CRITERION 7
7.2: Best Practices

7.2.1 QlM: Describe two best practices successfully implemented by the Institution as per NAAC format provided in the Manual.

Response:

Best Practice I

1. Title of the Practice: Academic Book for student's in Teaching and Learning process.

2. Objectives of the Practice:

Academic Book for students in teaching and learning process will be suitable to

1. Give openings for scholars to "learn how to learn".
2. Maximize individual literacy growth, attainment and enhancement in results.
3. Figure positive station for learning and coverage of the right content at the right depth.
4. Give support in enjoying of knowledge and understanding of the course.

3. The Context

1. It was anatomized that scholars were unfit to get proper structure of the Course.
2. It was bent to give overall study material to scholars with Course Structure and Course perpetration.
3. Academic Book includes Evaluation guidelines as per university for internal and external assessment, Course Structure, Syllabus Course Outcomes, Programme Outcomes, Programme Specific Outcomes, Mapping of Course Outcomes and Programme Outcomes with justification,

Teaching Plan, Class test, Assignments, Question bank, Question Papers of University.
4. This helped scholars to overcome their difficulties in understanding the Course and recover their confidence and interest in literacy.

4. The Practice

Academic Book is the tool which has been effectively stationed for tutoring and literacy of scholars in council. The Academic book is prepared with an end of "learn how to learn". Academic book is arranged, finalize and published before the launch of semester. Academic Book is circulated to scholars through Social Media and Library. It provides the information of individual Courses in the semester. It serves as an effective tool in enjoying of introductory knowledge and appreciation understanding of the course. This practice enables scholars to get advanced information of the lecture and scholars find sufficient time for reference and tone- study. This will stimulate interactive literacy and also promote better understanding, deep sapience and in depth of knowledge of the subject. The scholars nurture tone- literacy, enhance the position of understanding. It involves the creation of a literacy terrain in which scholars are encouraged to suppose precisely, critically and express their studies, which they wish to defy and resolve difficulties rather than buff over them, it involves constantly covering and reflecting on the processes of tutoring and pupil understanding and seeking to ameliorate them.

5. Evidence of Success:

The practice for scholars has worked well for individual literacy growth, attainment and enhancement in University results. Positive station for learning and Coverage of the right content is in right depth. The scholars have developed analytical skills, cognitive skills and an ingrain passion for literacy. The below practice has given a boost for the nonstop enhancement of the academic results to give authentic relations between the faculty and the scholars.

6. Problems Encountered and Resources Required:

Problems Encountered: Due to change in University pattern and syllabus the faculty needs to take additional efforts to design the academic book.
Resources Required: Resources were used from College Library, Question Papers of Internal and External Exam etc.

Best Practice II

1. Title of the Practice: Women empowerment to create power in students over their own lives, society and in community.

2. Objectives of the Practice:

Women Empowerment will be able to:
1. Give self- confidence, self- defense, self- determination and positive attitudinal change.
2. Develop competent and socially sensitive women druggist committed to healthcare requirements of society.
3. Help them to be truly ambitious and to dream for their betterment.
4. Strengthening legal systems aimed at elimination of all forms of demarcation against women's.
5. Punctuate the significance of spirituality, health, hygiene and safety.
Inculcate entrepreneurial station among youthful girls, scientists at the foremost so that they can be "job providers" rather than "job campaigners".

3. The Context

1. It was profound that woman should be empowered as per need to develop them in moment's world.
2. Empowered women define their station, values and geste in relation to their own real interest.
3. The practice was initiated to raise self - esteemed and self - confidence of women to exclude all forms of violence against women's.
4. Fostering decision timber and their participation in all walks of life.

4. The Practice

1. In order to empower Women under pupil development cell organizes Nirbhay Kanya Abhiyan, Nirbhaya programme, International womens day festival etc.
2. Students perform the activities under Corporate Social Responsibilities like Say no to plastic, Say No to Tobacco, Tree Plantation, Cleanliness awareness, endowment to village people and village schools sensitize students about their role as responsible women of today by participating in NSS camp.

3. Scholars are involved in National Pharmacy Week programme like Debate, Rangoli, Elocution, Drawing, Essay, Pharma marketing competition, Sports. These leads to emotional, intellectual, social, and inter-personal development of women.
4. Spiritual practices and yoga has stoked the attention power which is putatively redounded in boost up of University ranks.
5. Lectures on women safety are also conducted. The girl scholars are assured of their well- being, safety, security and internal health and are encouraged to approach any faculty for their grievances.
6. Educational and motivational addresses and events have been engaged to make them know their significance as a druggist in the society.
7. Efforts are taken by the entire council staff and operation to feed to the shaping of the future of scholars in a distinctive manner by furnishing them platform to show their gift and bring out their scientific and specialized capabilities along with cultivating a genuine inclination towards advanced education.

5. Evidence of Success:

The scholars who enter the Pharmacy education get converted into competent professionals with advanced personality traits.
The change in the geste & communication of the scholars from first time to final time is an ample evidence for the success of the programs being organized. Scholars are signed and are set up to be progressing well in top

companies. They achieve more tone- respect and confidence by their benefactions to their communities. Holistic development rather than only academic success contributes in creating socially sensitive individualities which is a prominent demand of educational institute.

6. Problems Encountered and resources required:

Motivation & encouragement through awards and prizes. The college has to manage within the revenue from student's admission and deficit being met by the college management.

PRAVARA RURAL COLLEGE OF PHARMACY • PRAVARANAGAR •

Principal
Pravara Rural College of Pharmacy
Pravaranagar, A/p.Loni-413 736

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Principal
Pravara Rural College of Pharmacy
Pravaranagar, A/p.Loni-413 736

PRAVARA RURAL EDUCATION SOCIETY'S

PRAVARA RURAL COLLEGE OF PHARMACY, PRAVARANAGAR

A/P. LONI, TAL- RAHATA, DIST-AHMEDNAGAR (413736)

(Accredited with "A" grade by NAAC)

FIRST YEAR B-PHARMACY

Academic Booklet2023-24

PRAVARA RURAL EDUCATION SOCIETY'S
PRAVARA RURAL COLLEGE OF PHARMACY
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I. VISION, MISSION AND GOALS OF INSTITUTE

- : VISION: -

To become a center of excellence in pharmaceutical education, training, research and continuous professional development of pharmacists in rural India.

