20/12/2018 to 29/12/2018	B.Pharm first year practical exam
10/12/ 2018 to 18/12/ 2018	B.Pharm first year theory exam
11/12/ 2018 to 24/12/ 2018	B.Pharm Second year theory exam




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19/03/18- 24/03/18	First sessional exam. (TH): - B.Pharm first year
08/03/2018	International Women's Day
Last week	University exam.
24/04/18 to 24/05/18	End Semester Exam

Academic calendar (2017-18)

First Term schedule from 24/08/2017 to 30/12/2017

DATES	EVENTS
24/08/2017	Commencement of first term of FY B.Pharm
01/08/2017	Lokmanya Tilak Punyatithi
30/08/2017	Welcome function for B.Pharm first year students
23-29/09/2017	First sessional exam. (PR): - B.Pharm first year
09-14/10/2017	First sessional exam. (TH): - B.Pharm first year
25/09/2017	World's pharmacist day- activity
02/10/2017	Mahatma Gandhi Jayanti- activity
03-10/11/2017	Vacations
	University exam.
12/12/2017 to 20/12/2017	B.Pharm first year theory exam
21/12/ 2017 to 31/12/ 2017	B.Pharm first year practical exam

Academic calendar (2017-18)

Second Term schedule from 05/01/2018 to 30/05/2018

DATES	EVENTS
01/01/18	Commencement of second term of FY B.Pharm
03/01/18	Savitribai Phule Jayanti




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12/01/18	World Youth Day
12/01/18	Rajmata Jijau Bhosale Jayanti
12/01/18	Swami Vivekanand Jayanti
26/01/18	Republic day
3 rd week	Cultural activities
19/02/18	Chatrapati Shivaji Maharaj Jayanti
12/03/18- 17/03/18	First sessional exam. (PR): - B.Pharm first year




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Seva Shikshan Prasarak Mandal's

Dr. N. J. Paulbudhe College of Pharmacy

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INSTITUTE ACADEMIC PLANNER



Approved By: P. C. I, New Delhi, Ref No: F.No.02.297/2018-PCI, AICTE: F.No. Western/2017-1-3359523301,
Affiliated to Savitribai Phule Pune University – Ref. No. PU/AN/PHARM/145/2017



Seva Shikshan Prasarak Mandal's

DR. N. J. PAULBUDHE COLLEGE OF PHARMACY

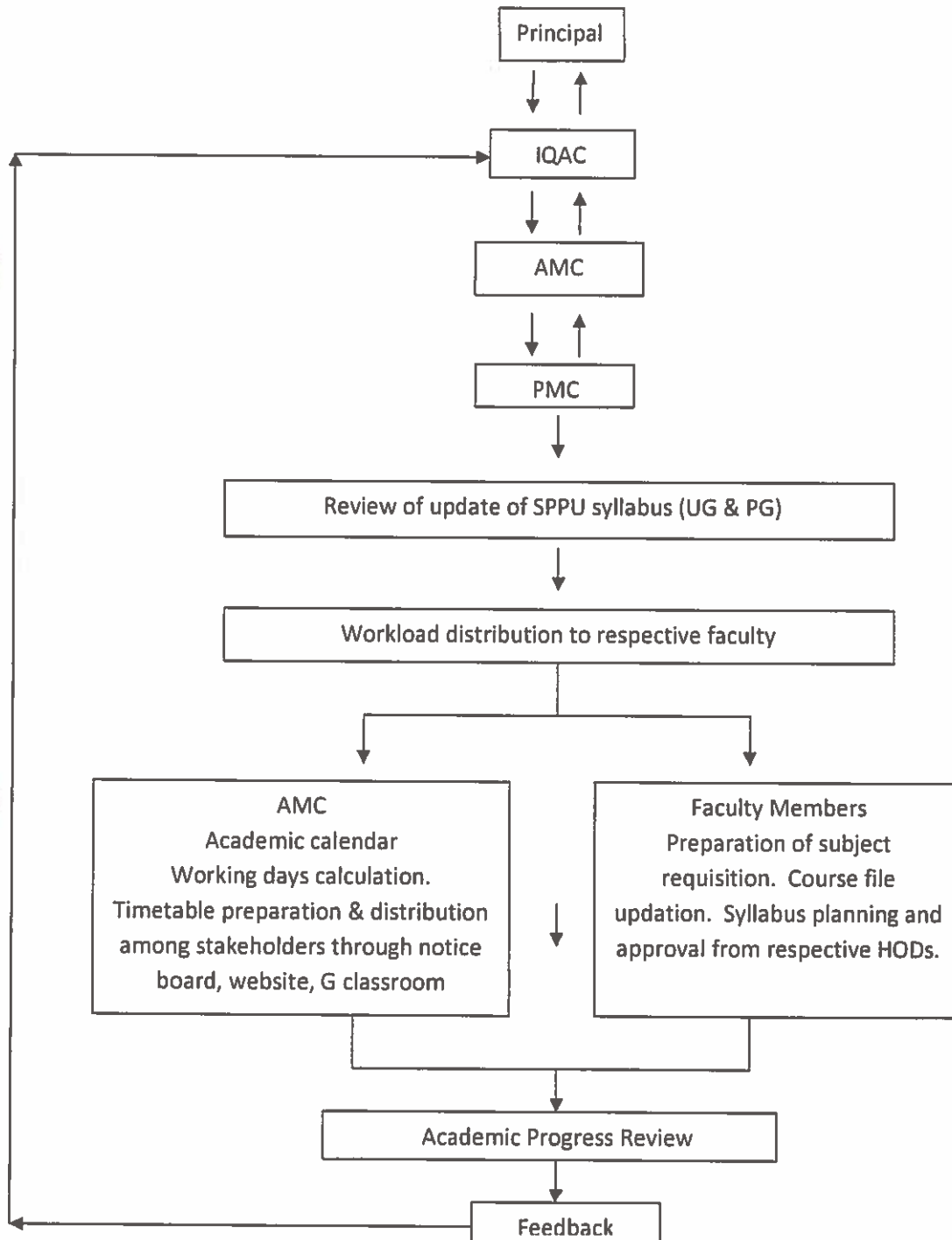


Survey No. 45/18, Shaneshwar nagar, Vasant Tekadi, Savedi, Ahmednagar

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Ph. : (0241) 2421154 | Email : bpharmacydnjp@gmail.com | Website : bpharmacysspronline.org OTE Code : 5451 | AISHE Code C-59365

Academic Planning and Execution Flowchart



Yashwantrao

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Dr. N. J. Paulbudhe College of Pharmacy
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SEVA SHIKSHAN PRASARAK MANADL'S,
Dr. N. J. Paulbudhe College of Pharmacy,
 Shanteshwar Nagar, Vasant Tekadi, Pipelinc Road, Ahmednagar
 Time Table

For the Academic Year 2021-22

B. Pharmacy ONLINE 7th Semester (4th yr 2018 pattern) Academic Timetable
W.E.F. 16/08/2021

DAYS	TIME			
	11am- 12 am	12am-01pm	02 pm-03 pm	03 pm-04pm (PRACTICAL)
MONDAY	IP (PGG)	IMA (RBS)	-	
TUESDAY	IMA (RBS)	IP (PGG)	-	IMA (RBS)
WEDNESDAY	IP (PGG)	IMA (RBS)	-	
THURSDAY	NDDS (VDT)	PP (SNA)	IMA (RBS)	
FRIDAY	PP (SNA)	NDDS (VDT)	-	
SATURDAY	PP (SNA)	NDDS (VDT)	-	

STAFF:

1. Prof. Rajashri B Sumbe (RBS): Instrumental Methods of Analysis (IMA-TH/PR)
2. Prof. Prasad G Ghugarkar (PGG): Industrial Pharmacy (IP-TH/PR)
3. Prof. Shubhangi N Albhar (SNA): Pharmacy Practice (PP-TH)
4. Prof. Vinod D Tarde (VDT): Novel Drug Delivery System (NDDDS-TH)
5. Prof. Rajashri B Sumbe (RBS): Practice School* (Training/Project)



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For the Academic Year 2021-22

B. Pharmacy ONLINE Fifth Semester (3rd yr2019 pattern) Timetable


W.E.F. 16/08/2021

DAYS	TIME			
	11am- 12 am	12am-01pm	01pm-02pm	02 pm-03pm (PRACTICAL)
MONDAY	PGY II (SBG)	MEDCHEM II (PRA)	P.COLOGY II (KAA)	PGY II (SBG)
TUESDAY	P.COLOGY II (KAA)	PGY II (SBG)	MEDCHEM II (PRA)	P.COLOGY II (KAA)
WEDNESDAY	MEDCHEM II (PRA)	P.COLOGY II (KAA)	PJ (RUS)	-
THURSDAY	PJ (RUS)	P.COLOGY II (KAA)	FP (PGG)	-
FRIDAY	FP (PGG)	PGY II (SBG)	PJ (RUS)	FP (PGG)
SATURDAY	FP (PGG)	PGY II (S)	PJ (RUS)	-

STAFF:

- 1 ProfSuvams B Gore (SBG): Pharmacognosy & Phytochemistry II (PGY-II TH/PR)
- 2 Prof Prasad G Ghugarkar (PGG): FormulativePharmacy-I (FP TH/PR)
- 3 ProfPranali R Anmal(PRA): Medicinal Chemistry-II (MCHEM-II TH/PR)
- 4 ProfKalyani A Autade(KAA): Pharmacology-II (PCOLOGY-II TH/PR)
- 5 Mrs. Roshani U Suryavanshi (RUS): Pharmaceutical Jurisprudence (PJ:TH)

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 Time Table

For the Academic Year 2021-22

B. Pharmacy ONLINE Third Semester (2nd yr 2019 pattern) Timetable
W.E.F. 23/08/2021

DAYS	TIME			
	11am- 12 pm	12am-01pm	01pm-02pm	02 pm-03 pm (PRACTICAL)
MONDAY	PM (SNA)	POC II (SUG)	PE (VDT)	PM (SNA)
TUESDAY	PE (VDT)	PM (SNA)	POC II (SUG)	PE (VDT)
WEDNESDAY	PP I (DAP)	PE (VDT)	PM (SNA)	POC II (SUG)
THURSDAY	POC II (SUG)	PP I (DAP)	-	PP I (DAP)
FRIDAY	PP I (DAP)	POC II (SUG)	PP I (DAP)	-

STAFF:

- 1) Prof. Shubhangi N. Albhar (SNA): Pharmaceutical Microbiology (PM: TH/PR)
- 2) Prof Sayogita U Gaikwad (SUG): Pharmaceutical Organic Chemistry-II (POC-II: -TH/PR)
- 3) Prof Vijay D Tarde (VDT): Pharmaceutical Engineering (PE: -TH/PR)
- 4) Prof Durgesh A Pawale (DAP): Physical Pharmaceutics-I (PP-I TH/PR)


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B. Pharmacy ONLINE First Semester (1st yr2019 pattern) Timetable

W.E.F. 17/01/2022

DAYS	TIME			
	11am- 12 pm (Theory)	12am-01 pm (Theory)	01pm-02pm (Theory)	02 pm-03 pm (PRACTICAL)
MONDAY	HAP-I (BDB)	PA-I (RUS)	PIC (SSP)	HAP-I (BDB)
TUESDAY	PIC (SSP)	HAP-I (BDB)	PA-I (RUS)	PIC (SSP)
WEDNESDAY	PA-I (RUS)	CS (SY)	PH-I (VDT)	PA-I (RUS)
THURSDAY	PH-I (VDT)	PIC (SSP)	CS (SY)	PH-I (VDT)
FRIDAY	CS (SY)	PH-I (VDT)	HAP-I (BDB)	CS (SY)

STAFF:

- Ms Bhakti D Bidwe(BDB): Human Anatomy and Physiology-I (HAP-I TH/PR)
- Mrs. Roshani U Suryavanshi (RUS): Pharmaceutical Analysis-I (PA-I TH/PR)
- Mr. Vijay D Tarde (VDT): Pharmaceutics-I (PH-I TH/PR)
- Ms Shashikant S Pawar (SSP): Pharmaceutical Inorganic Chemistry (PIC TH/PR)
- Mrs Suvarna Yemul (SY): Communication Skills (CS TH/PR)

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 Shanshwar Nagar, Vasant Tekadi, Pipeline Road, Ahmednagar
 Time Table
 For the Academic Year 2021-22

B. Pharmacy Fourth year- 8th Semester (2018 pattern) Academic Timetable DIVISION-A

DAY/TIME	THEORY	1-2pm	(01 pm-05pm)		
	10-01 PM		02.00pm-03.00pm BIO & RM	03.00pm-04.00pm SPP	04.00pm-05.00pm PV
MONDAY		R			
TUESDAY		E			
WEDNESDAY		C			
THURSDAY	PROJECT	E	SPP	BIO & RM	CS
FRIDAY		S	BIO & RM	SPP	PM
			PM	CS	PV
			PV	PM	CS
SATURDAY (TUTORIALS)	BIO & RM		PM	CS	

STAFF:

1. Mr. Prasad G Ghugarkar (PGG): Biostatistics and Research Methodology TH
2. Ms Sayogita U Gaikwad (SUG): Social and Preventive Pharmacy TH
3. Mr Ganesh Umbarkar (GU): Pharmacovilance TH (Elective)
4. Ms Pallavi Gite (PG): Cosmetic Science TH (Elective)
5. Mr Ganesh Umbarkar (GU): Pharmaceutical Marketing & Management TH (Elective)


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B. Pharmacy Fourth year- 8th Semester (2018 pattern) Academic Timetable DIVISION-B

DAY/TIME	THEORY	1-2pm	(01pm-05pm)			
	10-01 PM		02.00pm-03.00pm	03.00pm-04.00pm	04.00pm-05.00pm	
MONDAY		R	PV	BIO & RM	SPP	
TUESDAY		E	CS	SPP	BIO & RM	
WEDNESDAY		C	PM	BIO & RM	SPP	
THURSDAY	PROJECT	E	PV	PM	CS	
FRIDAY		S	CS	PV	PM	
SATURDAY (TUTORIALS)		PV				

STAFF:

1. Mr. Prasad G Ghugarkar (PGG): Biostatistics and Research Methodology TH
2. Ms. Sayogita U Gaikwad (SUG): Social and Preventive Pharmacy TH
3. Mr Ganesh Umbarkar (GU): Pharmacovilance TH (Elective)
4. Ms Pallavi Gite (PG): Cosmetic Science TH (Elective)
5. Mr Ganesh Umbarkar (GU): Pharmaceutical Marketing & Management TH (Elective)


 ACADEMIC I/C




 PRINCIPAL

Dr. N. J. Paulbudhe College of Pharmacy
 Dr. N. J. Paulbudhe College of Pharmacy
 Shanteshwar Nagar, Ahmednagar-411 005

B. Pharmacy Third year- 6th Semester (2019 pattern) Academic Timetable DIVISION-A AY:2021-22

DAY/TIME	THEORY					1-2pm	PRACTICAL (02pm-05pm)				
	10-10-45am	10-45-11-30am	11-30-12-15pm	12-15-01pm			A	B	C	D	E
MONDAY	P. COLOGY-III (GD)	BIOPHARM (SK)	HDT (AKC)	BIOTECH (VDT)	R	HDT (PG)	P. COLOGY-III (BDB)	MED CHEM-III (PRA)			
TUESDAY	QA (AM)	BIOTECH (VDT)	MED CHEM-III (PRA)	P. COLOGY-III (GD)	E		HDT (PG)		MED CHEM-III (SP)		
WEDNESDAY	MED CHEM-III (PRA)	BIOPHARM (SK)	QA (AM)	BIOTECH (VDT)	C					P. COLOGY-III (BDB)	
THURSDAY	LIBRARY	HDT (AKC)	P. COLOGY-III (GD)	BIOPHARM (SK)	E					MED CHEM-III (SP)	
FRIDAY	LIBRARY	QA (AM)	HDT (AKC)	MED CHEM-III (PRA)	S						
SATURDAY (TUTORIALS)	BIOPHARM 10-10-45am	QA 10-45-11-30am	P. COLOGY-III 11-30-12-15pm	HDT 12-15-01pm	S						
STAFF:											

- Ms. Purnali R. Anmal (PRA)
 - Mr. Shaikhikant Pawar (SP)
 - Ms. Gauri Dharwale (GD)
 - Mrs. Anuradha K. Chavan (AKC)
 - Pallavi Gite (PG)
 - Mr. Vijay D. Tarte (VDT)
 - Mr. Sandip Kollite (SK)
 - Mrs. Ashvini Mandote (AM)
- Medicinal Chemistry-III (MCHEM-III: TH/PR)
 Medicinal Chemistry-III (MCHEM-III:PR)
 Pharmacology-III (PCOLOGY-III: TH/PR)
 Herbal Drug Technology (HDT:TH)
 Herbal Drug Technology (HDT:PR)
 Pharmaceutical Biotechnology (P. BIOTECH: TH)
 Bio-Pharmaceutics & Pharmacokinetics (BIOPHARM: TH)
 Quality Assurance (TH)