- : MISSION: -

1. Our mission is to introduce excellence in Pharmacy education through quality education, infrastructure and learning resources to meet the needs of students in pursuit of knowledge.
2. To develop, promote and nurture research activities in pharmaceutical sciences
3. To make professionally competent and ethical pharmacists of international standard to cater the needs of rural to global healthcare.

-: GOALS:-

1. To educate and train pharmacists to cater for the needs of society.

2. To promote use of indigenous resources for pharmacy industry.

3. To create excellent research center at college to provide many innovative research methods to develop Institute-Industrial linkages.

4. To develop consortium for consultancy service in education, training, health care with reference to pharmacy profession.

5. To increase the global linkages by attracting international scientific forums for Collaborative educational programmes.

II. PROGRAMME OUTCOMES

PROGRAMME OUTCOMES (B. Pharm)

The Program Outcomes of Bachelor in Pharmacy course are:

1. Pharmacy Knowledge: An ability to acquire, demonstrate, core and basic knowledge of Pharmaceutical and Life Sciences

2. Planning Abilities: An ability to develop, implement, effectively plan and organize work using time management, resource management, delegation skills and Organizational skills to achieve goals in specified timeline.

3. Problem Analysis: An ability to identify, analyze, interpret data and take appropriate decision to solve problems related to routine Pharmacy Practices by applying acquired knowledge.

4. Modern Tool Usage: An ability to understand, choose and utilize Modern techniques and computing tools for Pharmacy practices by considering constraints.

5. Leadership Skills: An understanding of pharmaceutical management principles and apply these to one's own work, as a member and leader in a team, to manage projects to facilitate improvement in social health and well-being.

6. Professional Identity: An ability to recognize, analyze and communicate Pharmacy professional values as a healthcare promoter.

7. Pharmaceutical Ethics: An ability to understand and use professional, ethical, legal, social issues and responsibilities for wellbeing of the society.

8. Communication: An ability to comprehend, write reports, present and document to communicate effectively for exchange of professional information to Pharmacy community and society.

9. The Pharmacist and Society: An ability to overcome the societal, health and legal problems by providing better pharmaceutical care relevant to the Pharmacy profession.

10. Environment and Sustainability: An ability to recognize the impact of the professional Pharmaceutical solutions in social and environmental circumstances for sustainable development.

11. Life-Long Learning: An ability to recognize the need to engage in continuous Professional development by taking in consideration timely feedback and technological changes for lifelong learning process.

III. GOVERNING BODY

Sr. No.	Name	Designation
1	Hon. Shri. Radhakrishna Eknathrao Vikhe Patil Chairman, Pravara Rural Education Society	Chairman
2	Hon. Shri. Annasaheb Sarangdhar Mhaske Patil Trustee, PRES	Member
3	Hon.Shri Bhaskarrao N.Kharde Patil Director PRES Loni	Member
4	Hon Shri Kailas S.Tambe Patil Director PRES Loni	Member
5	Shri Bharat Ghogare, Joint Secretary, PRES	Member
6	Dr. Sambhaji Nalkar Chief Scientist, KVK Babhaleshwar	Member
7	Ex- officio Member	Nominee, All India Council for Technical Education (AICTE)- Regional officer
8	Nominee of affiliating University	Nominee of affiliating University- Savitribai Phule Pune University
9	Ex-officio Member	Nominee of the State Government- Director of Technical Education (DTE) (Ex-officio) represented by Joint Director DTE office, Nashik
10	Dr.B.M.Patil, Representative of Teacher	Member
11	Dr. Santosh B. Dighe , Representative of Teacher	Member
12	Mr.Chetan Patni	Managing Director at Kaytross ACG Lifesciences Ltd.Nashik

13	Dr.Rahul Kunklol	Director Research PIMS Loni
14	Dr.Suhas S.Siddheshwar, Representative of Teacher	Member
15	Dr. Sanjay B. Bhawar Principal, Pravara Rural College of Pharmacy, Loni	Member Secretary

IV. COLLEGE DEVELOPMENT COMMITTEE

Sr.No.	Name	Designation
1	Hon. Shri Radhakrishna Vikhe Patil Chairman PRES Loni	Chairman
2	Shri Bharat V.Ghogare Patil Joint secretary PRES Loni	Member
3	Dr. Suhas S.Siddheshwar HOD, Pharmaceutics	Member
4	Dr. B.M.Patil Senior professor	Member
5	Dr. Someshwar D.Mankar Training and Placement Officer	Member
6	Mrs.Hemlata S.Bhawar HOD, Pharmaceutical Chemistry	Member
7	Mr. Ramakant A.Vikhe Non - Teaching Staff Representative	Member
8	Hon.Shri Bhaskarrao N.Kharde Patil Educationist, Director PRES Loni	Member
9	Dr.S.N.Hiremath Principal PRES COP(Diploma) Loni	Member
10	Dr.Sambhaji Nalkar Chief Scientist KVK Babeleshawar	Member
11	Mr. Prashant B.Gagare Entrepreneur and Alumnus	Member
12	Dr.Santosh B. Dighe IQAC Co-Ordinator	Member
13	Mr. Pratik Malwade Student Representative	Member
14	Mr. Vipul Karnjekar Student Representative	Member
15	Dr. Sanjay B.Bhawar	Principal & Member secretary