ACADEMIC I/G

PRINCIPAL

Dr. N. J. Paulbudhe College of Pharmacy
 Shanteshwar Nagar, Ahmednagar-414003

B. Pharmacy Third year-6th Semester (2019 pattern) Academic Timetable DIVISION-B AY:2021-22

DAY/TIME	THEORY				1-2pm	PRACTICAL (02pm-05pm)				
	10-10.45am	10.45-11.30am	11.30-12.15pm	12.15-01pm		A	B	C	D	E
MONDAY	BIOTECH (VDT)	P. COLOGY-III (GD)	BIOPHARM (AM)	HDT (AKC)	R E C E S S	HDT (PG)	P. COLOGY-III (GD)	MED.CHEM-III (PRA)	=	E
TUESDAY	P. COLOGY-III (GD)	QA (AM)	BIOTECH (VDT)	MED.CHEM-III (PRA)		=	=	=	MED.CHEM-III (PRA)	P. COLOGY-III (GD)
WEDNESDAY	BIOTECH (VDT)	MED.CHEM-III (PRA)	BIOPHARM (AM)	QA (AM)		=	=	HDT (PG)	P. COLOGY-III (GD)	MED.CHEM-III (PRA)
THURSDAY	LIBRARY	BIOPHARM (AM)	HDT (AKC)	P. COLOGY-III (GD)		P. COLOGY-III (GD)	MED.CHEM-III (PRA)	=	HDT (PG)	=
FRIDAY	LIBRARY	MED.CHEM-III (PRA)	QA (AM)	HDT (AKC)		MED.CHEM-III (PRA)	=	P. COLOGY-III (GD)	=	HDT (PG)
SATURDAY (TUTORIALS)	BIOPHARM 10-10.45am	QA 10.45-11.30am	P. COLOGY-III 11.30-12.15pm	HDT 12.15-01pm		BIOTECH 02-2.45pm	MED.CHEM-III 02-2.45pm	LIBRARY		

- STAFF:
- Ms. Prateek R. Aunjal (PRA)
 - Mr. Shashikant Pawar (SP)
 - Ms. Gauri Dikawale (GD)
 - Mrs. Anuradha K. Chavan (AKC)
 - Pallavi Gite (PG)
 - Mr. Vijay D. Tande (VDT)
 - Mr. Sandip Kolhe (SK)
 - Mrs. Ashvini Mandote (AM)
- Medicinal Chemistry-III (MCHEM-III: TH/PR)
 Medicinal Chemistry-III (MCHEM-III: PR)
 Pharmacology-III (PCOLOGY-III: TH/PR)
 Herbal Drug Technology (HDT:TH)
 Herbal Drug Technology (HDT:PR)
 Pharmaceutical Biotechnology (P. BIOTECH: TH)
 Bio-Pharmaceutics & Pharmacokinetics (BIOPHARM: TH)
 Quality Assurance (TH)

ACADEMIC I/C


 PRINCIPAL
Dr. N. J. Paulbudhe College of Pharmacy
 Shanteshwar Nagar, Ahmednagar-414003

SEVA SHIKSHAN PRASARAK MANADL'S,
Dr. N. J. Paulbudhe College of Pharmacy,
 Shanteshwar Nagar, Vasant Tekadi, Pipeline Road, Ahmednagar
 Time Table
 For the Academic Year 2021-22

B. Pharmacy Second year- 4th Semester (2019 pattern) Academic Timetable (AY:2021-22) DIVISION-A

*DAY/TIME	PRACTICAL (10am-01pm)					01.00pm- 02.00pm	THEORY					
	A	B	C	D	E		02.00pm- 03.00pm	03.00pm- 04.00pm	04.00pm- 05.00pm	05.00pm- 06.00pm	06.00pm- 07.00pm	
MONDAY	PP II (DAP)	MED.CHEM-I (SJM)	PGY-I (SBG)	P. COLOGY-I (BDB)	E	R	POC-III	PGY-I	MED CHEM-I			
TUESDAY	==	PP II (DAP)	MED.CHEM-I (SJM)	PGY-I (SUG)	P. COLOGY-I (BDB)	E	P. COLOGY-I (BDB)	PGY-I	PP II			
WEDNESDAY	P. COLOGY-I (BDB)	==	PP II (DAP)	MED.CHEM-I (SJM)	PGY-I (SUG)	S	POC-III	PP II	P. COLOGY-I (BDB)			
THURSDAY	PGY-I (SBG)	P. COLOGY-I (BDB)	==	PP II (SK)	MED.CHEM-I (SJM)	S	(SAT)	(DAP)	MED.CHEM-I			
FRIDAY	MED CHEM-I (SJM)	PGY-I (SBG)	P. COLOGY-I (BDB)	==	PP II (SK)		PGY-I (SBG)	(SJM)	PP II			
SATURDAY (TUTORIALS)	MEDCHEM-I 10-10.45am	POC-III 10.45- 11.30am	P. COLOGY-I 11.30-12.15pm	PP-II 12.15-01pm	PGY-II 01-1.45pm		MED CHEM-I (SJM)	POC-III (SAT)	P. COLOGY-I (BDB)			

STAFF:

- Mrs. Sayogita U. Gaikwad (SUG) Pharmacognosy & Phytochemistry I (PGY-I PR)
- Shabana A. Tamboli (SAT) Pharmaceutical organic chemistry III (POC-III TH)
- Shradha J. Muralada (SJM) Medicinal chemistry III (MC-III TH/PR)
- Mrs. Eshika B. Bidwe (BDB) Pharmacology-I (PCOLOGY-I TH/PR)
- Mrs. Surana B. Gase (SBG) Pharmacognosy & Phytochemistry I (PGY-I TH/PR)
- Mr. Pratik Durgesh A. (DAP) Physical Pharmaceutics-II (PP-II TH/PR)
- Mr. Sandip Kojale (SK) Physical Pharmaceutics-II (PP-II PR)

ACADEMIC/C



Principal
PRINCIPAL

Dr. N. J. Paulbudhe College of Pharmacy
 Shanteshwar Nagar, Ahmednagar-414003

SEVA SHIKSHAN PRASARAK MANADL'S,
Dr. N. J. Patilbudhe College of Pharmacy,
 Shanteshwar Nager, Vasani Tekadi, Pipeline Road, Ahmednagar
 Time Table
 For the Academic Year 2021-22

B. Pharmacy Second year- 4th Semester (2019 pattern) Academic Timetable (AY:2021-22) DIVISION-B

*DAY/TIME	PRACTICAL (10am-01pm)					01.00pm- 02.00pm	THEORY			
	A	B	C	D	E		02.00pm- 03.00pm	03.00pm- 04.00pm	04.00pm- 05.00pm	
MONDAY	PP II (DAP)	MED CHEM-I (SJM)	PGY-I (SBG)	P COLOGY-I (BDB)	E	R	MED CHEM-I (SJM)	POC-III (SAT)	PGY-I (SBG)	
TUESDAY		PP II (DAP)	MED CHEM-I (SJM)	PGY-I (SUG)		E	PGY-I (SBG)	PP II (DAP)	P COLOGY-I (BDB)	
WEDNESDAY	P COLOGY-I (BDB)		PP II (DAP)	MED CHEM-I (SJM)	P COLOGY-I (BDB)	S	PP II (DAP)	P COLOGY-I (BDB)	POC-III (SAT)	
THURSDAY	PGY-I (SBG)	P COLOGY-I (BDB)		PP II (SJM)	PGY-I (SUG)	S	MED CHEM-I (SJM)	PP II (DAP)	PGY-I (SBG)	
FRIDAY	MED.CHEM-I (SJM)	PGY-I (SBG)	P COLOGY-I (BDB)	PP II (SK)	MED.CHEM-I (SJM)		POC-III (SAT)	P COLOGY-I (BDB)	MED CHEM-I (SJM)	
SATURDAY (TUTORIALS)	POC-III 10-10.45am	P. COLOGY- I 10.45- 11.30am	PP II 11.30-12.15pm	PGY-I 12.15-01pm	MED.CHEM-I 01-1.45pm					L.I.B

STAFF:

- Mrs. Sayogia U Gaikwad (SUG) Pharmacognosy & Phytochemistry I (PGY-I PR)
- Shabana A Tamboli (SAT) Pharmaceutical organic chemistry III (POC-III TH)
- Shradha J Mundada (SJM) Medicinal chemistry III (MC-III TH/PR)
- Mrs. Baski B Indwe (BDB) Pharmacology-I (PCOLOGY-I TH/PR)
- Mrs. Suvana B Gore (SBG) Pharmacognosy & Phytochemistry I (PGY-I TH/PR)
- Mr. Pyvale Durgesh A (DAP) Physical Pharmaceutics-II (PP-II TH PR)
- Mr. S. Philip Kolhe (SK) Physical Pharmaceutics-II (PP-II PR)

ACADEMIC I/C


 PRINCIPAL

PRINCIPAL
Dr. N. J. Patilbudhe College of Pharmacy
 Shanteshwar Nagar, Ahmednagar-414003

B. Pharmacy First year- 1st Semester (2019 pattern) Academic Timetable (AY:2020-21) DIVISION A

*DAY/TIME	PRACTICAL (10am-01pm)					01.00pm- 02.00pm	THEORY			
	A	B	C	D	E		02.00pm 03.00pm	03.00pm- 04.00pm	04.00pm- 05.00pm	
MONDAY	HAP-I O	PIC (SUG)	PH-I (DAP)	PA-I (RUS)	CS (SY)	R E C E S S	HAP-I (PAV)	PA-I (RUS)	PH-I (DAP)	
TUESDAY	CS (SY)	HAP-I (PAV)	PIC (SUG)	PH-I (DAP)	PA-I (RUS)		PIC (SUG)	HAP-I (PAV)	PA-I (RUS)	
WEDNESDAY	PA-I (RUS)	CS (SY)	HAP-I (PAV)	PIC (SUG)	PH-I (DAP)		PH-I (DAP)	PIC (SUG)	CS	
THURSDAY	PH-I (DAP)	PA-I (RUS)	CS (SY)	HAP-I (PAV)	PIC (SUG)		TUT:PA-I (RUS)	CS (SY)	TUT:PIC (SUG)	
FRIDAY	PIC (SUG)	PH-I (DAP)	PA-I (RUS)	CS (SY)	HAP-I (PAV)		CS (SY)	PH-I (DAP)	TUT: HAP-I (PAV)	
SATURDAY (LECTURES)	TUT:PH-I (DAP)	PA-I (RUS)	HAP-I (PAV)	PIC (SUG)	CS (SY)		LIB			

Staff:

1. Mr. Abid V Pathan (PAV): Human Anatomy and Physiology-I (HAP-I TH/PR)
2. Mrs. Roshani U Suryavanshi (RUS): Pharmaceutical Analysis-I (PA-I TH/PR)
3. Mr. Durgesh A Pawale (DAP): Pharmaceutics-I (PH-I TH/PR)
4. Mrs. Sayogita U Gaikwad (SUG): Pharmaceutical Inorganic Chemistry (PIC TH/PR)
5. Mrs. Suvama Yemul (SY): Communication Skills (CS TH/PR), / Remedial Biology (RB TH/PR)
6. Mrs. Suvama B Gore (SBG): Remedial Biology (RB TH/PR)
7. Mrs. Nagar S (MS): Remedial Math (RM TH)



(Signature)
 PRINCIPAL

Dr. N. J. Paulbudhe College of Pharmacy
 Shanshwar Nagar, Ahmednagar-414003

B. Pharmacy First year- 1st Semester (2019 pattern) Academic Timetable (AY:2020-21) DIVISION B

*DAY/TIME	PRACTICAL (10am-01pm)					01.00pm- 02.00pm	THEORY				
	A	B	C	D	E		02.00pm 03.00pm	03.00pm- 04.00pm	04.00pm- 05.00pm	04.00pm- 05.00pm	PH-I (DAP)
MONDAY	HAP-I (PAV)	PIC (SUG)	PH-I (DAP)	PA-I (RUS)	CS (SY)	R E C E S S	HAP-I (PAV)	PA-I (RUS)	PH-I (DAP)	PH-I (DAP)	
TUESDAY	CS (SY)	HAP-I (PAV)	PIC (SUG)	PH-I (DAP)	PA-I (RUS)		PIC (SUG)	HAP-I (PAV)	PA-I (RUS)	PA-I (RUS)	
WEDNESDAY	PA-I (RUS)	CS (SY)	HAP-I (PAV)	PIC (SUG)	PH-I (DAP)		PH-I (DAP)	PIC (SUG)	CS (SY)	CS (SY)	
THURSDAY	PH-I (DAP)	PA-I (RUS)	CS (SY)	HAP-I (PAV)	PIC (SUG)		TUT:PA-I (RUS)	CS (SY)	CS (SY)	TUT:PIC (SUG)	
FRIDAY	PIC (SUG)	PH-I (DAP)	PA-I (RUS)	CS (SY)	HAP-I (PAV)		CS (SY)	PH-I (DAP)	PH-I (DAP)	TUT: HAP-I (PAV)	
SATURDAY (LECTURES)	TUT:PH-I (DAP)	PA-I (RUS)	HAP-I (PAV)	PIC (SUG)	CS (SY)		LIB				

Staff: Mr. Abid V Pathan (PAV): Human Anatomy and Physiology-I (HAP-I TH/PR)

- Mrs. Roshani U Suryavanshi (RUS): Pharmaceutical Analysis-I (PA-I TH/PR)
- Mr. Durgesh A Pawale (DAP): Pharmaceutics-I (PH-I TH/PR)
- Mrs. Sayogita U Gaikwad (SUG): Pharmaceutical Inorganic Chemistry (PIC TH/PR)
- Mrs. Suvama Yernul (SY): Communication Skills (CS TH/PR), Remedial Biology (RB TH/PR)
- Mrs. Suvama B Gore (SBG): Remedial Biology (RB TH/PR)

Mrs Magar S (MS):

Remedial Math (RM TH)





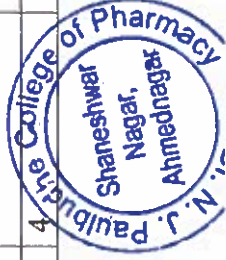
PRINCIPAL

Dr. N. J. Paulbudhe College of Pharmacy
Shaneshwar Nagar, Ahmednagar-414003

SevaShikshanPrasarakMandal's
Dr.N.J.Paulbude College of Pharmacy
VasantTekadi, Savedi, Ahmad Nagar, Maharashtra – 414003.

Work Load Details of the faculty members
(I, IV, VI & VIII Semesters)

S.No	Department/ Faculty Name	Designation	Work Load in Hours		Names of the Courses	Divisions
			Theory	Practical		
1.	Dr. NileshJadhav Y Pharmaceutics	Principal	4	0	POC-III (BP401T)	A
2.	Dr.P.Shyam	Professor & HOD	4+4	0	BPPK (BP604T)	A & B
3.	Dr. Tarade V.D.	Associate Professor	4+4+4	0	PBT (BP603T) Biostat (BP801T)	A& B A
4.	Mr.Ghugarkar P.G.	Associate Professor	4+4+4	0	PQA (BP606T) Biostat (BP801T)	A& B B
5.	Mr. BagwanRais		4+4		SPPM (BP802T)	
6.	Mr.Nilesh More					
7.	Mr. Somavanshi S.	Assistant Professor	4	12	P'CUTICS (BP103T) P'CUTICS (BP109P)	A
8	MsPawar M.	Assistant Professor	4	8	P'CUTICS (BP103T) P'CUTICS (BP109P)	B
9	Mr. Kolhe S.	Assistant Professor	4	12	PP-II (BP403T) PP-II(BP407P)	B B
10	Mr. NirmlMahajan	Assistant Professor	4	12	PP-II (BP403T) PP-II(BP407P)	A A
	Pharmaceutical Chemistry					
11.	Dr. Suryawanshi R.U.	Professor & HOD	4+4	0	PA-I (BP102T)	A & B
12.	Ms. TamboliShabana	Associate Professor	4	12	MC-III (BP601T) MC-III (BP607P)	A A
13.	Mr. ManojKothule	Associate Professor	4	12	MC-III (BP601T) MC-III (BP607P)	B B
14	Mr. GarjeSudhir	Assistant Professor	4	12	PIC (BP104T) PIC (BP110P)	A A
15.	Ms. Mantode A.	Assistant Professor	4	12	MC-I (BP402T)	A



SevaShikshanPrasarakMandal's
Dr.N.J.Paulbudhe College of Pharmacy
 VasantTekadi, Savedi, Ahmad Nagar, Maharashtra - 414003.