V. LIST OF COMMITTEES AND MEETINGS

Sr.No	Name of the committee/Cell	Convener	Date of Meeting
1	Academic/ Program Committee	Dr.S R Vikhe	Every month of 5 th
2	Admission Committee	Mr.D NVikhe	17/3/23, 3/6/23
3	Affiliations Cell (SPPU/PCI/AICTE/DTE)	Dr.A P Patel	8/8/22, 27/12/22
4	Alumni Cell	Mrs.H.S Bhawar	8/8/22, 3/1/23
5	Antiragging Committee/Antiragging squad	Dr.R J Bhor	2/8/22, 8/11/22, 14/2/23, 16/5/23& As case arrives
6	Student Development/ Welfare Committee	Dr.RJ Bhor	17/8/22, 4/10/22 19/12/22, 15/2/23
7	Career Guidance /Training & Placement Cell	Dr.S D Mankar	18/8/22, 10/10/22 5/1/23,10/4/23
8	Sports & Extracurricular activity Committee	Dr.A P Patel	8/8/22, 7/1/23, 13/2/23, 16/5/23
9	Code of Conduct & Discipline Committee	Dr.S R Vikhe	3/10/22, 8/2/23& As case Arrives
10	Skill & Entrepreneurship Development Cell	Mr.G S Shinde	2 2/8/22, 12/12/22
11	Student Council	Dr.R J Bhor	8/8/22, 3/10/22, 12/12/22, 13/2/23, 17/4/23
12	Examination Committee	Mr.AS Dighe	12/9/22, 14/11/22
13	Grievance Redressal Cell	Mr.S D Magar	30/8/22, 3/3/23& As case arrives
14	Hostel Committee	Mrs.S AVikhe	13/8/22, 26/11/22, 28/1/23, 25/3/23& As case arrives
15	IAEC	Dr.S B Dighe	5/9/22, 15/2/23
16	Institute-Industry Interaction cell		13/9/22, 24/1/23, 20/4/23
17	IQAC	Dr. S B Dighe	26/8/2022,28/11/22 27/2/23,31/5/23

18	Library Committee	Dr.R K Godage	2/6/22, 6/9/22, 9/12/22, 6/3/22
19	Purchase &Maintenance Committee	Mr.S D Magar	15/6/22 15/12/22
20	Student Mentoring Committee	Dr.R K Godage	7/10/22, 25/1/23,28/3/23
21	Equal Opportunity Cell (SC/ST/OBC/Minority &Divyangan)	Mrs.H S Bhawar	18/8/22, 15/12/22
22	NSS	Mr.M S Bhosale	22/8/22, 14/10/22, 7/12/22, 17/3/23
23	Publicity Committee	Mr.D N Vikhe	1/7/222, 24/4/23
24	Women Empowerment Cell	Mrs. K V Dhamak	27/8/22, 25/2/23
25	Internal Complaints Committee & Antiharassment Squad	Mrs. K V Dhamak	24/12/22, 22/4/23
26	CDC	Dr.S B Bhawar	15/9/22, 11/1/23
27	GB	Dr.S B Bhawar	6/10/22, 8/2/23
28	Research Committee (Promotion & Evaluation)	Dr.S S Siddheshwar	17/8/22, 15/11/22, 28/1/23, 11/4/23
29	Innovation & Incubation Cell	Dr.S S Siddheshwar	17/8/22, 15/11/22, 13/2/23
30	DIC	Dr. S B Dighe	28/8/22, 23/1/23
31	Parent Teacher Association	Mrs.T S Nirmal	25/9/22, 16/2/23
32	Website Committee	Mr.M H Kolhe	12/8/22, 18/1/23
33	Scholarship Committee (Non-Government)	Mr.G S Shinde	13/9/22, 23/1/23

VI. ACADEMIC CALENDAR UNIPUNE 2023-24

Savitribai Phule Pune University
(Formerly University of Pune)

Circular No.38 of 2023

Dates of Commencement and Conclusion of terms for the Academic Year 2022-23 for University Department / Affiliated Colleges / Recognised Institutes.

It is hereby informed that, the revised dates of commencement and conclusion of the First and Second term of University Courses, under various faculties, for the academic year 2022-23 shall be as under.

Sr No	Name of the Courses , Faculties & Year	2022 - 2023			
		First Term		Second Term	
		Commencement	Conclusion	Commencement	Conclusion
1	**Science & Technology**				
	B.Pharmacy : I	27/12/2022	25/04/2023	15/05/2023	31/08/2023
	M.Pharmacy : I	27/12/2022	25/04/2023	15/05/2023	31/08/2023
2	**Interdisciplinary Studies**				
	M. S. W.	12/07/2022	20/12/2022	04/01/2023	13/05/2023
3	**Commerce & Management**				
	M.B.A./ M.C.A.: I	01/11/2022	03/03/2023	05/04/2023	07/07/2023
	M.B.A. : II	01/09/2022	30/01/2023	05/04/2023	07/07/2023
	M.C.A. : II	01/09/2022	16/12/2022	05/04/2023	07/07/2023
4	**Humanities**				
	L.L.B. / B.A. L.L.B.- II	31/10/2022	25/02/2023	18/03/2023	11/07/2023

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.

Deputy Registrar
(P.G.Admission)

Ref. No. PGS/1188
Date: 06/03/2023

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

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VII. ACTIVITY CALENDAR 2023-24

Sr. No.	Date- Day	Name of the activity
1	August-2022	
	2-Tuesday	Anti-ragging committee meeting
	5-Friday	NSS Cell -Selection of NSS volunteers
	8-Monday	Student council meeting
	8-Monday	Affiliation cell meeting
	8-Monday	Sport and extracurricular activity committee meeting
	12-Friday	Web site committee meeting
	13-Saturday	Academic Committee meeting
	13-Saturday	Hostel committee meeting
	15-Monday	NSS Cell -Har Ghar Tiranga , cleaning drive & celebration of Independence day
	17-Wednesday	Student welfare committee
	17-Wednesday	Innovation & incubation cell meeting
	17-Wednesday	Research committee meeting
	18-Thursday	TPC Cell- Expert lecture to T.Y.B.and Final Y.B.Pharm student
	18-Thursday	Career guidance/Training placement cell meeting
	20-Saturday	TPC Cell- Industrial visit of S.Y.B.Pharm at SciTech Sinnar
	22-Monday	TPC Cell- Industrial visit of T.Y.B.Pharm at Sahyadri Farms, Nashik
	22-Monday	NSS cell meeting
	25-Thursday	TPC Cell- Industrial visit of Final .Y.B.Pharm at Premium Serum, Narayangaon
	26-Friday	IQAC Meeting
	27-Saturday	Women Empowerment cell meeting
	27-Saturday	TPC Cell- GPAT / NIPER training Session by Dr. Machhindra Bochare
	29-Monday	DIC meeting
	29-Monday	National Sport Day celebration
	30-Tuesday	Grievance Redressal committee meeting
	30-Tuesday	TPC Cell- Training session by IRA Research Consultancy
	31-Wednesday To 6- Tuesday	Cultural Dept - Ganapati Festival celebration
2	September-2022	
	3-Saturday	TPC Cell- GPAT / NIPER training Session Mr.Pratap Pawar
	5-Monday	IAEC meeting