16.	Ms. Gaikwad S.	Assistant Professor	4	12	MC-I(BP406P)	B
17.	Ms. Wable P.	Assistant Professor	4	12	MC-I (BP402T) MC-I(BP406P) POC-III (BP401T) PA-I(BP108P)	B A A
18.	Ms. Budhe U.	Assistant Professor	4	12	PC-III (BP602T) PC-III (BP608P)	A A
19.	Ms. Suchitha G.	Assistant Professor	4	12	PC-III (BP602T) PC-III (BP608P)	B B
20.	Ms. ShradhaMundada	Assistant Professor	4+4	8	PA-I (BP108P) Marketing (BP803T)	B A & B
Pharmacology						
21.	Dr. Venu Kola	Professor & HOD	4+4	0	PV (BP805T)	A & B
22.	Mr. ShaikhMohsin	Associate Professor	4	8	HAP-I (BP107P)	B
23.	Ms. Wattamwar A.	Assistant Professor	4	12	PC-I (BP404T) PC-I(BP408P)	B B
24.	Ms. Dhavale G.	Assistant Professor	4	12	PC-I (BP404T) PC-I(BP408P)	A A
25	Ms. Kalse M.	Assistant Professor	4	12	HAP (BP101T) HAP (BP107P)	A A
Pharmacognosy						
26.	Dr. Trivedi V.	Professor & HOD	4+4	0	HDT (BP603T)	A & B
27.	Ms.Chavan A.	Associate Professor	0	12	HDT (BP609P)	A
28.	Ms. Barwal S.	Associate Professor	0	12	HDT (BP609P)	B
29.	Ms. Gore S.	Assistant Professor	4	12	P&P-I(BP405T) P&P-I(BP409P)	A A
30.	Ms. Ingle J.	Assistant Professor	4	12	P&P-I(BP405T) P&P-I(BP409P)	B B
Pharmacy Practice						
31.	Pavale D.	Associate Professor	4	8	PIC (BP104T) PIC (110P)	B B

(Signature)

Academic in Charge
 Dr. N. J. Paulbudhe College of Pharmacy



PRINCIPAL

Dr. N. J. Paulbudhe College of Pharmacy
 Shaineshwar nagar, Ahmednagar-414003

ACA/2021-22/04

Date: 28.03.2022

ACADEMIC YEAR 2021-22

TEACHING PLAN FOR SECOND TERM

Class: F. Y. B. Pharm

Sem: II nd

Subject: Pharmaceutical Organic chemistry I

Name of Faculty: Prof. Suryavanshi R. U.

Duration	Lecture No.	Topic planned
From: To: 28/03/22 to 15/06/22	1	Basic Principles of Organic Chemistry Hybridization of atomic orbitals of carbon.
	2	Nitrogen and oxygen to form molecular orbitals
	3	Types of bonds, bond fission, intermolecular forces, inductive effect, steric effect, electromeric, mesomeric effect and resonance
	4	Hyperconjugation, concept of tautomerism.
	5	Classification, Nomenclature and Isomerism a) Classification of organic compounds i. Compounds containing carbon and hydrogen atoms only : hydrocarbons (alkanes, alkenes alkynes, aromatic hydrocarbons, polynuclear aromatic hydrocarbons, aryl-alkyl hydrocarbons, alicyclic hydrocarbons)
	6	Compounds containing carbon, hydrogen and oxygen atoms only (alcohols, phenols, ethers and epoxides, carbonyl compounds, carboxylic acids, esters, anhydrides)
	7	Compounds containing carbon, hydrogen and nitrogen atoms only
	8	(amines and imine, nitriles, hydrazines, nitro compounds) v. Compounds containing carbon, hydrogen, and halogens with oxygen (alkyl halides, aryl halides, acyl halides)
	9	Compounds containing carbon, hydrogen, oxygen and nitrogen atoms only (amides, imides, aldoxime and ketoxime)
	10	Compounds containing carbon, hydrogen and sulphur with/without nitrogen, oxygen and halogen. Sulphonic acids, sulphonylhalides. (At least five mono-functional examples of each class including aromatic 08 hours 6l and aliphatic compounds should be covered with their common names)
	11	Common and IUPAC systems of nomenclature of organic compounds IUPAC nomenclature of all classes of compounds: nomenclature of monosubstituted and poly-substituted compounds
	12	Structural isomerism in organic compounds
	13	Alkanes, Alkenes and Conjugated dienes i. Halogenation of alkanes, uses of paraffins.
	14	Stabilities of alkenes, E1 and E2 reactions – kinetics, order of reactivity of alkyl halides
	15	Rearrangement of carbocations, Saytzeff's orientation, Hofmann orientation



Seva Shikshan Prasarak Mandal's
Dr. N. J. Paulbudhe College of Pharmacy, Ahmednagar
 Tal./Dist. Ahmednagar, Maharashtra - 414003

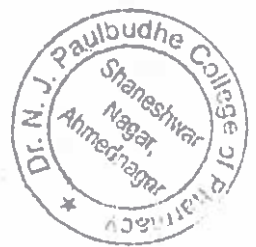
	and evidences.
16	Factors affecting I ₁ and I ₂ reactions
17	Chemical Reaction - Ozonolysis, electrophilic addition reactions of alkenes, Markownikoff's orientation
18	Free radical addition reactions of alkenes, Anti Markownikoff's orientation
19	Stability of conjugated dienes
20	Diels-Alder, 1,2 and 1,4- electrophilic addition
21	Free radical addition reactions of conjugated dienes
22	Allylic rearrangement names
23	Alkyl halides SN1 and SN2 reactions - kinetics
24	Order of reactivity of alkyl halides, stereochemistry and rearrangement of carbocations.
25	SN1 versus SN2 reactions, factors affecting SN1 and SN2 reactions
26	Structure and uses of ethylchloride, chloroform, trichloroethylene.
27	dichloromethane, tetrachloromethane and iodoform
28	Alcohols* - Qualitative tests,
29	structure and uses of ethyl alcohol, chlorobutanol, cetyl alcohol
30	benzyl alcohol, glycerol, and propylene glycol.
31	Carbonyl compounds* (Aldehydes and ketones) i. Nucleophilic addition.
32	Electromeric effect, Aldol condensation, Crossed Aldol condensation
33	Cannizzaro reaction, Crossed Cannizzaro reaction
34	Benzoin condensation and Perkin condensation
35	Qualitative tests
36	structure and uses of formaldehyde, paraldehyde
37	acetone, chloral hydrate, benzaldehyde
38	vanillin, and cinnamaldehyde
39	a) Carboxylic acids* i. Acidity of carboxylic acids, effect of substituents on acidity.
40	Reactions of interconversion of carboxylic acids, amides and esters. ii. Structure and uses of acetic acid, lactic acid, tartaric acid, citric acid, succinic acid
41	oxalic acid, salicylic acid, benzoic acid, benzyl benzoate, dimethyl phthalate, methyl salicylate and acetyl salicylic acid
42	Aliphatic amines* - Basicity





Seva Shikshan Prasarak Mandal's
Dr. N. J. Paulbudhe College of Pharmacy, Ahmednagar
Tal./Dist. Ahmednagar, Maharashtra – 414003

43	qualitative test
44	effect of substituent on basicity.
45	structure and uses of ethanolamine, ethylenediamine


Signature of faculty




Academic Head


PRINCIPAL
Dr. N. J. Paulbudhe College of Pharmacy
Shaneshwar Nagar, A. Nagar-414003



ACA/2021-22/07

Date: 17/01/22

ACADEMIC YEAR 21-22

RECORD OF CLASSROOM TEACHING FOR SECOND TERM

Class: F.Y.B. Pharm

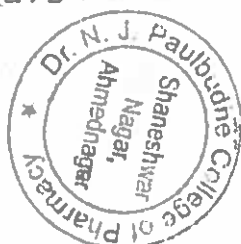
SEM: II nd

Subject: Pharmaceutical Organic chemistry I

Name of Faculty: Prof. Suryavanshi R.U.

Sr. No.	Date	Name of the Topic Covered	Sign. of faculty	Sign. of academic Head
1	29/03/22	Basic principles of organic chemistry Hybridization of atomic orbitals of carbon		
2	30/03/22	Nitrogen and oxygen to form molecular orbitals		
3	31/03/22	Types of bonds, bond fission, intermolecular forces, inductive effect, steric effect, electromeric, mesomeric, effect and resonance		
4	5/04/22	Hyperconjugation concept of tautomerism		
5	6/04/22	Classification Nomenclature and isomerism a) classification of organic compounds i) Compounds containing carbon and hydrogen atoms only: hydrocarbons (alkanes, alkenes, alkynes, aromatic hydrocarbons, polynuclear aromatic hydrocarbons, aryl-alkyl hydrocarbons, aliphatic hydrocarbons		

Signature of faculty



Academic Head

PRINCIPAL

Dr. N. J. Paulbudhe College of Pharmacy
 Shaneswar Nagar, A. Nagar-414003



Date: 17/01/22

ACA/2021-22/07

ACADEMIC YEAR 21-22

RECORD OF CLASSROOM TEACHING FOR SECOND TERM

Class: F.Y.B. Pharm

SEM: II nd

Subject: Pharmaceutical Organic chemistry I

Name of Faculty: Prof. Suryavanshi R.U.

Sr. No.	Date	Name of the Topic Covered	Sign. of faculty	Sign. of academic Head
6	9/04/22	Compounds containing carbon, hydrogen and oxygen atoms only (alcohols, phenols, ethers and epoxides, carbonyl compounds, carboxylic acids, esters, anhydrides)		
7	12/04/22	Compounds containing carbon, hydrogen and nitrogen atoms		
8	23/04/22	amines and imine, nitriles, hydrazines, nitro compounds, compounds containing carbon, hydrogen and halogens with oxygen (alkyl halides, aryl halides, acyl halides)		
9	30/04/22	Compounds containing carbon, hydrogen, oxygen and nitrogen atoms only (amides, imides, aldoxime and ketoxime)		
10	19/04/22	Compounds containing carbon, hydrogen and sulphur with/without nitrogen, oxygen, and halogen.		

Signature of faculty



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 Dr. N. J. Paulbudhe College of Pharmacy
 Shameshwar Nagar, Ahmednagar

ACA/2021-22/07

Date: 17/01/22

ACADEMIC YEAR 21-22


RECORD OF CLASSROOM TEACHING FOR SECOND TERM

Class: F.Y.B. Pharm

SEM: II nd

Subject: Pharmaceutical Organic chemistry I


Name of Faculty: Prof. Suryavanshi R.U.

Sr. No.	Date	Name of the Topic Covered	Sign. of faculty	Sign. of academic Head	
		Sulphonic acids, sulphonyl halides (At least five mono-functional examples of each class including aromatic and aliphatic compounds should be covered with their common names)			
11	20/04/22	Common and IUPAC systems of nomenclature of organic compounds IUPAC nomenclature of all classes of compounds: nomenclature of monosubstituted and poly-substituted compounds.			
12	21/04/22	Structural isomerism in organic compounds.			
13	24/04/22	Alkanes, Alkenes and conjugated dienes 1) Halogenation of alkanes, uses of paraffins.			
14	28/04/22	Stabilities of alkenes, E1 E2 reactions - kinetics, order of reactivity of alkyl halides			

Signature of faculty



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ACA/2021-22/07

Date: 17/01/22

ACADEMIC YEAR 21-22

RECORD OF CLASSROOM TEACHING FOR SECOND TERM

Class: F.Y.B. Pharm

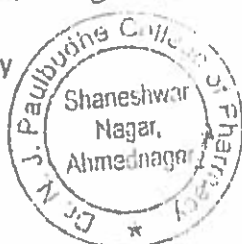
SEM: II nd

Subject: Pharmaceutical Organic chemistry I

Name of Faculty: Prof. Suryavanshi R.U.

Sr. No.	Date	Name of the Topic Covered	Sign. of faculty	Sign. of academic Head
15	26/04/22	Rearrangement of carbocations, Saytzeff's orientation, Hofmann orientation and evidences		
16	26/04/22	Factors affecting E ₁ & E ₂ reactions		
17	27/04/22	Chemical Reactions: Ozonolysis, electrophilic addition reactions of alkenes, Markownikoff's orientation		
18	04/05/22	Free radical addition reactions of alkenes, Anti Markownikoff's orientation		
19	21/05/22	Stability of conjugated dienes		
20	21/05/22	Diels-Alder, 1,2 & 1,4-electrophilic addition		
21	24/05/22	Free radical addition reactions of conjugated dienes.		
22	24/05/22	Allylic rearrangement names		
23	25/05/22	Alkyl halides S _N 1 & S _N 2 reactions - kinetics		
24	25/05/22	Order of reactivity of alkyl halides, stereochemistry and rearrangement of carbocation		

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ACA/2021-22/07

Date: 17/01/22

ACADEMIC YEAR 21-22

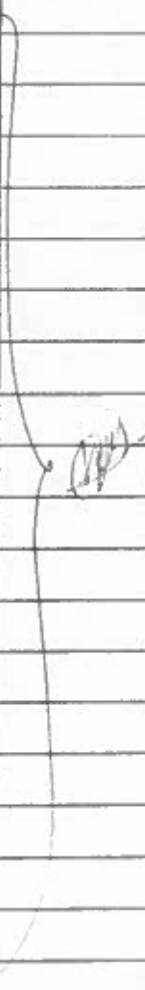
RECORD OF CLASSROOM TEACHING FOR SECOND TERM

Class: F.Y.B. Pharm

SEM: II nd

Subject: Pharmaceutical Organic chemistry I


Name of Faculty: Prof. Suryavanshi R.U.

Sr. No.	Date	Name of the Topic Covered	Sign. of faculty	Sign. of academic Head
25	25/05/22	SN ₁ vs SN ₂ reactions, factors affecting SN ₁ + SN ₂ reaction		
26	26/05/22	Structure and uses of ethylchloride, chloroform, trichloroethylene		
27	26/05/22	dichloromethane, tetrachloromethane and iodoform		
28	28/05/22	Alcohols - Qualitative tests		
29	28/05/22	Structure and uses of ethyl alcohol, chlorobutanol (sterilant) alcohol		
30	31/06/22	Benzyl alcohol, glycerol, propylene glycol		
31	21/06/22	Carbonyl compounds (Aldehydes & ketones) i.e. Nucleophilic addition		
32	4/06/22	Electromeric effect, Aldol condensation, crossed aldol condensation		
33	7/06/22	Cannizzaro reaction, crossed Cannizzaro reaction		
34	05/06/22	Benzoin condensation & Perkin condensation		
35	9/06/22	Qualitative test		
36	11/06/22	Structure and uses of formaldehyde paraldehyde		

Signature of faculty



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ACA/2021-22/07

Date: 17/01/22

ACADEMIC YEAR 21-22


RECORD OF CLASSROOM TEACHING FOR SECOND TERM

Class: F.Y.B. Pharm

SEM: II nd

Subject: Pharmaceutical Organic chemistry I


Name of Faculty: Prof. Suryavanshi R.U.

Sr. No.	Date	Name of the Topic Covered	Sign. of faculty	Sign. of academic Head
37	11/06/22	acetone, chloral hydrate, benzaldehyde		
38	12/06/22	vanillin, cinnamaldehyde		
39	13/06/22	carboxylic acids i.e. Acidity of carboxylic acid (effect of substitution)		
40	13/06/22	Reactions of interconversion of carboxylic acids, amides and esters Structure uses of acetic acid, lactic acid, tartaric acid, citric acid		
41	14/06/22	oxalic acid, salicylic acid, benzoic acid, benzyl benzoate, dimethyl phthalate, methyl salicylate, acetyl salicylic acid		
42	14/06/22	Aliphatic amines - Basicity		
43	15/06/22	qualitative test		
44	15/06/22	effect of substituents on basicity		
45	15/06/22	structure and uses of ethanamine, ethylenediamine		

Signature of faculty



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 Shanteshwar Nagar, Ahmednagar-414003

Seva Shikshan Prasarak Mandal's
Dr. N. J. Paulbudhe College of Pharmacy, Ahmednagar
 Tal./Dist. Ahmednagar, Maharashtra – 414003

ACA/2021-22/08

Date: 28.03.2022

ACADEMIC YEAR 2021-22

RECORD OF LABORATORY TEACHING FOR SECOND TERM

Class: F.Y. B pharm

Sem: II nd

Batch: A, B, C, D

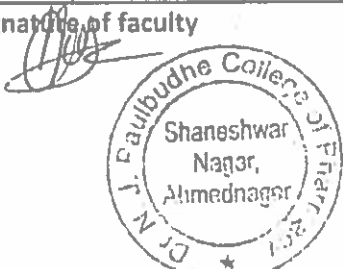
Subject: Pharmaceutical Organic Chemistry I

Name of Faculty: Prof. Suryavanshi R. U.

Sr. No.	Batch	Date	Name of the Topic Covered	Sign. of faculty	Sign. of Academic Head
1	A	01/04/22	Safety measures in an organic laboratory	[Signature]	
	B	24/04/22			
	C	26/04/22			
	D & E	27/04/22 28/04/22			
2	A	01/04/22	Introduction to laboratory techniques: Calibration of thermometer	[Signature]	
	B	25/04/22			
	C	26/04/22			
	D & E	27/04/22 28/04/22			
3	A	08/04/22	Introduction to laboratory techniques: Determination of melting point and boiling point	[Signature]	
	B	02/05/22			
	C	10/05/22			
	D & E	04/05/22 05/05/22			
4	A	22/04/22	Systematic qualitative analysis of unknown organic compounds (Salicylic acid)	[Signature]	
	B	09/05/22			
	C	10/05/22			
	D & E	11/05/22			
5	A	29/04/22	Systematic qualitative analysis of unknown organic compounds (Beta-naphthol)	[Signature]	
	B	28/05/22			
	C	17/05/22			
			D-11/05/22 E 12/05/22		

Signature of faculty

Academic Head



[Signature]
 PRINCIPAL
 Dr. N. J. Paulbudhe College of Pharmacy
 Shaneswar Nagar, Ahmednagar - 414003



ACA/2021-22/08

Date: 28.03.2022

ACADEMIC YEAR 2021-22

RECORD OF LABORATORY TEACHING FOR SECOND TERM

Class: F. Y. B. Pharm

Sem: II

Batch: A, B, C, D

Subject: Pharmaceutical Organic Chemistry I

Name of Faculty: Prof. Suryavanshi R. U.

Sr. No.	Batch	Date	Name of the Topic Covered	Sign. of faculty	Sign. of Academic Head
6	A	29/04/22	Systematic qualitative analysis of unknown organic compounds (Resercinol)		
	B	28/05/22			
	C	17/05/22			
	D	18/05/22	† E 12-05/22		
7	A	06/05/22	Systematic qualitative analysis of unknown organic compounds (Aniline)		
	B	30/05/22			
	C	24/05/22			
	D	18/05/22	† E 19/05/22		
8	A	13/05/22	Systematic qualitative analysis of unknown organic compounds (Urea)		
	B	06/06/22			
	C	24/05/22			
	D	25/05/22	† E 19/05/22		
9	A	19/05/22	Systematic qualitative analysis of unknown organic compounds (Glucose)		
	B	06/06/22			
	C	30/05/22			
	D	01/06/22	† E 26/05/22		
10	A	29/05/22	Systematic qualitative analysis of unknown organic compounds (Sucrose)		
	B	20/05/22	C 31/05/22		

PRINCIPAL
 Dr. N. J. Paulbudhe College of Pharmacy



ACA/2021-22/08

Date: 28.03.2022

ACADEMIC YEAR 2021-22

RECORD OF LABORATORY TEACHIING FOR SECOND TERM

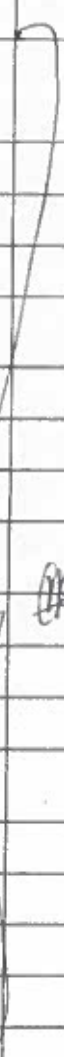
Class: F. Y. B. Pharm

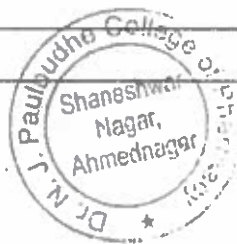
Sem: II


Batch: A, B, C, D

Subject: Pharmaceutical Organic Chemistry I

Name of Faculty: Suryavanshi R. U.

Sr. No.	Batch	Date	Name of the Topic Covered	Sign. of faculty	Sign. of Academic Head
	D	1/06/22	E 26/05/22		
	A	27/05/22	Systematic qualitative analysis of unknown organic compounds (alpha Naphthol)		
	B	20/06/22			
	C	07/06/22			
	D	08/06/22	02/06/22		
12	A	03/06/22	To synthesize 2-3-diphenyl Quinoxaline from benzil		
	B	27/06/22			
	C	07/06/22			
	D	08/06/22	E 02/06/22		
13	A	03/06/22	To stnthesize benzotriazole from (OPD) from ortho phenylene diamine		
	B	27/06/22			
	C	14/06/22			
	D	15/06/22	E + 9/6/22		
14	A	10/6/22	To study geometrical isomerism using stereochemistry		
	B	27/06/22			
	C	14/06/22			
	D	15/6/22			
	E	09/06/22			




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ACA/2018-19/04

Date: 17/01/22

ACADEMIC YEAR 20-21

TEACHING PLAN FOR FIRST TERM

Class: T. Y. B. Pharm

Sem: VI

Subject: Quality Assurance

Name of Faculty: Prof. Suryavanshi Roshani Uttamrao

Duration	Lecture No.	Topic planned
From: To: 17/01/22 to 15/05/22	1	Quality Assurance and Quality Management concepts: Definition and concept of Quality control philosophies ISO 9000 & ISO14000: Overview.
	2	Quality assurance and GMP
	3	Introduction to Regulatory agencies like CDSCO, USFDA, WHO, PIC/S
	4	Total Quality Management (TQM): Definition, elements,
	5	ICH Guidelines: Brief overview of QSEM, ICH stability testing guidelines
	6	Quality by design (QbD): Definition, Overview
	7	Elements of QbD program
	8	Benefits and Elements
	9	NABL accreditation
	10	Principles and procedures
	11	Organization and personnel.
	12	Personnel responsibilities, training
	13	hygiene and personal records
	14	Premises: Design, construction and plant layout, maintenance,
	15	sanitation, environmental control, utilities and maintenance of sterile areas
	16	control of contamination.
	17	Equipments and raw materials: Equipment selection
	18	purchase specifications, maintenance, maintenance of stores for raw materials
	19	maintenance of stores for raw materials
	20	maintenance of stores for raw materials
	21	Quality Control of Packaging material:
	22	Quality control test for containers



ACA/2021-22/07

Date: 17/01/22

ACADEMIC YEAR 21-22

RECORD OF CLASSROOM TEACHING FOR SECOND TERM

Class: T.Y.B. Pharm

SEM: VI

Subject: Quality assurance

Name of Faculty: Prof. Suryavanshi R.U.

Sr. No.	Date	Name of the Topic Covered	Sign. of faculty	Sign. of academic Head
1	18/01/22	Quality Assurance and Quality Management concepts: Definition & concept of Quality control philosophies ISO 9000 & ISO 14000: Overview,		
2	19/01/22	Quality assurance and GMP		
3	21/01/22	Introduction to Regulatory agencies like CDSCO, USFDA, WHO, PIC/S		
4	25/01/22	Total Quality Management (TQM) Definition, elements.		
5	28/1/22	ICH Guidelines: Brief overview of QSEM, ICH stability testing guidelines		
6	29/01/22	Quality by design (QbD): Def. Overview		
7	1/02/22	Elements of QbD program		
8	02/02/22	Benefits and elements		
9	4/02/22	NABL accreditation		
10	5/02/22	Principles and procedures.		
11	8/02/22	Organization and personnel		
12	9/02/22	Personnel responsibilities, training		
13	11/02/22	Hygiene and personal records		

Signature of faculty



Academic Head

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Shameshwar Nagar, A. Nagar-414003



ACA/2021-22/07

Date:

ACADEMIC YEAR 21-22

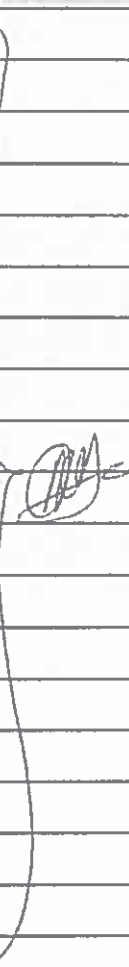
RECORD OF CLASSROOM TEACHING FOR SECOND TERM

Class: T.Y.B. Pharm

SEM: VI

Subject: Quality assurance

Name of Faculty: Prof. Suryavanshi R.U.

Sr. No.	Date	Name of the Topic Covered	Sign. of faculty	Sign. of academic Head
14	15/02/22	Premises. Design, construction and plant layout, maintenance		
15	16/02/22	sanitation, environmental control utilities and maintenance of sterile areas.		
16	17/02/22	control of contamination		
17	24/02/22	Equipments and raw materials. Equipment selection		
18	23/02/22	purchase specifications, maintenance, maintenance of stores for raw materials.		
19	25/02/22	maintenance of stores for raw materials.		
20	2/3/22	maintenance of stores for raw materials.		
21	4/3/22	Quality control of packaging material.		
22	7/3/22	Quality control test for containers		
23	8/3/22	Quality control test for containers		

Signature of faculty



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 Shaneswar Nagar, Ahmednagar - 414003



ACA/2021-22/07

Date:

ACADEMIC YEAR 21-22


RECORD OF CLASSROOM TEACHING FOR SECOND TERM

Class: T.Y.B. Pharm

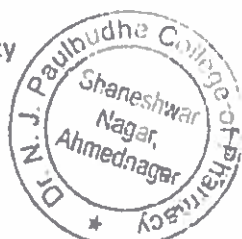
SEM: VI

Subject: Quality assurance

Name of Faculty: Prof. Suryavanshi R.U.

Sr. No.	Date	Name of the Topic Covered	Sign. of faculty	Sign. of academic Head
24	9/3/22	rubber closures		
25	11/03/22	secondary packing materials		
26	14/03/22	secondary packing materials		
27	15/03/22	Good Laboratory practices		
28	26/03/22	Good Laboratory practices		
29	19/03/22	Role CPCSEA		
30	21/03/22	Role of CRSSFA		
31	22/03/22	Complaints: complaints and evaluation of complaints		
32	26/03/22	Handling of return good		
33	25/03/22	Recalling and waste disposal		
34	25/03/22	Document maintenance in pharmaceutical industry in brief.		
35	5/4/22	Batch formula Record		
36	6/04/22	Batch formula Record		
37	9/04/22	Master formula Record, SOP		
38	12/04/22	distribution records.		
39	13/04/22	calibration and validation:		
		Introduction, definition		

Signature of faculty



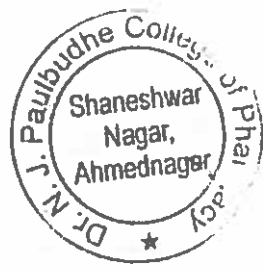
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Shameshwar nagar, A. nagar-414003



and general principles of calibration

- 16/04 40 Qualification and validation
- 9/4 41 importance and scope of validation
- 01/4 42 type of validation
- 24/4 43 General principles of Analytical method validation
- 22/4 44 Warehousing : Good warehousing practice
- 24/4 45 materials management





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SEM-4

BP401T: Pharmaceutical Organic Chemistry-III (Theory)

COURSE OUTCOME

BP401T.1	Review the concept of stereoisomerism and explain the reactions of chiral molecules.
BP401T.2	Discuss the resolution of racemic mixtures and explain the concept of asymmetric synthesis with a suitable example.
BP401T.3	Describe structures, synthesis, reactions & medicinal uses of 5 & 6-membered heterocyclic compounds
BP401T.4	Explain the synthesis, reaction medicinal uses of other heterocyclic compounds.
BP401T.5	Outline the important name reactions and their applications in the synthesis of drugs.

PROGRAM OUTCOME

CO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	Mean
BP401T.CO1	3	3	2	2	3	2	1	2	2	2	3	2.7
BP401T.CO2	3	3	2	1	3	1	1	1	1	1	3	1.81
BP401T.CO3	3	3	1	1	3	1	1	1	1	2	3	1.81
BP401T.CO4	3	3	2	1	3	2	1	1	1	2	3	2
BP401T.CO5	3	3	2	2	3	2	1	2	1	1	3	2.09
Mean	3	3	1.8	1.4	3	1.6	1	1.4	1.2	1.6	3	

3-High corelation

2- Medium corelation

1-Lower corelation



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Approved By: P. C. I, New Delhi, Ref No: F.No.02.297/2018-PCI, AICTE: F.No. Western/2017-1-3359523301,
Affiliated to Savitribai Phule Pune University – Ref. No. PU/AN/PHARM/145/2017



BP402T: MEDICINAL CHEMISTRY-I (Theory)

COURSE OUTCOME

BP402T.1	Discuss the history and development of medicinal chemistry & explain the physicochemical properties of drugs in relation to biological action.
BP402T.2	Outline the principles of drug metabolism and analyze the factors affecting drug metabolism.
BP402T.3	Outline the structures, synthesis, SAR, MOA and uses of drugs acting on ANS.
BP402T.4	Outline the structures, synthesis, SAR, MOA and uses of drugs acting on PNS.
BP402T.5	Outline the structures, synthesis, SAR, MOA and uses of drugs acting on CNS

PROGRAM OUTCOME

CO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11
BP402T.1	3	3	3	2	3	3	2	2	3	1	3
BP402T.2	3	3	2	1	3	3	2	-	3	1	3
BP402T.3	3	3	2	2	3	1	1	-	3	1	3
BP402T.4	3	3	2	1	3	1	1	1	3	1	3
BP402T.5	3	3	3	1	3	3	2	2	3	1	3


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Seva Shikshan Prasarak Mandal's



Dr. N. J. Paulbudhe College of Pharmacy

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COURSE FILE INDEX

Approved By: P. C. I, New Delhi, Ref No: F.No.02.297/2018-PCI, AICTE: F.No. Western/2017-1-3359523301,
Affiliated to Savitribai Phule Pune University – Ref. No. PU/AN/PHARM/145/2017



INDEX

(RECORD SHOULD BE MAINTAIN SEMESTER WISE/ACADEMIC YEAR)

SR NO	CONTENT	YES/NO
1.	Faculty Details	
2.	Academic calendar	
3.	Syllabus Copy	
4.	Academic Time table	
5.	Individual Faculty Time Table	
6.	Teaching Plan	
7.	Lab Plan	
8.	All Sessional question papers/ mark sheets	
9.	Mark Analysis Report	
10.	Assignment/ Class Test Record	
11.	Coverage Beyond Syllabus	
12.	Staff Training	
13.	Project Funding	
14.	Co-Curricular and Extracurricular Activity	
15.	UG-Project Guidance Record activity	
16.	Seminars/ Conferences/ Workshop Attended Record	
17.	Faculty Publication Detail	
18.	Expert Talk Presentation Detail	
19.	Record of University, DTE, PCI Duties	
20.	Student Counselling	





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Shaneshwar Nagar, Vasant Tekadi, Savedi, Ahmednagar, Pin: 414003



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SUMARRY OF INDUSTRIAL VISITS



Approved By: P. C. I, New Delhi, Ref No: F.No.02.297/2018-PCI, AICTE: F.No. Western/2017-1-3359523301,
Affiliated to Savitribai Phule Pune University – Ref. No. PU/AN/PHARM/145/2017

Compose

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More

Labels

Unwanted




ADORA ADMIN
to Anand, finance, production, qa, me

Dear Sir,

With ref to your trail mail, pl arrange your 1ST visit on 21 MARCH 2023 FOR 60 Students
All students will come along with Apron, Cap, Mask, Shoes Cover Etc
This is For Your Information Time 10 AM

Thanks & Regards,
Deepak Pansure
ADMIN & HR
ADORA PRODUCTS PVT LTD
PLOT NO. H-23/1/6, MIDC WALUJ
AURANGABAD -431136 (MS)
PH - + 91 240 2556850
CELL NO.+ 91 775094806.&7874388826




PRINCIPAL
Or. N. J. Paulbudhe College of Pharmacy
Shameshwar nagar. A.nagar-414003

Word No. : SSPM/DRNJCP/2021-22/182

Date : 5/7/2022

To,

Adora Products
Private Limited,
Waly,
Aurangabad

Subject : - Regarding Permission for Industrial Visit.

Respected Sir/Mam,

With reference to above cited subject. We are reputed research organization conducting B. pharmacy course since 2017 under affiliation of Pune University. Our institute is approved and recognized by AICTE, Govt. of Maharashtra and PCI New Delhi.


On behalf of the Dr.N. J Paulbudhe college of Pharmacy, Ahmednagar. I take this privilege to seek your permission about the proposed visit to your industrial organization. The Final Year B.Pharm Students of B. Pharmacy of our college desire to visit Adora Product Private Limited, Aurangabad.

The total Number of student would be 50 along with 06 faculty members on 6th july 2022 and remaining 50 students and 06 faculty members on 9th july 2022. We also request you to make available your expert staff for guidance about your plant and processes. This will help student to develop in future career and job prospects. We are sure that this will be a great opportunity for our institute to help young generation to learn about industrial sector wherein you are contributing in much worth to its credibility.

Kindly reply positively, College will be very thankful for the same.

Thanking you with anticipation.




PRINCIPAL
Dr. N. J. Paulbudhe College of Pharmacy
Shameshwar nagar, A.nagar-414003

Approved By : P.C.I. New Delhi Ref No.: F.No.02.297/2018-PCI, AICTE : F.No. Western/2017-1-3359523301,
Affiliated to Savitribai Phule Pune University, PCI/ND, PU/AN/PHARM/145/2017




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Shameshwar nagar, A.nagar-414003



Seva Shikshan Prasarak Mandali's

DR. N. J. PAULBUDHE COLLEGE OF PHARMACY

Survey No. 45/1B, Shameshwar nagar, Vasant Tekadi, Savedi, Ahmednagar

Ph. : (0241) 2421154 | Email : bpharmacydnp@gmail.com | Website : bpharmacy.sspmcnline.org | DTE Code : 5431 | AISHE Code : C-59365



Date : 5/7/2022

Outward No. : SSPM/DRNJCP/2021 - 2149

Notice

All students of Final year B.Pharm. here inform that your industrial visit will be schedule tomorrow for First slot (Roll no. - 01 to 63) on date 6th july 2022 to Adora Pharma, Waluj MIDC, Aurangabad. There are 63 students allocated as per following slot.

Slot - 1) 01 - 63 (6th july 2022)

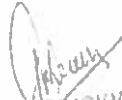
2) 64 - 126 (9th july 2022)

Timing : All students (First slot Roll no. - 01 to 63) should be present at tomorrow morning 06.00 am in college. Everyone should follow all rules and regulations regarding industrial tour.


Instructions :

- 1) College Id card and uniform, shoes are compulsory with neat clean pressed (Apron and Cap).
- 2) Apron and cap kept in bag that has to wear after reaching the industry place.
- 3) College will not provide Tea and Breakfast to students.
- 4) College will provide Lunch to all students.