	5-Monday	Blood donation camp
	6-Tuesday	Library committee meeting
	7-Wednesday	TPC Cell-Expert session by Dr. Rahul Kumar Garg
	10-Saturday	Academic Committee meeting
	10-Saturday	TPC Cell- Expert session by Mr. Vikrant Dhamak
	12-Monday	Examination committee meeting
	14-Wednesday	TPC Cell- Workshop on Pharmacovigilance by Kite-Ai
	19- Monday	TPC Cell- NSS Awareness Rally "Road Safety Program" with Traffic Police Department, Loni
	19- Monday To 23-Friday	S.Y. T.Y.& Final Y.B.Pharm first Practical continuous assessment examination
	24-Saturday	First Progress review presentation of M. Pharm students
	24-Saturday	Alumni Cell -Expert lecture by Alumni
	26- Monday	TPC Cell- One Day Workshop for students. Lecture on "NSS and Personality Development". Essay Competition on NSS Day Celebration.
	26- Monday To 30-Friday	S.Y. T.Y.& Final Y.B.Pharm first Theory continuous assesement examination
	29-Tuesday	NSS Cell-Body check-up program on occasion of World Heart day.
	30-Friday	NSS Cell-Rain Water Harvesting Program in College Campus
3	October-2022	
	1-Saturday	TPC Cell- Soft skill Training by GTT Foundation
	2-Sunday	NSS Cell-Gandhi Jayanti" Communal Harmony Day & International Day of Non-Violence. Cleaning program in college campus. Quiz and Debate competition
	3-Monday	Code of conduct meeting
	3-Monday	Student council meeting
	4-Tuesday	Student development committee meeting
	5-Wednesday	TPC Cell-Expert session by Dr.Parivallal Padbnabhan
	7-Friday	Student Mentoring Committee meeting
	8-Saturday	Academic Committee meeting
	8-Saturday	IQAC Cell-Seminar on molecular Docking
	10-Monday	Career guidance/Training placement cell meeting
	10-Monday	TPC Cell- GPAT / NIPER training Session by Mr.Harshad Jadhav
	14-Friday	NSS cell meeting
	14-Friday	TPC Cell- Expert session by Mr. Machindra Patare
	15-Saturday	Alumni Cell- Expert lecture by Alumni
	20-Thursday	TPC Cell- Expert session by Dr.Rahul Rahane
	25-Tuesday	TPC Cell- Expert session by Mr.Shivprasad Khose

	27-Thursday	TPC Cell- Training session by CLINI INDIA
4	November-2022	
	5-Saturday	TPC Cell- One day workshop by Shodh Advantech
	5-Saturday	TPC Cell- Expert session by Dr.R.T.Dolas
	7-Monday	NSS Cell-Swaccha Wari-Swasth WariNirmal Wari-HaritWari Program
	7-Monday	Sports & Extracurricular activity Committee meeting
	7-Monday To 9-Wednesday	Cultural Dept- Induction Day program (B.Pharm & M.Pharm)
	7-Monday	Grievance Redressal committee meeting
	8-Tuesday	Antiragging Committee/Antiraggingsquad
	10-Thursday	TPC Cell- Workshop on Research Methodology Dr.Abhay Gandhi
	12-Saturday	Academic Committee meeting
	12-Saturday	Fresher's party (Genesis)
	14-Monday	Examination committee meeting
	15-Tuesday	TPC Cell- Training Session by Rubicon India
	15-Tuesday	Research Committee (Promotion & Evaluation) meeting
	15-Tuesday	Innovation & Incubation Cell meeting
	16-Wednesday	Second Progress review presentation & Journal club of M.Pharm students
	18-Friday	IQAC Cell- Workshop on Application of Network Pharmacology
	19-Saturday	Alumni Cell -Expert lecture by Alumni
	20-Sunday	TPC Cell- GPAT training session by Mr.Vikrant Dhamak
	21- Monday To 25- Friday	F.Y.S.Y. T.Y.& Final Y.B.Pharm Second Practical continuous assessment examination
	26- Saturday	NSS Cell-Constitution Day (Savidhan Din) Lecture on Importance of Constitution.
	28- Monday To 3- Saturday	F.Y S.Y. T.Y.& Final Y.B.Pharm Second Theory continuous assesement examination
	26- Saturday	Hostel Committee meeting
	28- Monday	IQAC meeting
	30-Wednesday	NSS Cell-Cleaning Program at "Dudheshwar temple" Nimgaonjali under Swacchata Abhiyan Program
5	December-2022	
	1-Thursday	NSS Cell-AIDS awareness rally in Loni village on occasion of World AIDS Day Celebration
	2-Friday	Odd semester SPPU Semester Theory & Practical Exam