PRINCIPAL
Dr. N. J. Paulbudhe College of Pharmacy
Shameshwar nagar, A. nagar-414002




PRINCIPAL
Dr. N. J. Paulbudhe College of Pharmacy
Shameshwar nagar, A. nagar-414002

adora

A GMP Certified Company

REF NO.: APPL/ADM/IV06072022/11

06/07/2022

CERTIFICATE FOR INDUSTRIAL VISIT

This is to certify that the students of DR.N.J.PAULBUDHE COLLEGE OF PHARMACY AHMEDNAGAR - 414003 visited on 06/07/2022 our manufacturing factory situated at H-23/1/6, MIDC, Waluj, Aurangabad-431136 (MS).

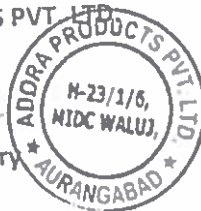
During the industrial visit 52 students were accompanied by their 4 teaching staff, all of them visited & were made aware about the detailed procedures involved in manufacturing of Tablets, Capsules and Dry syrup formulation.

Also they were made aware about function of Quality Control, Quality Assurance.

Hence this certificate.

For, ADORA PRODUCTS PVT. LTD.

Authorised Signatory



PRINCIPAL

Dr. N. J. Paulbudhe College of Pharmacy
Shaneswar Nagar, Ahmednagar - 414003

Adora Products Pvt. Ltd.

H-23/1/6, MIDC, Waluj, Aurangabad - 431 136, Maharashtra (India) Contact No. 0240-2556650, E-mail: adorapharma@gmail.com

CIN: U24239MH2006PTC108438

GST NO: 27AAGCA05410128

adora

A GMP Certified Company

REF NO.: APPL/ADM/IV09072022/12

09/07/2022

CERTIFICATE FOR INDUSTRIAL VISIT

This is to certify that the students of DR.N.J.PAULBUDHE COLLEGE OF PHARMACY AHMEDNAGAR - 414003 visited on 09/07/2022 our manufacturing factory situated at H-23/1/6, MIDC, Waluj, Aurangabad-431136 (MS).

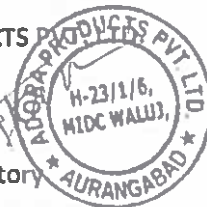
During the industrial visit 41 students were accompanied by their 6 teaching staff, all of them visited & were made aware about the detailed procedures involved in manufacturing of Tablets, Capsules and Dry syrup formulation.

Also they were made aware about function of Quality Control, Quality Assurance.

Hence this certificate.

For, ADORA PRODUCTS

Authorised Signatory



PRINCIPAL

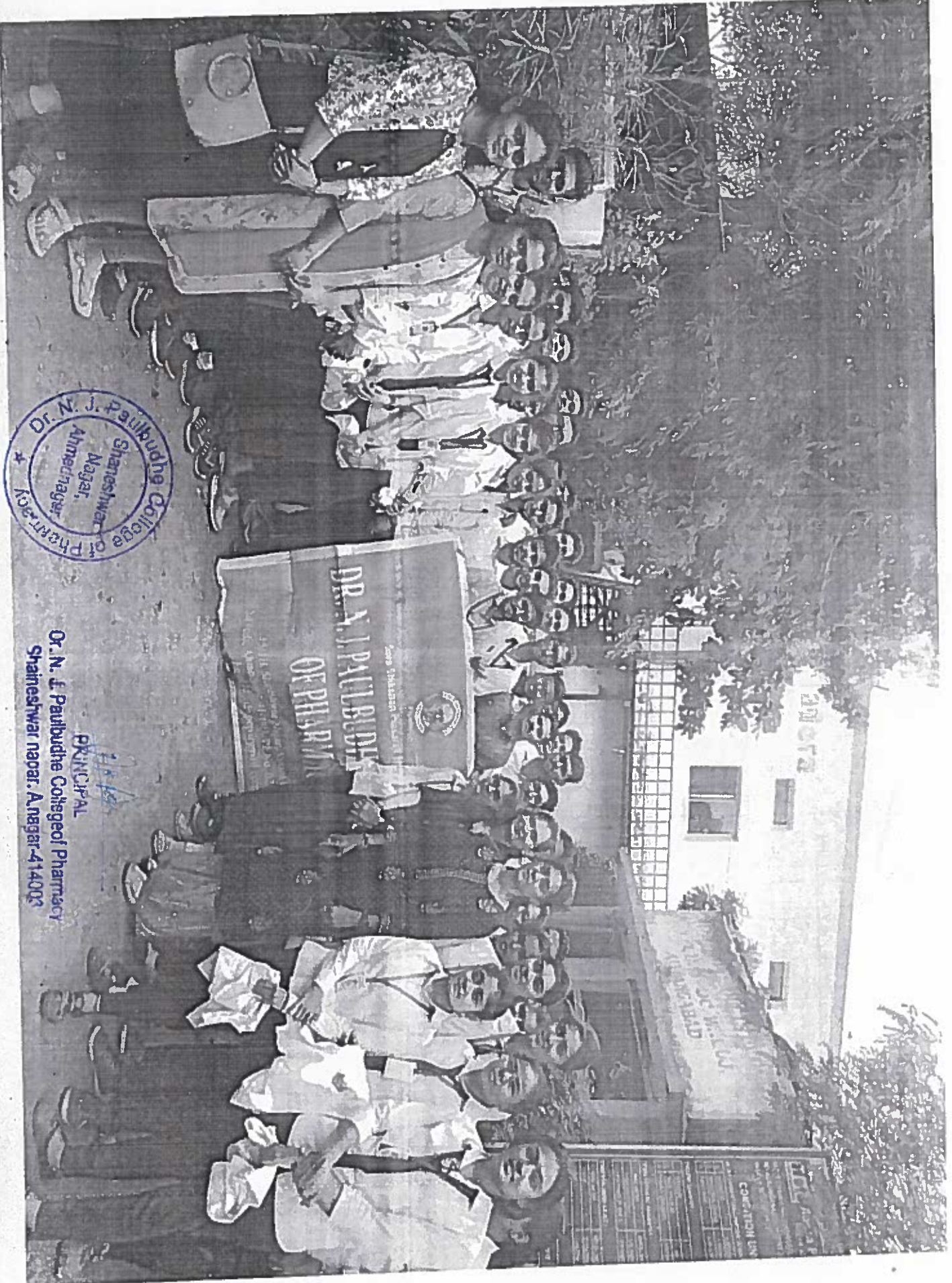
Dr. N. J. Paulbudhe College of Pharmacy
Shaneswar nagar. A.nagar-414003

Adora Products Pvt. Ltd.

H-23/1/6, MIDC, Waluj, Aurangabad - 431 136, Maharashtra (India). Contact No. 0240-2556650, E-mail : adorapharma@gmail.com

CIN : U24230MH2006PTC166438

GST No. 27AAGCA0541D1Z8



Dr. N. J. Paulbude
Sharneshwar
Nagar,
Ahmednagar
College of
Pharmacy

PRINCIPAL
Dr. N. J. Paulbude College of Pharmacy
Sharneshwar Nagar, Ahmednagar-414003



Seva Shikshan Prasarak Mandal's



DR. N. J. PAULBUDHE COLLEGE OF PHARMACY

Survey No. 45/1B, Shaneshwar nagar, Vasant Tekadi, Savedi, Ahmednagar

सर्वज्ञानं सर्वभूतेषु

Ph.: (0241) 2421154 | Email: bpharmacydrn@gmail.com | Website: bpharmacy.sscrcollege.org | DTE Code: 9451 | ASHE Code: C-09365

Outward No. : SSPM/DRNJCP/ -

Date : 09/07/2022

To,

Adora Products
Pvt. Limited
Plot - H-23/1/6, MIDC,
Aurangabad, Waluj, 431136
Aurangabad.

Subject: Conducting Campus Interview of Final Year B. Pharm Students in our college Dr. N. J. Paulbudhe College of Pharmacy, Ahmednagar.

Respected Sir/Mam,

With reference to above cited subject. We are reputed research organization conducting B.Pharmacy course since 2017 under affiliation of Savitribai Phule Pune University. Our institute is approved and recognized by AICTE, Govt. of Maharashtra and PCI New Delhi.

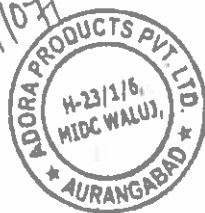
On behalf of the Dr. N. J. Paulbudhe College of Pharmacy, Ahmednagar. I take this privilege to seek your permission about conducting Campus Interview for our Final Year B. Pharm Students.


This will help student to develop in future career and job prospects. We are sure that this will be a great opportunity for our institute to help young generation to learn about industrial sector wherein you are contributing in much worth to its credibility.

Kindly do the needful, College will be very thankful for the same.

Thanking you with anticipation.

Roseel
09/07/2022




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Shaneshwar nagar, A. nagar-414003


PRINCIPAL
Dr. N. J. Paulbudhe College of Pharmacy
Shaneshwar nagar, A. nagar-414003



DR. N. J. PAULBUDHE COLLEGE
OF PHARMACY
Shri. K. B. Chaudhari, Phulewadi, Sector 1,
P. O. Phulewadi, Dist. Ahmednagar,
Maharashtra - 414001

Dr. N. J. Paulbudhe College of Pharmacy
Shri. K. B. Chaudhari,
Phulewadi,
Ahmednagar

Dr. N. J. Paulbudhe College of Pharmacy
Shri. K. B. Chaudhari, Phulewadi, Sector 1,
P. O. Phulewadi, Dist. Ahmednagar, Maharashtra - 414001



Seva Shikshan Prasarak Mandal's

Dr. N. J. Paulbudhe College of Pharmacy

Shaneshwar Nagar, Vasant Tekadi, Savedi, Ahmednagar, Pin: 414003



Mobile. No: 7774036749, Ph. No: (0241) 2423640 | E - mail: bpharmacydnjp@gmail.com | www.bpharmacy.sspmonline.org | DTE Code: 5451 | AISHE Code C-59365 | PCI 2002

**STUDENT ENROLLED
A.Y.2021-22**



Approved By: P. C. I, New Delhi, Ref No: F.No.02.297/2018-PCI, AICTE: F.No. Western/2017-1-3359523301,
Affiliated to Savitribai Phule Pune University – Ref. No. PU/AN/PHARM/145/2017

Seva Shikshan Prasarak Mandal's
Dr.N.J.Paulbudhe College Of Pharmacy
B.Pharmacy 1st Year Student List A.Y.2021.22
2019 Pattern

Roll No.	Students Name	Roll No.	Students Name
1	Agalave Gaurav Mahadev	41	Kandekar Sambhaji Shivaji
2	Amolic Ashu Viju	42	Karche Sifa Allabaksh
3	Avhad Rohini Vitthal	43	Kasabe yash Babu
4	Balid Akash Anil	44	Kaware Akshay Satish ARC DONE
5	Baraskar Lekha Bajirao	45	Khan Awes Shafik
6	Beg Aman Alishan	46	Khapke Monika Dattatraya cash
7	Berad Vrushali Ashok	47	Kharade Renuka Rajeshkumar
8	Bhabad Nitin Subhash	48	Kharpude Shubhangi Subhash
9	Bhale Omkar Santosh	49	Khilari Sanket Vijay
10	Bhosale Suraj Chandrakant	50	Kulkarni Varunraj Subhash
11	Bhutkar Kunal Mohan	51	Kumatkar Muktabai Balnath
12	Bidkar Apurva Santosh	52	Kumatkar Rutika Babasaheb
13	Chalak Sakshi Parmeshwar	53	Lawande Kalyani Ramesh
14	Chaure Shraddha Nanabhau	54	Mache Rushikesh Babasaheb
15	Chavan Dnyaneshwar Sandeep	55	Mahajan Rutuja Yogesh
16	Chavan Om Sanjay	56	Mehetre Onkar Arun
17	Chintamani Eashan Sanjay	57	Mhaske Adarsh Ashok
18	Dahatonde Shubham Pradip	58	Mhaske Tejesh Ramdas
19	Darade Suraj Kailas	59	Mohalkar Sakshi Dattatraya
20	Deshpande Saurav Shridhar	60	Navathor Vishal Nanasaheb
21	Devikar Abhijit Sopana	61	Nehul Abhay Satish
22	Dhanjode Nitesh Shivdas	62	Padavi Lagita Divalya
23	Dhawale Gayatri Dnyandev	63	Pakhare Chhakuli Navnath
24	Dhiwar Prathamesh Sturij	64	Palve Tushar Kailas
25	Duble Tejaswini Motiram	65	Pandey Anup Satynath
26	Gade Amit Milan	66	Pardeshi Payal Bandu
27	Garad Deepali Dnyandev	67	Pawar Aditi Abhijeet
28	Gedam Shubham Shamrao	68	Pawara Sandhya Prakash
29	Ghadage Sagar Dananjay	69	Raskar Prathmesh Anil
30	Ghaymukte Payal Suresh	70	Raut Mayur Ravindra
31	Gune Sarthak Sanjay	71	Raut Omkar Bhausaheb
32	HadleOmkar Sunil	72	Rode Kunal Ankush
33	Hajare Srushti Balkrishan	73	Rokade Rohit Shravan
34	Holkar Pradip Parmeshwar	74	Salve Pranoti Ashok
35	Ingole Durga	75	Salve Prashant Sadashiv
36	Jadhav Samarth Bhaskar	76	Sarode Sakshi Arun
37	Jawale Anandi prakash	77	Sase Rameshwar Ashok
38	Joshi Vaishnavi Anil	78	sathe Abhishika Sushil
39	kalamkar Abhay Rupchand	79	Sayed Zaid AbulHasan
40	kale Vaishnavi Shahadev	80	Shahane Om Nitin



Ya
PRINCIPAL
 Dr. N. J. Paulbudhe College of Pharmacy
 Shameshwar naoar. A.nagar-414005

Roll No.	Students Name
81	Shahapurkar Mitali Milind
82	Shaikh Misba Iliyas
83	Shaikh Sheema Tanveer
84	Shaikh Shifa Fayyaz
85	Shaikh Touhid Khursheed
86	Shete Akanksha Bhagvat
87	Shikh Ayan Shabir
88	Shinde Vedika Rajendra cash
89	Shinde Anup Ashok
90	Shinde Saurav Shivajirao
91	Shinde Vikrant Dadasaheb
92	Sonawane Komal kailas
93	Takale Mahesh Suresh
94	Tawale Akash Balu
95	Thipse Sayali Sushil
96	Thombare Pratiksha Balu better
97	Thombare Shubhangi Ankush
98	Udmale Poonam Babasaheb
99	Upasani Shrutika Shailesh
100	Wable Vaishnavi Chandrakant
101	Wagh Kaushal Kanifnath cash
102	Walke Shubham Babasaheb
103	Ware Aniket Ajay
104	Yengandul Dnyanand Ambadas
105	Zanan Pratik Kailas
106	Zape Utkarsha Vivekrao

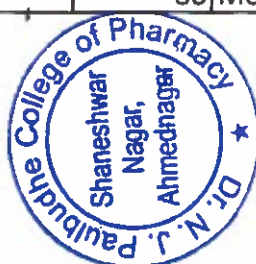


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Dr. N. J. Paulbudhe College of Pharmacy
Shaneswar nagar. A.nagar-414003

**Seva Shikshan Prasarak Mandal's
Dr. N.J.Paulbudhe College of Pharmacy
Final Year B.Pharmacy 2021.22**

Roll No.	Name of Students	Roll No.	Name of Students
1	AdhapureAdarshDnyaneshwar	41	Harale Ram Suresh
2	Agashe Pratiksha Raghunath	42	HarjuleShubhamPradip
3	AmaleSojwalSubhash	43	Ithape Ayush
4	AndhaleAkshayBalasaheb	44	Jadhav Prasad Nagnathrao
5	AnmalPrathameshRudreshwar	45	JadhavSagarRaosaheb
6	AvhadPranali Ashok	46	JagdaleRushikeshMahadev
7	AvhadShruti Ramesh	47	Jagtap Yogesh
8	BadheVaishnavi Arjun	48	Jawale Rushikesh Haribhau
9	BardeDeepti Ramesh	49	Jaybhaye Gaurav Bhaskar
10	BatuleAkshayRajendra	50	KaduAnushree Vishnu
11	Bhagwat Suyog Sunil	51	Kale NilamSampat
12	BhalsingDhirajRajendra	52	KambleSachinShamuvel
13	BhalsingShubhangiBhanudas	53	Kanade Mahesh Namdev
14	BorudeAkashRamdas	54	KaraleOnkarBalasaheb
15	Chaudhari Aniket Haushabapu	55	Karande Ganesh Vikram
16	Chaudhari Anjali Balasaheb	56	Karpe Akshada Ravindra
17	ChaudhariHarshaliRatan	57	KhakalAartiRaosaheb
18	Chavn Shilpa	58	Khandagale Nikita Anil
19	ChinchkarPrajaktaDhananjay	59	KhandagaleSnehaRajendra
20	Desai PankajBalasaheb	60	KhedkarSonaliGahininath
21	Desai SaloniYounus	61	KhemnarRajashreeBapu
22	DeshmukhKirtiNilkanth	62	Khorde Vishal Ashok
23	DevkatePratidnya Ashok	63	KohakadeTejaswini Vilas
24	DhadgeAkshayMahadu	64	Kokate Nikita Rajendra
25	Dhoom Jitendra Sakharam	65	Kolge Rutuja
26	DhormareVikasBalasaheb	66	Kolhe Ganesh Kacharu
27	Dive Komal	67	Kulat Pranav Eknath
28	Doke Somnath	68	Lad MayuriDnyaneshwar
29	DorgeAkshayRamdas	69	Lambhate Kiran Jaywant
30	GaikwadShrutiBhairavanath	70	Lawande Pragati
31	Gandhi SahilMahavir	71	Lokhande Krushna Pandurang
32	Gavhane Hemant	72	LokhandeMangesh Vijay
33	GhadageKajalNavnath	73	Lonare Ravi Murlidhar
34	GhadgeDipak Ashok	74	MakudePayalKishor
35	GhodakeChaitanya Anil	75	Mandhare Shubham Bhausahab
36	Ghodeswar Priynaka	76	Mangalaram Riya Prasad
37	GorkheUmeshPopat	77	MokalArulima Anil
38	GotarneParagPundlik	78	More Lalit Sunil
39	GunjalTejas Anil	79	More Onkar Savleram
40	Gursale Sachin Dhondiram	80	More TusharMahadev



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Dr. N. J. Paulbudhe College of Pharmacy
Shaneswar nagar, A.nagar-414003

81	Nagare Omkar Nivrutti	121	Tanpure Mrunali Rajendra
82	Nagargoje Rutuja Kishor	122	Thange Pradip Rajabhau
83	Navthar Abhishek Santosh	123	Thokal Kajal Wilson
84	Nimase Achal Sanjay	124	Thorat Rahul Gangadhar
85	Nirpane Om Balaji	125	Todmal Abhijit Gorakshanath
86	Pabale Yash Jitendra	126	Ugale Prakash Balasaheb
87	Padole Rutuja Jalindar	127	Vidhate Mayur Kedarnath
88	Palve Pratiksha Ishwar	128	Wandhekar Shital Rajendra
89	Palve Shruti Anil		
90	Pandhare Siddhi		
91	Patekar Pradnyashil		
92	Pathare Rohini Ramesh		
93	Patil Shivraj		
94	Patole Gaurav Sunil		
95	Patole Sanyukta Mahendra		
96	Pawar Zuber Taimur Ali		
97	Rahinj Swapnil Sanjay		
98	Ransing Vrushali Uttamrao		
99	Rathod Pradip Sahebrao		
100	Raut Gitanjali Mohan		
101	Sannake Shubham		
102	Saraf Rushikesh Sakharam		
103	Sathe Aniket Arvind		
104	Sayambar Rushikesh Somnath		
105	Shaikh Farhin Nisar		
106	Shaikh Mohammed YasirNazir		
107	Shaikh Sarah Shakir		
108	Shekade Atmaram Nivrutti		
109	Shelke Nikita Appasaheb		
110	Shende Mayuri Vilas		
111	Shinde Amol Ashok		
112	Shinde Eaklavya Milind		
113	Shinde Nanddeep Balaji		
114	Shinde Priti Baban		
115	Shinde Shubham Babasaheb		
116	Shinde Umesh Mahadev		
117	Shirsath Kirti Sopan		
118	Sonawane Prerana Dodha		
119	Sweta Raosaheb Katore		
120	Take Akash Pralhad		




 PRINCIPAL
 Dr. N. J. Paulbudhe College of Pharmacy
 Shaneswar Nagar, A. Nagar-414001



Seva Shikshan Prasarak Mandal's

Dr. N. J. Paulbudhe College of Pharmacy

Shaneshwar Nagar, Vasant Tekadi, Savedi, Ahmednagar, Pin: 414003



Mobile. No: 7774036749, Ph. No: (0241) 2423640 | E – mail: bpharmacydnjp@gmail.com | www.bpharmacy.sspmonline.org | DTE Code: 5451 | AISHE Code C-59365 | PCI 2002

Continuous Assessment



Approved By: P. C. I, New Delhi, Ref No: F.No.02.297/2018-PCI, AICTE: F.No. Western/2017-1-3359523301,
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Dr. N.J. Paulbudhe College of Pharmacy, Ahmednagar
SESSIONAL AVERAGE RECORD SECOND YEAR

Academic Year- 2021-22

SUBJECT- medicinal chemistry-I SEM- IV sem

No.	Name	Seat No.	Theory							Practical							Sign.
			I 30	II 30	Impr 30	Avg. 30	CS M 15	CM 10	Total CSM+ CM=25	I 40	II 40	Impr 40	Avg. 40	CSM 10	CM 05	Total CSM+ CM=15	
1	Adhav Piyush Atul	22067	02	04		03	02	10	12	22	21		22	06	05	11	
2	Akolkar Ranvir Prashant	22071	03	Ab		02	01	10	11	25	Ab		13	03	05	08	
3	Amale Pranav Prafulla	22072	21	18		20	10	09	19	26	28		27	07	05	12	
4	Auti Ankita Satish	22076	01	04		03	02	10	12	27	22		25	06	05	11	
5	Bade Vaishnavi Sandip	22078	21	21		21	11	09	20	32	34		33	08	05	13	
6	Baglane Rushikesh Balasaheb	22079	04	14		09	05	10	15	29	27		28	07	05	12	
7	Bande Shaila Suresh	22081	17	17		17	09	09	18	29	29		29	07	05	12	
8	Barde Vilas Ashok	22087	00	04		02	01	10	11	25	Ab		13	03	05	08	
9	Berad Rajshree Baban	22089	05	15		10	05	10	15	28	27		28	07	05	12	
10	Bhapkar Vaishnavi Babu	22094	18	17		18	09	09	18	28	26		27	07	05	12	
11	Bhingardive Piyush Milind	22097	23	27		25	13	09	22	31	30		31	08	05	13	
12	Bhise Abhishek Balasaheb	22099	10	09		10	05	10	15	30	24		27	07	05	12	
13	Bhite Vaishnavi Ramdas	22101	12	08		10	05	10	15	25	25		25	06	05	11	
14	Borase Srushti Babasaheb	22108	11	12		12	06	09	15	28	26		27	07	05	12	
15	Borude Priyanka Sanjay	22109	20	18		19	10	09	19	29	29		29	07	05	12	
16	Borude Shraddha Rajesh	22110	22	16		19	10	09	19	30	29		30	08	05	13	
17	Bramhane Sayali Vijay	22111	09	11		10	05	10	15	27	27		27	07	05	12	
18	Chaudhari Dattatray Sunil	22114	01	07		04	02	10	12	26	25		26	07	05	12	
19	Chavan Ajay Ashok	22116	00	04		02	01	10	11	24	Ab		12	03	05	08	
20	Chothe Priya Sanjay	22122	22	19		21	11	09	20	31	33		32	08	05	13	
21	Dabhade Rutuja Madhavrao	22123	17	20		19	10	09	19	30	29		30	08	05	13	
22	Dalvi Sarika Milind	22127	15	16		16	08	09	17	32	30		31	08	05	13	
23	Darade Abhinav Shivnath	22129	01	03		02	01	10	11	Ab	Ab		00	00	05	05	
24	Dasase Jayesh Santosh	22131	01	05		03	02	10	12	24	25		25	06	05	11	
25	Degavakar Gayatri Ganesh	22132	02	06		04	02	10	12	25	20		23	06	05	11	
26	Devikar Arun Suresh	22137	03	08		06	03	10	13	29	20		25	06	05	11	
27	Devikar Shubham Baban	22138	01	06		04	02	10	12	29	21		25	06	05	11	
28	Devkar Sakshi Rajendra	22139	09	10		10	05	10	15	32	26		29	07	05	12	

No.	Name	Seat No.	Theory							Practical							Sign.
			I 30	II 30	Impr 30	Avg. 30	CS M 15	CM 10	Total CSM+ CM=25	I 40	II 40	Impr 40	Avg. 40	CSM 10	CM 05	Total CSM+ CM=15	
29	Dhakne Krushna Bhagwat	22140	15	15		15	08	09	17	32	25		29	07	05	12	
30	Dhongade Snehal Rajkumar	22144	19	11		15	08	09	17	32	28		30	08	05	13	
31	Gade Sanika Savata	22153	12	07		10	05	10	15	30	23		27	07	05	12	
32	Gaikwad Abhijeet Santosh	22154	05	08		07	04	10	14	29	24		27	07	05	12	
33	Gaikwad Urmila Vishnu	22156	14	17		16	08	09	17	28	26		27	07	05	12	
34	Gaikwad Vaibhav Vishwas	22157	02	03		03	02	10	12	27	23		25	06	05	11	
35	Ganar Sejal Anil	22158	08	16		12	06	09	15	30	24		27	07	05	12	
36	Ghadge Sampada Shivaji	22167	16	19		18	09	09	18	33	26		30	08	05	13	
37	Gholap Vaibhavi Vivek	22171	11	11		11	06	09	15	29	24		27	07	05	12	
38	Ghorpade Nikhil Dattatraya	22172	17	21		19	10	09	19	30	25		28	07	05	12	
39	Ghule Ajit Raosaheb	22174	08	Ab		04	02	10	12	29	25		27	07	05	12	
40	Gund Vaibhav Raghunath	22179	05	02		04	02	10	12	31	20		26	07	05	12	
41	Guthe Anant Bhagwat	22181	13	14		14	07	09	16	32	23		28	07	05	12	
42	Handal Shubhangi Machhindra	22185	07	08		08	04	10	14	27	22		25	06	05	11	
43	Hirade Priyanka Dattatraya	22186	13	20		17	09	09	18	30	24		27	07	05	12	
44	Hushar Rushikesh Sunil	22188	11	12		12	06	09	15	27	22		25	06	05	11	
45	Jadhav Shital Babasaheb	22194	25	21		23	12	09	21	29	33		31	08	05	13	
46	Kachare Sanket Sunil	22200	01	06		04	02	10	12	26	21		24	06	05	11	
47	Kale Rahul Vinod	22202	08	05		07	04	10	14	29	22		26	07	05	12	
48	Kandekar Mahesh Raghunath	22206	12	12		12	06	09	15	32	24		28	07	05	12	
49	Kandekar Sushmita Anil	22208	02	16		19	10	09	19	33	27		30	08	05	13	
50	Kandekar Yash Rajendra	22210	02	10		06	03	10	13	32	22		27	07	05	12	
51	Kangare Aditya Dharma	22211	04	10		07	04	10	14	27	Ab		24	04	05	09	
52	Karale Adesh Arjun	22212	04	00		02	01	10	11	24	21		23	06	05	11	
53	Karale Aditya Sayaji	22213	00	00		00	00	10	10	23	21		22	06	05	11	
54	Karande Payal Sandip	22215	19	15		17	09	09	18	34	27		31	08	05	13	
55	Kardile Sarika Mahadev	22217	16	25		21	11	09	20	32	27		30	08	05	13	
56	Kardile Tejal Dattatray	22218	21	17		19	10	09	19	31	29		30	08	05	13	
57	Kasar Utkarsh Balasaheb	22221	11	14		13	07	09	16	26	22		24	06	05	11	
58	Kause Nikhil Mahadev	22223	11	11		11	06	09	15	28	22		25	06	05	11	
59	Kaware Pratiksha Dattatray	22225	12	12		12	06	09	15	Ab	25		13	03	05	08	
60	Kharmale Shantanu Jitendra	22229	11	21		16	08	08	16	27	25		24	06	05	11	

No.	Name	Seat No.	Theory							Practical							Sign.
			I 30	II 30	Impr 30	Avg. 30	CS M 15	CM 10	Total CSM+ CM=25	I 40	II 40	Impr 40	Avg. 40	CSM 10	CM 05	Total CSM+ CM=15	
61	Kolte Dnyaneshwari Abasaheb	22234	25	27		26	13	09	22	29	31		30	08	05	13	
62	Kothari Palpesh Prakash	22235	21	24		23	12	09	21	28	32		30	08	05	13	
63	Kotkar Mayuri Santosh	22237	23	22		23	12	09	21	30	26		28	07	05	12	
64	Kurumkar Gayatri Kiran	22241	07	05		06	03	10	13	27	23		25	06	05	11	
65	Lawande Mayur Avinash	22243	18	02		10	05	10	15	29	29		29	07	05	12	
66	Laware Prajwal Ajit	22244	13	09		11	06	09	15	23	29		26	07	05	12	
67	Londhe Rameshwar Babasaheb	22246	23	26		25	13	09	22	31	31		31	08	05	13	
68	Malangner Shubham Ramesh	22253	06	13		10	05	10	15	26	27		27	07	05	12	
69	Mhaske Mayur Nitin	22259	05	02		04	02	10	12	26	21		24	06	05	11	
70	Mhaske Sushant Subhash	22260	18	15		17	09	09	18	26	25		26	07	05	12	
71	More Ashwini Kushabhau	22263	12	01		07	04	10	14	22	23		23	06	05	11	
72	More Vaibhav Kantilal	22264	04	06		05	03	10	13	27	22		25	06	05	11	
73	Mujmule Akshada Vitthal	22265	20	14		17	09	09	18	29	24		27	07	05	12	
74	Nair Archana Shreeji	22268	16	08		12	06	09	15	27	24		26	07	05	12	
75	Nehul Akanksha Balasaheb	22271	12	17		15	08	09	17	24	26		25	06	05	11	
76	Palaskar Prajakta Dattatray	22277	27	26		27	14	09	23	33	32		33	08	05	13	
77	Palve Adesh Bhanudas	22278	07	05		06	03	10	13	28	22		25	06	05	11	
78	Pandule Kanchan Kantilal	22281	19	19		19	10	09	19	31	25		33	08	05	13	
79	Patel Ayan Anwar	22283	12	04		08	04	10	14	25	24		25	06	05	11	
80	Pathare Abhiruchi Vilas	22287	23	23		23	12	09	21	28	31		30	08	05	12	
81	Pathare Dipak Gorakh	22288	06	02		04	02	10	12	28	22		25	06	05	11	
82	Paulbudhe Sai Suryakant	22290	12	04		08	04	10	14	20	24		22	06	05	11	
83	Pawar Jyoti Arjun	22292	12	12		12	06	09	15	27	26		27	07	05	12	
84	Pawar Rutuja Vikas	22295	14	12		13	07	09	16	27	24		26	07	05	12	
85	Pawar Shruti Sahebrao	22297	12	12		12	06	09	15	29	22		26	07	05	12	
86	Pawar Vikash Shivaji	22298	17	12		15	08	09	17	25	22		24	06	05	11	
87	Rathod Swati Eknath	22308	12	18		15	08	09	17	30	29		30	08	05	13	
88	Raut Akshada Vijay	22309	14	14		14	07	09	16	30	25		28	07	05	12	
89	Rodage Parameshwar Ramdas	22313	14	18		16	08	09	17	24	29		27	07	05	12	
90	Sable Sayali Shivaji	22317	17	12		15	08	09	17	30	22		26	07	05	12	

No.	Name	Seat No.	Theory							Practical							Sign.
			I 30	II 30	Impr 30	Avg. 30	CS M 15	CM 10	Total CSM+ CM=25	I 40	II 40	Impr 40	Avg. 40	CSM 10	CM 05	Total CSM+ CM=15	
91	Sangade Dnyaneshwari Ashok	22320	17	19		16	08	09	17	31	28		30	08	05	13	
92	Sangpal Rushikesh Changdev	22321	20	18		19	10	09	19	30	26		28	07	05	12	
93	Sase Siddhant Sanjay	22330	12	05		09	05	10	15	20	21		21	05	05	10	
94	Shaikh Altamash Altaf	22337	12	12		12	06	09	15	27	26		27	07	05	12	
95	Shaikh Aman Javed	22338	18	15		17	09	09	18	25	27		26	07	05	12	
96	Shaikh Farhad Riyaj	22340	14	Ab		07	04	10	14	26	Ab		13	08	05	08	
97	Shaikh Mursalin Kalim	22342	22	21		22	11	09	20	30	32		31	08	05	13	
98	Shaikh Sohail Anwar	22346	14	06		10	05	10	15	24	20		22	06	05	11	
99	Sharma Shrinath Gopal	22348	09	02		06	03	10	13	24	20		22	06	05	11	
100	Shejul Umesh Laxman	22349	17	15		16	08	09	17	28	30		29	07	05	12	
101	Shelke Pooja Devidas	22352	17	15		16	08	09	17	27	26		27	07	05	12	
102	Shinde Aniket Ganesh	22356	07	08		08	04	10	14	24	22		23	06	05	11	
103	Shinde Vaibhav Kiran	22360	19	17		18	09	09	18	26	29		28	07	05	12	
104	Shirsat Aditya Arribadas	22363	09	12		11	06	09	15	26	24		25	06	05	11	
105	Shirsat Sonali Ajinath	22364	22	18		20	10	09	19	28	32		30	08	05	13	
106	Shirsath Rani Nanasaheb	22365	15	Ab		08	04	10	14	27	Ab		14	05	05	10	
107	Solankar Geeta Prasad	22367	24	17		21	11	09	20	29	28		29	07	05	12	
108	Solas Nimisha Sunil	22368	20	18		19	10	09	19	29	26		28	07	05	12	
109	Solat Santosh Raju	22369	16	22		19	10	09	19	30	33		32	08	05	13	
110	Sonavane Ekata Santosh	22370	12	07		10	05	10	15	28	22		25	06	05	11	
111	Sonawane Vivek Rajaram	22372	16	09		13	07	09	16	25	24		25	06	05	11	
112	Tadvi Roshan Pisa	22373	14	11		13	07	09	16	23	29		26	07	05	12	
113	Take Mayuri Ashok	22375	15	14		15	08	09	17	25	25		25	06	05	11	
114	Tambe Kalyani Arun	22376	19	21		20	10	09	19	30	29		30	08	05	13	
115	Tambe Pragati Anil	22377	11	12		12	06	09	15	27	24		26	07	05	12	
116	Thale Abhishek Laxman	22380	12	12		12	06	09	15	26	24		25	06	05	11	
117	Thavare Amar Balasaheb	22381	07	03		05	03	10	13	25	24		25	06	05	11	
118	Thite Damini Pandurang	22383	09	14		12	06	09	15	27	24		26	07	05	12	
119	Vasave Divan Jalamsing	22392	18	17		18	09	09	18	24	24		24	06	05	11	
120	Wable Kranti Ramchandra	22394	06	11		09	05	10	15	Ab	23		19	02	05	08	