	7-Wednesday	NSS meeting
	9-Friday	Library Committee meeting
	10-Saturday	Academic Committee meeting
	10-Saturday	IQAC Cell- Hands on Training on Design expert software
	12-Monday	Alumni Cell-Expert lecture by Alumni
	12-Monday	Student council meeting
	15-Thursday	Purchase committee meeting
	12-Monday To 18-Sunday	NSS special camp
	24-Saturday	Women Empowerment Cell meeting
	24-Saturday	Internal Complaints Committee & Anti-harassment Squad Meeting
6	January-2023	
	3-Monday	Alumni Cell meeting
	3-Monday	Third Progress review presentation & Journal club of M. Pharm Students
	5-Thursday	Career guidance/Training placement cell meeting
	5-Thursday	TPC Cell- Industrial visit final year B.Pharm
	6-Friday	Parents meet
	7-Saturday	TPC Cell- Industrial visit Third year B. Pharm
	10-Tuesday	IQAC Cell-Workshop on scientific publication
	10-Tuesday	TPC Cell- Industrial visit Second year B. Pharm
	12-Thursday	NSS Cell-Lecture on self-confidence on occasion of national youth day
	13-Friday	Academic Committee meeting
	15-Sunday	NSS Cell- Swacchata Abhiyan at College
	18-Wednesday	Website Committee meeting
	18-Wednesday	TPC Cell- Industrial visit First year B.Pharm
	23-Monday	Scholarship Committee (Non-Government) meeting
	23-Monday	DIC meeting
	24-Tuesday	Industry and Institute interaction cell meeting
	25-Wednesday	NSS Cell-National voters Day celebration
	25-Wednesday	Student Mentoring Committee meeting
	26-Thursday	NSS Cell-Republic Day celebration

	28-Saturday	Hostel Committee meeting
	28-Saturday	TPC Cell-Workshop on Personality Development by Jeevan Sanjivani, Satara
	30-Monday	NSS Cell-Visit & awareness program at Lohare orphan school on occasion of world leprosy Day
	31-Tuesday	Alumni Cell-Expert lecture by Alumni
7	February-2023	
	1-Wednesday	Field visit of Third year B.Pharm
	2-Thursday	NSS Cell-Self-defense training program
	4-Saturday	NSS Cell- Cancer Awareness & Medicine Counseling Rally on occasion World Cancer Day.
	8-Wednesday	Code of Conduct & Discipline Committee meeting
	10-Friday	TPC Cell- Workshop on Good Clinical Practices
	11-Saturday	Academic Committee meeting
	11-Saturday	Alumni Cell-Expert lecture by Alumni
	12-Sunday	Alumni Meet
	13-Monday	Student council meeting
	13-Monday	Affiliation cell meeting
	13-Monday	Research Committee (Promotion & Evaluation) meeting
	13- Monday	Innovation & Incubation Cell meeting
	14-Tuesday To 19-Sunday	NSS Cell- Youth week' celebration with following activity I. Poster Competition II. Just a Minute, III. Debate Competition, IV. Rangoli competition V. Guest Lecture.
	15-Wednesday	TPC Cell- Expert session on Entrepreneurship Development
	15-Wednesday	IAEC meeting
	16-Thursday To 24-Friday	Annual sport Day
	16-Thursday	Parent Teacher Association meeting
	16-Thursday	IQAC Cell-Workshop on HPTLC
	25-Saturday	TPC Cell- Workshop on Herbal drug Standardization by Dr. Punit Rachh
	25-Saturday	Women Empowerment Cell meeting
	25-Saturday	Internal Complaints Committee & Anti-harassment Squad Meeting
	22 –Wednesday to 24-Friday	Cultural day's
	25-Saturday	Annual social gathering 2k23
	27-Monday To 3-Friday	First Sessional Practical Examination B & M.Pharm
	27-Monday	IQAC meeting

8	March-2023	
	3-Friday	Grievance Redressal committee meeting
	6—Monday	Library Committee meeting
	9- Thursday To 14-Tuesday	First sessional Theory Examination B & M.Pharm
	10-Friday	NSS Cell- Guest Lecture and Health Hygiene Program on occasion of World Women's Day'
	11-Saturday	Academic Committee meeting
	17-Friday	NSS meeting
	17-Friday	Admission committee meeting
	25-Saturday	Hostel Committee meeting
	25-Saturday	Alumni Cell-Expert lecture by Alumni
	28-Tuesday	Student Mentoring Committee meeting
	28-Tuesday	TPC Cell- Industrial Visit of F.Y.M.Pharm
9	April-2023	
	5-Wednesday	TPC Cell- Expert lecture by Mr. Ravi Gaware
	6-Thursday	Sport Dept.-International sport Day celebration
	7-Friday	TPC Cell- Training session by Smart Chem Plus
	7-Friday	NSS Cell- Health Check-Up Camp on Occasion of World Health Day
	8-Saturday	Academic Committee meeting
	10-Monday	TPC Cell- Expert lecture by Dr.Sayyad Sadik
	11-Tuesday	Research Committee (Promotion & Evaluation) meeting
	17- Monday	Student council meeting
	20-Thursday	Industry and Institute interaction cell meeting
	22-Saturday	Women Empowerment Cell meeting
	22-Saturday	Alumni Cell-Expert lecture by Alumni
	22-Saturday	Internal Complaints Committee & Anti-harassment Squad meeting
	27-Thursday	Publicity Committee meeting
10	May-2023	
	3-Wednesday	Academic Committee meeting
	2- Monday To 6-Saturday	Second Sessional Practical Examination
	8- Monday To 12-Friday	Second sessional Theory Examination B & M. Pharm
	13- Saturday	Cultural Dept.- Farewell function
	14-Sunday	SPPU Even Semester Examination Theory and Practical

	16-Tuesday	**Anti-ragging Committee/Anti-ragging squad meeting**
	17-Wednesday	**Parents meet**
	16-Tuesday	**Sports & Extracurricular activity Committee meeting**
	27-Saturday	**Hostel Committee meeting**
	31-Wednesday	**IQAC meeting**
	31-Wednesday	**NSS Cell- Lecture on Tobacco side effect on occasion of Anti-Tobacco Day 2023.**
11	**June-2023**	
	1-Thursday To 6-Tuesday	**M. Pharm Thesis submission**
	2-Friday	**Admission committee meeting**
	6-Tuesday	**Student Mentoring Committee meeting**

VIII. COURSE STRUCTURE & SCHEME FOR EXAMS ASSESMENT

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**

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**

IX. EVALUATION GUIDELINES

Scheme for Continuous mode (Theory): [Total: 10 Marks]

Criteria	Maximum Marks	
Attendance	4	2
Academic activities (Average of any 2 activities e.g. class test, quiz, assignment,open book test, field work, group discussion and seminar)	4	3
Student -Teacher interaction	2	
Total	10	05

Guidelines for the allotment of marks for attendance Percentage of

Attendance	Theory
95 – 100	4
90 – 94	3
85 – 89	2
80 – 84	1
Less than 80	0

In-Semester Examination (Sessional): [Total: 15 Marks]

Two Sessional exams shall be conducted for each theory / practical course as per theschedule fixed by the college. The scheme of question paper is given below. The average marks of two Sessional exams shall be computed for internal assessment.