No.	Name	Seat No.	Theory							Practical							Sign.
			I 30	II 30	Impr 30	Avg. 30	CS M 15	CM 10	Total CSM+ CM=25	I 40	II 40	Impr 40	Avg. 40	CSM 10	CM 05	Total CSM+ CM=15	
121	Wable Pratik Baban	22395	08	07		08	04	10	14	22	23		23	06	05	11	
122	Wagh Aniket Janardhan	22397	05	03		04	02	10	12	24	24		24	06	05	11	
123	Wagh Mahesh Arjun	22400	06	10		08	04	10	14	25	27		26	07	05	12	
124	Waghule Akash Ravsaheb	22403	11	08		10	05	10	15	25	24		25	06	05	11	
125	Wakade Rameshwar Bhaskar	22404	14	09		12	06	09	15	24	22		23	06	05	11	

Subject Incharge

21/7/22
Sessional Incharge



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Internal Examination Timetable 2021-22



Approved By: P. C. I, New Delhi, Ref No: F.No.02.297/2018-PCI, AICTE: F.No. Western/2017-1-3359523301,
Affiliated to Savitribai Phule Pune University – Ref. No. PU/AN/PHARM/145/2017



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Outword No:SSPM/DRNJCP/2021-22/15A

Date:06/06/2022

NOTICE


All the Faculty Members of **First Year B.Pharmacy (Sem II)** are here by informed that **Second Sessional Practical Examination** will be conducted from **08/06/2022 to 14/06/2022**. Evaluated papers of your subject should be submitted within a week of examination.

Second Sessional Practical Exam Time Table Sem II

Sr. No.	DAY	DATE	TIME	A	B	C	D	E
1	Wednesday	08/06/2022	2pm. to 6pm.	POC-I	HAP-II	CAP	BIOCHEM	-----
2	Thursday	09/06/2023	2pm. to 6pm.	BIOCHEM	POC-I	HAP-II	-----	CAP
3	Friday	10/06/2022	2pm. to 6pm.	CAP	BIOCHEM	-----	HAP-II	POC-I
4	Monday	13/06/2022	2pm. to 6pm.	-----	CAP	BIOCHEM	POC-I	HAP-II
5	Tuesday	14/06/2022	2pm. to 6pm.	HAP-II	-----	POC-I	CAP	BIOCHEM


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Outword No:SSPM/DRNJCP/2021-22

Date:06/06/2022

NOTICE

All the Faculty Members of **First Year B.Pharmacy Sem II** are here by informed that **Term End Practical Examination (Non-University Subject)** will be conducted from **08/06/2022** to **14/06/2022**. So submit model answer paper (plus extra 6 copies for official use). Evaluated papers of your subject should be submitted within a week of examination.

Term End Practical Exam Time Table Sem II

Sr. No.	DAY	DATE	TIME	A	B	C	D	E
1	Wednesday	08/06/2022	9am. to 1pm.	-----	-----	CAP	-----	-----
2	Thursday	09/06/2023	9am. to 1pm.	-----	-----	-----	-----	CAP
3	Friday	10/06/2022	9am. to 1pm.	CAP	-----	-----	-----	-----
4	Monday	13/06/2022	9am. to 1pm.	-----	CAP	-----	-----	-----
5	Tuesday	14/06/2022	9am. to 1pm.	-----	-----	-----	CAP	-----

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Outword No:SSPM/DRNJCP/ 2021-22/13A

Date:23/05/2022

NOTICE

All the Faculty Members of **First Year B.Pharmacy (Sem II)** are here by informed that **Second Sessional Theory Examination** will be conducted from **30/05/2022 to 04/06/2022**. Mail your respective subject theory question paper to given mail Id- dnjpbexam@gmail.com. Also submit model answer paper (plus extra 6 copies for official use) to exam department before two days of examination without fail. Evaluated papers of your subject should be submitted within a week of examination.

SECOND SESSIONAL THEORY EXAM TIMETABLE (SEM- II)

Sr. No.	Day	Date	Subject & Code	Time
1	Monday	30/05/2022	Human Anatomy and Physiology II (BP201T)	10:30 to 11:30 am.
2	Tuesday	31/05/2022	Pharmaceutical Organic Chemistry I (BP202T)	10:30 to 11:30 am.
3	Wednesday	01/06/2022	Biochemistry (BP203T)	10:30 to 11:30 am.
4	Thursday	02/06/2022	Pathophysiology – (BP204T)	10:30 to 11:30 am.
5	Friday	03/06/2022	Computer Applications in Pharmacy (BP205T)	10:30 to 11:30 am.
6	Saturday	04/06/2022	Environmental sciences (BP206T)	10:30 to 11:30 am.

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Outword No:SSPM/DRNJCP/


Date:23/05/2022

NOTICE

All the Faculty Members of **First Year B.Pharmacy Sem II** are here by informed that **Term End Theory And Practical Examination** of subject **Computer Application in Pharmacy And Environmental Sciences** will be conducted from **06/06/2022** to **07/06/2022**. So send your respective subject theory and practical sessional exam link to given mail dnjpbexam@gmail.com. Also submit model answer paper (plus extra 6 copies for official use). Evaluated papers of your subject should be submitted within a week of examination.

Time-Table

Sr. No.	Day	Date	Subject and Code	Theory Exam	Practical Exam
1	Monday	06/06/2022	Computer Application in Pharmacy (BP205T)	10:30am to 12:30pm	02:00pm to 04:00pm
2	Tuesday	07/06/2022	Environmental Sciences (BP206T)	10:30am to 12:30pm	02:00pm to 04:00pm


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Outword No:SSPM/DRNJCP/2021-22/12A

Date: 27/4/22

NOTICE

All the Faculty Members of **First Year B.Pharmacy (Sem II)** are here by informed that **First Sessional Theory Examination** will be conducted from **05/05/2022 to 11/05/2022**. Mail your respective subject theory question paper to given mail Id- dnjpbexam@gmail.com. Also submit model answer paper (plus extra 6 copies for official use) to exam department before two days of examination without fail. Evaluated papers of your subject should be submitted within a week of examination.

FIRST SESSIONAL THEORY EXAM TIMETABLE (SEM- II)

Sr. No.	Day	Date	Subject & Code	Time
1	Thursday	05/05/2022	Human Anatomy and Physiology II (BP201T)	10:00 to 11:30 am.
2	Friday	06/05/2022	Pharmaceutical Organic Chemistry I (BP202T)	10:00 to 11:30 am.
3	Saturday	07/05/2022	Biochemistry (BP203T)	10:00 to 11:30 am.
4	Monday	09/05/2022	Pathophysiology – (BP204T)	10:00 to 11:30 am.
5	Tuesday	10/05/2022	Computer Applications in Pharmacy (BP205T)	10:00 to 11:30 am.
6	Wednesday	11/05/2022	Environmental sciences (BP206T)	10:00 to 11:30 am.

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Outword No:SSPM/DRNJCP/

Date:27/04/2022

NOTICE


All the Faculty Members of **First Year B.Pharmacy (Sem II)** are here by informed that **First Sessional Practical Examination** will be conducted from **12/05/2022 to 19/05/2022**. Evaluated papers of your subject should be submitted within a week of examination.

First Sessional Practical Exam Time Table Sem II

Sr. No.	DAY	DATE	TIME	A	B	C	D	E
1	Thursday	12/05/2022	2pm. to 6pm.	POC-I	HAP-II	CAP	BIOCHEM	-----
2	Friday	13/05/2023	2pm. to 6pm.	BIOCHEM	POC-I	HAP-II	-----	CAP
3	Tuesday	17/05/2022	2pm. to 6pm.	CAP	BIOCHEM	-----	HAP-II	POC-I
4	Wednesday	18/05/2022	2pm. to 6pm.	-----	CAP	BIOCHEM	POC-I	HAP-II
5	Thursday	19/05/2022	2pm. to 6pm.	HAP-II	-----	POC-I	CAP	BIOCHEM


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Date:27/04/2022

NOTICE

All the Faculty members of Third Year B.Pharm Sem-VI are here by informed that **Second Sessional Theory Examination** will be conducted from **05/05/2022 to 11/05/2022**. Mail your respective subject theory question paper to given mail id- dnjpexam@gmail.com Also submit model answer paper (plus extra 6 copies for official use) to exam department before two days of examination without fail. Evaluated papers of your subject should be submitted within a week of examination.

Second Sessional Theory Exam Time Table Sem-VI


Sr. No.	Day	Date	Subject	Time
1	Thursday	05/05/2022	Medicinal Chemistry III (BP601T)	11:00AM to 12:30PM
2	Friday	06/05/2022	Pharmacology III (BP602T)	11:00AM to 12:30PM
3	Saturday	07/05/2022	Herbal Drug Technology (BP603T)	11:00AM to 12:30PM
4	Monday	09/05/2022	Biopharmaceutics And Pharmacokinetics (BP604T)	11:00AM to 12:30PM
5	Tuesday	10/05/2022	Pharmaceutical Biotechnology (BP605RT)	11:00AM to 12:30PM
6	Wednesday	11/05/2022	Quality Assurance (BP605T)	11:00AM to 12:30PM


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Date 27/04/2022

NOTICE

All the faulty members of **Second Year B.Pharm SEM IV** are here by informed that **Second Sessional Theory Examination** will be conducted from 05/05/2022 to 06/05/2022. Mail your respective subject they question paper to given mail id- dnjpbexam@gmail.com. Also submit model answer paper (plus extra 6 copies for official use) to exam department before two days of examination without fail. Evaluated papers of your subject should be submitted within a week of examination.

First Sessional Theory Exam Time Table SEM IV

Sr. No.	Day	Date	Subject	Time
1	Thursday	05/05/2022	Pharmaceutical Organic Chemistry III (BP401T)	11:00am to 12:30pm
2	Friday	06/05/2022	Medicinal Chemistry I (BP402T)	11:00am to 12:30pm
3	Saturday	07/05/2022	Physical Pharmaceutics II (BP403T)	11:00am to 12:30pm
4	Monday	09/05/2022	Pharmacology I (BP404T)	11:00am to 12:30pm
5	Tuesday	10/05/2022	Pharmacognosy and Phytochemistry I (BP405T)	11:00am to 12:30pm

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Date 27/04/2022

NOTICE

All the faulty members of Second Year B.Pharm SEM IV are here by informed that Second Sessional Practical Examination will be conducted from 12/05/2022 to 19/05/2022. Evaluated papers of your subject should be submitted within a week of examination.

Second Sessional Practical Exam Time Table SEM IV

Sr. No.	Day	Date	Time	Batch A	Batch B	Batch C	Batch D	Batch E
1	Thursday	12/05/2022	09:00am to 01:00pm	M.CHEM I	-----	PGY I	P'COLOGY Y	PP II
2	Friday	13/05/2022	09:00am to 01:00pm	PP II	M.CHEM I	-----	PGY I	P'COLOGY
3	Tuesday	17/05/2022	09:00am to 01:00pm	P'COLOGY	PP II	M.CHEM I	-----	PGY I
4	Wednesday	18/05/2022	09:00am to 01:00pm	PGY I	P'COLOGY Y	PP II	M.CHEM I	-----
5	Thursday	19/05/2022	09:00am to 01:00pm	-----	PGY I	P'COLOGY	PP II	M.CHEM I

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Date:27/04/2022

NOTICE

All the Faculty members of Third Year B.Pharm Sem-VI are here by informed that **Second Sessional Practical Examination** will be conducted from **12/05/2022 to 19/05/2022**. Evaluated papers of your subject should be submitted within a week of examination.

Second Sessional Practical Exam Time Table Sem-VI

Sr. No.	Day	Date	Time	Batch A	Batch B	Batch C	Batch D	Batch E
1	Thursday	12/05/2022	2:00pm to 6:00pm	M. CHEM III	-----	-----	HDT	P'COLOGY III
2	Friday	13/05/2022	2:00pm to 6:00pm	P'COLOGY III	M. CHEM III	-----	-----	HDT
3	Tuesday	17/05/2022	2:00pm to 6:00pm	HDT	P'COLOGY III	M. CHEM III	-----	-----
4	Wednesday	18/03/2022	2:00pm to 6:00pm	-----	HDT	P'COLOGY III	M. CHEM III	-----
5	Thursday	19/03/2022	2:00pm to 6:00pm	-----	-----	HDT	P'COLOGY III	M. CHEM III


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Date:27/04/2022

NOTICE

All the Faculty members of Final Year B.Pharm Sem-VIII are here by informed that Second Sessional Theory Examination will be conducted from 05/05/2022 to 10/05/2022. Mail your respective subject theory question paper to given mail id- dnjpexam@gmail.com Also submit model answer paper (plus extra 6 copies for official use) to exam department before two days of examination without fail. Evaluated papers of your subject should be submitted within a week of examination.

First Sessional Theory Exam Time Table Sem-VIII

Sr. No.	Day	Date	Subject	Time
1	Thursday	05/05/2022	Biostatistics and Research Methodology (BP801T)	02:30PM to 04:00PM
2	Friday	06/05/2022	Social and Preventive Pharmacy (BP802T)	02:30PM to 04:00PM
3	Saturday	07/05/2022	Pharmaceutical Marketing (BP803ET)	02:30PM to 04:00PM
4	Monday	09/05/2022	Pharmacovigilance (BP805ET)	02:30PM to 04:00PM
5	Tuesday	10/05/2022	Cosmetic Science (BP809ET)	02:30PM to 04:00PM

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Date:15/04/2022

NOTICE

All the Faculty members of **Final Year B.Pharm Sem-VIII** are here by informed that **First Sessional Theory Examination** will be conducted from **18/04/2022 to 22/04/2022**. Mail your respective subject theory question paper to given mail Id- dnjpexam@gmail.com Also submit model answer paper (plus extra 6 copies for official use) to exam department before two days of examination without fail. Evaluated papers of your subject should be submitted within a week of examination.

First Sessional Theory Exam Time Table Sem-VIII

Sr. No.	Day	Date	Subject	Time
1	Monday	18/04/2022	Biostatistics and Research Methodology (BP801T)	02:30PM to 04:00PM
2	Thursday	19/04/2022	Social and Preventive Pharmacy (BP802T)	02:30PM to 04:00PM
3	Wednesday	20/04/2022	Pharmaceutical Marketing (BP803ET)	02:30PM to 04:00PM
4	Thursday	21/04/2022	Pharmacovigilance (BP805ET)	02:30PM to 04:00PM
5	Friday	22/04/2022	Cosmetic Science (BP809ET)	02:30PM to 04:00PM

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Date 17/03/2022

NOTICE

All the faulty members of Second Year B.Pharm SEM IV are here by informed that First Sessional Practical Examination will be conducted from 22/03/2022 to 26/03/2022. Evaluated papers of your subject should be submitted within a week of examination.

First Sessional Practical Exam Time Table SEM IV

Sr. No.	Day	Date	Time	Batch A	Batch B	Batch C	Batch D	Batch E
1	Tuesday	22/03/2022	10:00am to 02:00pm	M.CHEM I	-----	PGY I	P'COLOGY	PP II
2	Wednesday	23/03/2022	10:00am to 02:00pm	PP II	M.CHEM I	-----	PGY I	P'COLOGY
3	Thursday	24/03/2022	10:00am to 02:00pm	P'COLOGY	PP II	M.CHEM I	-----	PGY I
4	Friday	25/03/2022	10:00am to 02:00pm	PGY I	P'COLOGY	PP II	M.CHEM I	-----
5	Saturday	26/03/2022	10:00am to 02:00pm	-----	PGY I	P'COLOGY	PP II	M.CHEM I

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Date 17/03/2022

NOTICE

All the faulty members of Second Year B.Pharm SEM IV are here by informed that First Sessional Theory Examination will be conducted from 28/03/2022 to 01/04/2022. Mail your respective subject they question paper to given mail id- dnjpbexam@gmail.com. Also submit model answer paper (plus extra 6 copies for official use) to exam department before two days of examination without fail. Evaluated papers of your subject should be submitted within a week of examination.