Paper pattern and marks distribution for In Semester Exam: As per universityguideline

I. Objective Type Questions (Answer 5 out of 7) = 05 x 2 = 10
II. 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 (1.5 Hrs)

Sessional exam shall be conducted for 30 marks for theory and shall be computedfor 15 marks.

End Semester Examination [Total: 75 Marks]:

Paper pattern and marks distribution for End Semester Exam: As per universityguideline

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

II. Short Answers (Answer 8 out of 10) = 8 x 5 = 40

Total = 75 marks (3 hrs)

PRAVARA RURAL EDUCATION SOCIETY'S
PRAVARA RURAL COLLEGE OF PHARMACY
LONI

I. *FIRST YEAR B. PHARMACY*

SEMESTER-I

COURSE DETAILS

Course Name and code: **HUMAN ANATOMY AND PHYSIOLOGY-I (Theory) BP 101 T**

Year and Semester: I Year I Semester

Year of study: 2023-24 (2019 Pattern)

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:Course

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

SYLLABUS:

Theory	Practical	Tutorial	Credits
3	-----	1	4

Unit	Content	Session in Hrs.
1	**a) Introduction to human body** 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 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 Classification of tissues, structure, location and functions of epithelial, 4 hours 31 muscular and nervous and connective tissues.	3hours 4hours 4hours

2	**a) Integumentary system** Structure and functions of skin **b) Skeletal system** 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** Structural and functional classification, types of joints movements and its articulation	**4 hours** **4 hours** 2 **hours**
3	**a) Body fluids and blood** Body fluids, composition and functions of blood, blood cells, hemopoeisis, formation of hemoglobin, anaemia, mechanisms of coagulation, blood grouping, Rh factors, transfusion, its significance and disorders of blood, Reticulo endothelial system. **b) Lymphatic system** Lymphatic organs and tissues, lymphatic vessels, lymph circulation and functions of lymphatic system.	**7 hours** 3hours
4	**a) Peripheral nervous system:** 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** Structure and functions of eye, ear, nose, tongue, and their disorders.	3 Hours 5 Hours
5	**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 heartbeat, its regulation by autonomic nervous system, cardiac output, cardiac cycle. Regulation of blood pressure, pulse, electrocardiogram and disorders of heart	07 hours
Total		4 5

COURSE OUTCOME (CO)

After successful completion of course student will able to

Course Delivery, Objective Outcomes

CO PO PSO MAPPING WITH JUSTIFICATION

ACADEMIC YEAR 2023-24

ODD SEMESTER

NAME OF THE SUBJECT	**:**	**Human Anatomy & Physiology I**
SUBJECT CODE	**:**	**BP101T**
SYLLABUS PATTERN	**:**	**2019**
SEMESTER	**:**	**I**
NUMBER OF CREDITS	**:**	**03+1**

Course Outcomes (COs):

After successful completion of course student will able to

CO101.1. Define various terminologies, different level of organization, organ system and homeostsis mechanism of human body

CO101.2. Explain anatomical organization, morphology & physiological functions of the skeletal system and joints.

CO101.3. Dicuss the role of body fluids & blood in homeostasis and body fluid regulation.

CO101.4 Explain anatomical organization, morphology & physiological functions of the Peripheral nervous system and special sense organs with their disorders.

CO101.5. Explain anatomical organization, morphology & physiological functions of the cardiovascular system with their disorders

6. Mapping of Course Outcome (CO) with Program Outcome (PO)

CO/PO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO 9	PO 10	PO 11
CO1	√	--	√	--	--	--	--	√	--	--	√
CO2	√	--	√	--	--	--	--	√	--	--	√
CO3	√	--	√	√	--	--	--	√	--	--	√
CO4	√	--	√	√	--	--	--	√	--	--	√
CO5	√	--	√	--	--	--	--	√	--	--	√
CO6	√	--	√	--	--	--	--	√	--	--	√

7.JUSTIFICATION:

CO's	Justification
CO1	PO1: Knowledge of chemical reaction principles and concept of benzene and its derivatives which required for synthesis of organic compounds PO3: To study of principles of reactions & orientation of benzene & its derivatives, To analyze the physical and chemical characteristic (M.P, B.P, pH) PO8: To Write effective reports and presentation of same PO11: Knowledge of reactions & orientation of benzene & its derivatives to utilize in recent technological changes
CO2	PO1: Knowledge of chemical reaction, preparation and its principles of phenols and aromatic amines which required for synthesis of organic compounds PO3: To study of chemical reaction, preparation and its principles of phenols and aromatic amines, To analyze the physical and chemical characteristic (M.P, B.P, pH) PO8: To Write effective reports and presentation of same PO11: Knowledge of chemical reaction, preparation and its principles of phenols and aromatic amines to utilize in recent technological changes
CO3	PO1: Knowledge of stereoisomerism and its configuration (R& S, E&Z) of various organic compounds PO3: For analyzing stereochemistry and its configuration of various organic compounds and to check significance of biological activity according to its stereochemistry and its configuration.