First Sessional Theory Exam Time Table SEM IV

Sr. No.	Day	Date	Subject	Time
1	Monday	28/03/2022	Pharmaceutical Organic Chemistry III (BP401T)	11:00am to 12:30pm
2	Tuesday	29/03/2022	Medicinal Chemistry I (BP402T)	11:00am to 12:30pm
3	Wednesday	30/03/2022	Physical Pharmaceutics II (BP403T)	11:00am to 12:30pm
4	Thursday	31/03/2022	Pharmacology I (BP404T)	11:00am to 12:30pm
5	Friday	01/04/2022	Pharmacognosy and Phytochemistry I (BP405T)	11:00am to 12:30pm

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Outward No. :SSPM/DRNJCP/2021-22/9A

Date:17/03/2022

NOTICE


All the Faculty members of Third Year B.Pharm Sem-VI are here by informed that First Sessional Practical Examination will be conducted from 22/03/2022 to 26/03/2022. Evaluated papers of your subject should be submitted within a week of examination.

First Sessional Practical Exam Time Table Sem-VI

Sr. No.	Day	Date	Time	Batch A	Batch B	Batch C	Batch D	Batch E
1	Monday	22/03/2022	2:00pm to 6:00pm	M. CHEM III	-----	-----	HDT	P'COLOGY III
2	Tuesday	23/03/2022	2:00pm to 6:00pm	P'COLOGY III	M. CHEM III	-----	-----	HDT
3	Wednesday	24/03/2022	2:00pm to 6:00pm	HDT	P'COLOGY III	M. CHEM III	-----	-----
4	Thursday	25/03/2022	2:00pm to 6:00pm	-----	HDT	P'COLOGY III	M. CHEM III	-----
5	Friday	26/03/2022	2:00pm to 6:00pm	-----	-----	HDT	P'COLOGY III	M. CHEM III

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Date:17/03/2022

NOTICE

All the Faculty members of Third Year B.Pharm Sem-VI are here by informed that First Sessional Theory Examination will be conducted from 28/03/2022 to 04/04/2022. Mail your respective subject theory question paper to given mail id- dnjpeexam@gmail.com Also submit model answer paper (plus extra 6 copies for official use) to exam department before two days of examination without fail. Evaluated papers of your subject should be submitted within a week of examination.

First Sessional Theory Exam Time Table Sem-VI

Sr. No.	Day	Date	Subject	Time
1	Monday	28/03/2022	Medicinal Chemistry III (BP601T)	11:00AM to 12:30PM
2	Tuesday	29/03/2022	Pharmacology III (BP602T)	11:00AM to 12:30PM
3	Wednesday	30/03/2022	Herbal Drug Technology (BP603T)	11:00AM to 12:30PM
4	Thursday	31/03/2022	Biopharmaceutics And Pharmacokinetics (BP604T)	11:00AM to 12:30PM
5	Friday	01/04/2022	Pharmaceutical Biotechnology (BP605RT)	11:00AM to 12:30PM
6	Monday	04/04/2022	Quality Assurance (BP605T)	11:00AM to 12:30PM

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Outward No. :SSPM/DRNJCP/204-2415A

Date:24/2/2022

NOTICE

All the Faculty members of First Year B.Pharm (2019 Pattern) Sem-I are here by informed that Term End Theory And Practical online Examination will be conducted from 26/2/2022 and to 27/2/2022. So be ready your question paper of respective subject in Google form proper & send link to exam mail Id before two days of exam.

Term End Online Theory And Practical Exam Time Table Sem-I

Sr. No.	Day	Date	Subject	Time (Theory Exam)	Time (Practical Exam)
1	saturday	26/2/2022	Communication kills	BP105T	BP111P
				2 to 3 pm.	3 to 4 pm.
2	Sunday	27/2/2022	Remedial Biology/ Remedial maths	BP106T	BP110P
				2 to 3 pm.	3 to 4 pm.


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Date:08/02/2022

NOTICE

All the Faculty Members of **First Year B.Pharmacy (2019 pattern) Sem I** are here by informed that **First Sessional Online Theory And Practical Examination** will be conducted from date **10/02/2022** to **15/02/2022** and send your respective subject theory and practical sessional exam link to given mail Id- dnjpbexam@gmail.com. Also submit model answer paper (plus extra 6 copies for official use).

First Sessional Online Theory And Practical Exam Time Table Sem I

Sr. No.	Day	Date	Subject	Time (Theory Exam)	Time (Practical Exam)
1	Thursday	10/02/2022	HUMAN ANATOMY AND PHYSIOLOGY I	BP101T	BP107P
				09:00am to 10:00am	10:00am to 11:00am
2	Friday	11/02/2022	PHARMACEUTICAL ANALYSIS I	BP102T	BP108P
				09:00am to 10:00am	10:00am to 11:00am
3	Saturday	12/02/2022	PHARMACEUTICS I	BP103T	BP109P
				09:00am to 10:00am	10:00am to 11:00am
4	Sunday	13/02/2022	PHARMACEUTICAL INORGANIC CHEMISTRY	BP104T	BP110P
				09:00am to 10:00am	10:00am to 11:00am
5	Monday	14/02/2022	COMMUNICATION SKILLS	BP105T	BP111P
				09:00am to 10:00am	10:00am to 11:00am
6	Tuesday	15/02/2022	REMEDIAL BIOLOGY/ REMEDIAL MATH	BP106T	BP112P
				09:00am to 10:00am	10:00am to 11:00am


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Date:08/02/2022

NOTICE

All the Faculty Members of **First Year B.Pharmacy (2019 pattern) Sem I** are here by informed that **Second Sessional Online Theory And Practical Examination** will be conducted from date **17/02/2022 to 22/02/2022** and send your respective subject theory and practical sessional exam link to given mail Id- dnjpbexam@gmail.com. Also submit model answer paper (plus extra 6 copies for official use).

~~Second~~ **First** Sessional Online Theory And Practical Exam Time Table Sem I

Sr. No.	Day	Date	Subject	Time (Theory Exam)	Time (Practical Exam)
1	Thursday	17/02/2022	HUMAN ANATOMY AND PHYSIOLOGY I	BP101T	BP107P
				09:00am to 10:00am	10:00am to 11:00am
2	Friday	18/02/2022	PHARMACEUTICAL ANALYSIS I	BP102T	BP108P
				09:00am to 10:00am	10:00am to 11:00am
3	Saturday	19/02/2022	PHARMACEUTICS I	BP103T	BP109P
				09:00am to 10:00am	10:00am to 11:00am
4	Sunday	20/02/2022	PHARMACEUTICAL INORGANIC CHEMISTRY	BP104T	BP110P
				09:00am to 10:00am	10:00am to 11:00am
5	Monday	21/02/2022	COMMUNICATION SKILLS	BP105T	BP111P
				09:00am to 10:00am	10:00am to 11:00am
6	Tuesday	22/02/2022	REMEDIAL BIOLOGY/ REMEDIAL MATH	BP106T	BP112P
				09:00am to 10:00am	10:00am to 11:00am


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Outword No:SSPM/DRNJCP/ 2021-22/ 5A

Date:20/01/2022

NOTICE

All the Faculty Members of **Direct Second Year B.Pharmacy (2019 pattern) Sem III** are here by informed that **Term End Online Theory And Practical Examination** of subject **Communication Skill** will be conducted on **Monday 24/01/2022** so send your respective subject theory and practical sessional exam link to given mail Id- dnjpbexam@gmail.com. Also submit model answer paper (plus extra 6 copies for official use).

Time-Table

Sr. No.	Day	Date	Subject and Code	Theory Exam	Practical Exam
1	Monday	24/01/2022	Communication Skill (BP105T & BP111P)	09:00am to 10:00am	10:05am to 11:00am

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Outword No:SSPM/DRNJCP/2021-22/4A

Date:15/01/2022

NOTICE

All the Faculty Members of **Direct Second Year B.Pharmacy (2019 pattern) Sem III** are here by informed that **Second Sessional Online Theory And Practical Examination** will be conducted from date **16/01/2022 to 20/01/2022** and send your respective subject theory and practical sessional exam link to given mail Id- dnjpbexam@gmail.com. Also submit model answer paper (plus extra 6 copies for official use).

First Sessional Online Theory And Practical Exam Time Table Sem III

Sr. No.	Day	Date	Subject	Time (Theory Exam)	Time (Practical Exam)
1	Sunday	16/01/2022	Pharmaceutical Organic Chemistry II	BP301T	BP305P
				09:00am to 10:00am	10:05am to 11:00am
2	Monday	17/01/2022	Physical pharmaceuticals I	BP302T	BP306P
				09:00am to 10:00am	10:05am to 11:00am
3	Tuesday	18/01/2022	Pharmaceutical Microbiology	BP303T	BP307P
				09:00am to 10:00am	10:05am to 11:00am
4	Wednesday	19/01/2022	Pharmaceutical Engineering	BP304T	BP308P
				09:00am to 10:00am	10:05am to 11:00am
5	Thursday	20/01/2022	Communication Skills	09:00am to 10:00am	10:05am to 11:00am

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Outword No:SSPM/DRNJCP/ 2021-22 / 9A

Date:07/01/2022

NOTICE

All the Faculty Members of **Direct Second Year B.Pharmacy (2019 pattern) Sem III** are here by informed that **First Sessional Online Theory And Practical Examination** will be conducted from date **10/01/2022** to **14/01/2022** and send your respective subject theory and practical sessional exam link to given mail Id- dnjpbexam@gmail.com. Also submit model answer paper (plus extra 6 copies for official use).

First Sessional Online Theory And Practical Exam Time Table Sem III

Sr. No.	Day	Date	Subject	Time (Theory Exam)	Time (Practical Exam)
1	Monday	10/01/2022	Pharmaceutical Organic Chemistry II	BP301T	BP305P
				11:00am to 12:00pm	03:00pm to 04:00pm
2	Tuesday	11/01/2022	Physical pharmaceuticals I	BP302T	BP306P
				11:00am to 12:00pm	03:00pm to 04:00pm
3	Wednesday	12/01/2022	Pharmaceutical Microbiology	BP303T	BP307P
				11:00am to 12:00pm	03:00pm to 04:00pm
4	Thursday	13/01/2022	Pharmaceutical Engineering	BP304T	BP308P
				11:00am to 12:00pm	03:00pm to 04:00pm
5	Friday	14/01/2022	Communication Skills	11:00am to 12:00pm	03:00pm to 04:00pm

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Outword No:SSPM/DRNJCP/2021-22 / 2A

Date:29/10/2021

NOTICE

All the Faculty Members of **Second Year B.Pharmacy (2019 pattern) Sem III** are here by informed that **Second Sessional Online Theory And Practical Examination** will be conducted from date **10/11/2021** to **13/11/2021** and send your respective subject theory and practical sessional exam link to given mail Id- dnjpbexam@gmail.com. Also submit model answer paper (plus extra 6 copies for official use).

First Sessional Online Theory And Practical Exam Time Table Sem III

Sr. No.	Day	Date	Subject	Time (Theory Exam)	Time (Practical Exam)
1	Wednesday	10/11/2021	Pharmaceutical Organic Chemistry II	BP301T	BP305P
				11:00am to 12:00pm	02:00pm to 03:00pm
2	Thursday	11/11/2020	Physical pharmaceuticals I	BP302T	BP306P
				11:00am to 12:00pm	02:00pm to 03:00pm
3	Friday	12/11/2021	Pharmaceutical Microbiology	BP303T	BP307P
				11:00am to 12:00pm	02:00pm to 03:00pm
4	Saturday	13/11/2021	Pharmaceutical Engineering	BP304T	BP308P
				11:00am to 12:00pm	02:00pm to 03:00pm

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Outward No. :SSPM/DRNJCP/

Date:29/10/2021


NOTICE

All the Faculty members of Third Year B.Pharm (2019 Pattern) Sem-V are here by informed that Second Sessional Online Theory And Practical Examination will be conducted from 10/11/2021 to 15/11/2021. So be ready your question paper of respective subject in Google form proper & send link to exam mail Id before two days of exam.

Second Sessional Online Theory And Practical Exam Time Table

Sem-V

Sr. No.	Day	Date	Subject	Time (Theory Exam)	Time (Practical Exam)
1	Wednesday	10/11/2021	Medicinal Chemistry II	BP501T	BP707T
				11:00AM to 12:00PM	02:00PM to 03:00PM
2	Thursday	11/11/2021	Formulative Pharmacy	BP502T	-----
				11:00AM to 12:00PM	-----
3	Friday	12/11/2021	Pharmacology II	BP503T	-----
				11:00AM to 12:00PM	-----
4	Saturday	13/11/2021	Pharmacognosy & Phytochemistry II	BP504T	-----
				11:00AM to 12:00PM	-----
5	Monday	14/11/2021	Pharmaceutical Juriprudence	BP505T	-----
				11:00AM to 12:00PM	-----


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Outward No. :SSPM/DRNJCP/

Date:29/10/2021

NOTICE

All the Faculty members of Final Year B.Pharm Sem-VII are here by informed that **Second Sessional Online Theory and Practical Examination** will be conducted from **10/11/2021 to 13/11/2021**. Mail your respective subject theory question paper to given mail id- dnjpexam@gmail.com Also submit model answer paper (plus extra 6 copies for official use) to exam department before two days of examination without fail. Evaluated papers of your subject should be submitted within a week of examination.

First Sessional Online Theory and Practical Exam TimeTable Sem-VII

Sr. No.	Day	Date	Subject	Time (Theory Exam)	Time (Practical Exam)
1	Wednesday	10/11/2021	Instrumental Methods Of Analysis	BP701T	BP707T
				11:00AM to 12:00PM	02:00PM to 03:00PM
2	Thursday	11/11/2021	Industrial Pharmacy	BP702T	-----
				11:00AM to 12:00PM	-----
3	Friday	12/11/2021	Pharmacy Practice	BP703T	-----
				11:00AM to 12:00PM	-----
4	Saturday	13/11/2021	Novel Drug Delivery System	BP704T	-----
				11:00AM to 12:00PM	-----

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Outword No:SSPM/DRNJCP/ 2021-22 / 1A

Date:08/09/2021

NOTICE

All the Faculty Members of **Second Year B.Pharmacy (2019 pattern) Sem III** are here by informed that **First Sessional Online Theory And Practical Examination** will be conducted from date **13/09/2021** to **16/09/2021** and send your respective subject theory and practical sessional exam link to given mail Id- dnjpbexam@gmail.com. Also submit model answer paper (plus extra 6 copies for official use).

First Sessional Online Theory And Practical Exam Time Table Sem III

Sr. No.	Day	Date	Subject	Time (Theory Exam)	Time (Practical Exam)
1	Monday	13/09/2021	Pharmaceutical Organic Chemistry II	BP301T	BP305P
				11:00am to 12:00pm	02:00pm to 03:00pm
2	Tuesday	14/09/2020	Physical pharmaceutics I	BP302T	BP306P
				11:00am to 12:00pm	02:00pm to 03:00pm
3	Wednesday	15/09/2021	Pharmaceutical Microbiology	BP303T	BP307P
				11:00am to 12:00pm	02:00pm to 03:00pm
4	Thursday	16/09/2021	Pharmaceutical Engineering	BP304T	BP308P
				11:00 am to 12:00pm	02:00pm to 03:00pm

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Date:08/09/2021

NOTICE

All the Faculty members of Third Year B.Pharm (2019 Pattern) Sem-V are here by informed that First Sessional Online Theory And Practical Examination will be conducted from 13/09/2021 to 17/09/2021. So be ready your question paper of respective subject in Google form proper & send link to exam mail Id before two days of exam.

First Sessional Online Theory And Practical Exam Time Table Sem-V

Sr. No.	Day	Date	Subject	Time (Theory Exam)	Time (Practical Exam)
1	Monday	13/09/2021	Medicinal Chemistry II	BP501T	-----
				11:00AM to 12:00PM	-----
2	Tuesday	14/09/2021	Formulative Pharmacy	BP502T	BP506P
				11:00AM to 12:00PM	02:00PM to 03:00PM
3	Wednesday	15/09/2021	Pharmacology II	BP503T	BP507P
				11:00AM to 12:00PM	02:00PM to 03:00PM
4	Thursday	16/09/2021	Pharmacognosy & Phytochemistry II	BP504T	BP508P
				11:00AM to 12:00PM	02:00PM to 03:00PM
5	Friday	17/09/2021	Pharmaceutical Juriprudence	BP505T	-----
				11:00AM to 12:00PM	-----

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Date:8/9/2021

NOTICE

All the Faculty members of Final Year B.Pharm (2018 Pattern) Sem-VII are here by informed that First Sessional Online Theory And Practical Examination will be conducted from 13/09/2021 to 16/09/2021. So be ready your question paper of respective subject in Google form proper & send link to exam mail Id before two days of exam.

First Sessional Online Theory And Practical Exam Time Table

Sem-VII

Sr. No.	Day	Date	Subject	Time (Theory Exam)	Time (Practical Exam)
1	Monday	13/09/2021	Instrumental Methods Of Analysis	BP701T	BP707T
				11:00AM to 12:00PM	02:00PM to 03:00PM
2	Tuesday	14/09/2021	Industrial Pharmacy	BP702T	-----
				11:00AM to 12:00PM	-----
3	Wednesday	15/09/2021	Pharmacy Practice	BP703T	-----
				11:00AM to 12:00PM	-----
4	Thursday	16/09/2021	Novel Drug Delivery System	BP704T	-----
				11:00AM to 12:00PM	-----

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