	PO4: Molecular docking and other modern tools helps to study the various stereoisomers and configurations and their related biological activity. PO8: To Write effective reports and presentation of same PO11: Knowledge of stereoisomerism and its configuration (R& S, E&Z) of various organic compounds utilize in recent technological changes
CO4	PO1: Knowledge related to the chemistry and medicinal uses of polynuclear hydrocarbon PO3: Relevant to perform experiments, analylze and interpret the data. PO4: It deals with modern tools and techniques for pharma process PO8: To Write effective reports and presentation of same PO11: It deals with understanding and implementing theoretical and practical knowledge in pharmacy practice.
CO5	PO1: Knowledge of theories related to stability & reactivity of cycloalkanes PO3:Analyze the stability & reactivity of cycloalkanes PO8: To Write effective reports and presentation of same PO11: Knowledge of theories related to stability & reactivity of cycloalkanes were utilize in recent technological changes
CO6	PO1: Knowledge of chemistry of fats and oils used for differentiation of fats and oils with physical and chemical properties PO3: To evaluate the acid value, saponification value of fats and oils PO8: To Write effective reports and presentation of same PO11: Knowledge chemistry of fats and oils were utilize in recent technological changes

8. MAPPING STRENGTH OF CO's To PO's

CO/PO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO 9	PO 10	PO 11
CO1	3	0	1	0	0	0	0	1	0	0	1
CO2	2	0	1	0	0	0	0	1	0	0	2
CO3	3	0	2	1	0	0	0	1	0	0	2
CO4	3	0	1	1	0	0	0	1	0	0	2
CO5	2	0	1	0	0	0	0	1	0	0	2
CO6	1	0	1	0	0	0	0	1	0	0	2

1: Low **2: Moderate** **3: High**

PHARMACEUTICAL ANALYSIS-I (THEORY) BP102 T

1. COURSE DETAILS

Course Name and code: Pharmaceutical Analysis-I (Theory) BP102 T
Year and Semester: 1st Year I Semester
Year of study: 2023-24 (2019 Pattern)
Course Delivery:

The course will be delivered through lectures, class room interaction, and presentations.

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

1. Understand the principles of volumetric and electro chemical analysis.
2. Carryout various volumetric and electrochemical titrations.
3. Develop analytical skills.

BP102T. PHARMACEUTICAL ANALYSIS-I (Theory)

T	P	T	Hrs.
3	-	1	45

Sr.no	Topic	Hrs
1	**UNIT-I** **(a) Pharmaceutical analysis-** Definition and scope i) Different techniques of analysis **ii)** Methods of expressing concentration **iii)** Primary and secondary standards. **iv)** Preparation and standardization of various molar and normal solutionsOxalic acid, sodium hydroxide, hydrochloric acid, sodium thiosulphate, sulphuric acid, potassium permanganate and ceric ammonium sulphate **(b) Errors :**Sources of errors, types of errors, methods of minimizing errors, accuracy, precision and significant figures	10 Hours
2	**UNIT-II** **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. **Non aqueous titration:** Solvents, acidimetry and alkalimetry titration	10 Hours

	and estimation of Sodium benzoate and Ephedrine HCl	
3.	UNIT-III **Precipitation titrations:** Mohr's method, Volhard's, Modified Volhard's, Fajans method, estimation of sodium chloride. **Complexometric titration:** Classification, metal ion indicators, maskingand demasking reagents, estimation of Magnesium sulphate, and calcium gluconate. **Gravimetry:** Principle and steps involved in gravimetric analysis. Purity of the precipitate: co-precipitation and post precipitation, Estimation of barium sulphate.	10 Hours
4.	**UNIT-IV** **Redox titrations** (a) Concepts of oxidation and reduction (b) Types of redox titrations (Principles and applications) Cerimetry, Iodimetry, Iodometry, Bromatometry, Dichrometry,Titration with potassium iodate	08 Hours
5	**UNIT-V** **Electrochemical methods of analysis** **Conductometry-** Introduction, Conductivity cell, Conductometric titrations, applications. **Potentiometry** - Electrochemical cell, construction and working of reference (Standard hydrogen, silver chloride electrode and calomel electrode) and indicator electrodes (metal electrodes and glass electrode), methods to determine end pointt of potentiometric titration and applications. **Polarography** - Principle, Ilkovic equation, construction and working of dropping mercury electrode and rotating platinum electrode, applications **Refractometry - Introduction, refractive index, specific and molar refraction, measurement of RI, Abbe's refractometer and applications**	07 Hours
		45 Hours

1. COURSE OUTCOMES

Subject : Pharmaceutical Analysis-1 (T) BP102
Class : First Year B.Pharm

BP102T. PHARMACEUTICAL ANALYSIS-I
(Theory)

Course Delivery:

The course will be delivered through lectures, class room interaction, and presentations.

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

4. Understand the principles of volumetric and electro chemical analysis.
5. Carryout various volumetric and electrochemical titrations.
6. Develop analytical skills.

Course Outcomes (COs):

After successful completion of course student will able to

CO1	Explain volumetric analysis method for estimation of selected compound officially pharmacopeia.
CO2	Explain electrochemical analysis method for estimation of selected compound officially pharmacopeia.
CO3	Explain gravimetric analysis method for estimation of selected compound officially pharmacopeia.
CO4	Explain various method of expressing conc. & uses of primary and secondary std. for chemical analysis.
CO5	Explain error in measurement.

Name of Course	**B.Pharmacy**
Subject Name	**PHARMACEUTICAL ANALYISIS-I**
Subject Code	**BP102T**
Name of the teacher	**Mr. Amol S. Dighe**
Academic Year	**2023-24**

COURSE OUTCOME (CO)
After successful completion of course student will able to

CO No.	Course Outcome Statement	Bloom Levels (1-Knowledge,2-Understand,3-Apply,4-Analyze,5-Evaluate,6-Creat)
1	Explain volumetric analysis method for estimation of selected compound officially pharmacopeia.	2
2	Explain electrochemical analysis method for estimation of selected compound officially pharmacopeia.	2
3	Explain gravimetric analysis method for estimation of selected compound officially pharmacopeia.	2
4	Explain various method of expressing conc. & uses of primary and secondary std. for chemical analysis.	2
5	Explain error in measurement.	2

PROGRAM OUTCOMES (PO) -

1. **Pharmacy Knowledge**: Possess knowledge and comprehension of the core and basic knowledge associated with the profession of pharmacy, including biomedical sciences; pharmaceutical sciences; behavioural, social, and administrative pharmacy sciences; and manufacturing practices.
2. **Planning Abilities**: Demonstrate effective planning abilities including time management, resource management, delegation skills and organizational skills. Develop and implement plans and organize work to meet deadlines.
3. **Problem analysis**: Utilize the principles of scientific enquiry, thinking analytically, clearly and critically, while solving problems and making decisions during daily practice. Find, analyze, evaluate and apply information systematically and shall make defensible decisions.
4. **Modern tool usage**: Learn, select, and apply appropriate methods and procedures, resources, and modern pharmacy-related computing tools with an understanding of the limitations.
5. **Leadership skills**: Understand and consider the human reaction to change, motivation issues, leadership and team-building when planning changes required for fulfilment of practice, professional and societal responsibilities. Assume participatory roles as responsible citizens or leadership roles when appropriate to facilitate improvement in health and wellbeing.
6. **Professional Identity**: Understand, analyze and communicate the value of their professional roles in society (e.g. health care professionals, promoters of health, educators, managers, employers, employees).
7. **Pharmaceutical Ethics**: Honour personal values and apply ethical principles in professional and social contexts. Demonstrate behaviour that recognizes cultural and personal variability in values, communication and lifestyles. Use ethical frameworks; apply ethical principles while making decisions and take responsibility for the outcomes associated with the decisions.
8. **Communication**: Communicate effectively with the pharmacy community and with society at large, such as, being able to comprehend and write effective reports, make effective presentations and documentation, and give and receive clear instructions.
9. **The Pharmacist and society**: Apply reasoning informed by the contextual knowledge to

assess societal, health, safety and legal issues and the consequent responsibilities relevant to the professional pharmacy practices.

10. **Environment and sustainability:** Understand the impact of the professional pharmacy solutions in societal and environmental contexts, and demonstrate the knowledge of, and need for sustainable development.

11. **Life-long learning**: Recognize the need for, and have the preparation and ability to engage in independent and life-long learning in the broadest context of technological change. Self-assess and use feedback effectively from others to identify learning needs and to satisfy these needs on an ongoing basis.

Mapping of Course Outcome (CO) with Program Outcome (PO)

CO/PO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11
CO1	√	√	√	√	√	--	--	--	--	--	√
CO2	√	√	√	√	√	--	--	--	--	--	√
CO3	√	√	√	√	√	--	--	--	--	--	√
CO4	√	√	√	√	√	--	--	--	--	--	√
CO5	√	√	√	√	√	--	--	--	--	--	√

Justification:

CO's	Justification
CO1	PO1: CO1 is aligned with PO1 because it demonstrate the technical knowledge of analytical technique PO2: CO1 is aligned with PO2 because it deals with practical analysis PO3 CO1 is aligned with PO3 because it deals with the design of analytical methods for method development PO4: CO1 is aligned with PO4 because it deals with research based knowledge PO5: CO1 is aligned with PO4 because it deals with experimental work and analysis of results of scale ups PO11: CO1 is aligned with PO12 because it correlate the pharmaceutical principals, demonstrate the knowledge and apply it at work place for sustainable development

CO2	PO1: CO2 is aligned with PO1 because it moderately deals with the basic knowledge PO2: CO2 is aligned with PO2 because it moderately deals with the analysis PO3: CO2 is aligned with PO3 because analysis of simple process to meet desired need is useful for the design of new analytical techniques PO4: CO2 is aligned with PO4 because through the analysis one can interpret the data and identify the purity of the substances PO5: CO2 is aligned with PO5 because modern analytical tools can be used to improve practical skill in pharmacy practices. PO11: CO2 is aligned with PO12 because it correlate the pharmaceutical principals, demonstrate the knowledge and apply it at work place for sustainable development
CO3	PO1: CO3 is aligned with PO1 because it moderately deals with the basic knowledge PO2: CO3 is aligned with PO2 because it moderately deals with the analysis PO3: CO3 is aligned with PO3 because analysis of simple process to meet desired need is useful for the design of new analytical techniques PO4: CO3 is aligned with PO4 because through the analysis one can interpret the data and identify the purity of the substances PO5: CO3 is aligned with PO5 because modern analytical tools can be used to improve practical skill in pharmacy practices. PO11: CO3 is aligned with PO12 because it correlate the pharmaceutical principals, demonstrate the knowledge and apply it at work place for sustainable development

MAPPING STRENGTH OF CO's TO PO's

CO/PO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11
CO1	3	2	2	2	1	--	--	--	--	--	2
CO2	3	2	2	2	1	--	--	--	--	--	2
CO3	3	2	2	2	1	--	--	--	--	--	2
CO4	3	2	2	2	1	--	--	--	--	--	2
CO5	3	1	2	2	1	--	--	--	--	---	2

1: Low 2: Moderate 3: High

Note: Following general guidelines may be used to identify the strength of mapping

1. Pharmacy Knowledge (PO1) for all the CO's may be mapped at level 3 or 2.
2. PO2, PO3, PO4 may be mapped at Level 2, however level 3 can be considered for some CO's.
3. PO6, PO7, PO8 and PO11 may be mapped at level 2 or 1.
4. Consider content of the course for mapping strength to the particular PO like Jurisprudence, Analysis, QA etc (Level 3).
5. Consider the number of hours utilized in teaching particular CO
6. All department faculties should be involved in mapping CO to PO and identifying its strength.

Pharmaceutics I (Theory) BP 103 T

Year and Semester: I Year I Semester
Year of study: 2023-24 (2019 Pattern)
Scope:
This course is designed to impart a fundamental knowledge on the proparatory pharmacy with arts and science of preparing the different conventional dosage forms.
Course Objectives:
Upon the completion of the course student shall 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

Theory	Practical	Tutorial	Credits
3	-----	1	4

Unit	Content	Session in Hrs.
1	• **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, Pharmacopoeias: Introduction to IP, BP, USP and Extra Pharmacopoeia. • **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.	10
2	• **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	10

	forms. Excipients used in formulation of liquid dosage forms. Solubility enhancement techniques	
3	• **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.	10
4	• **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.	08
5	• **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	07
		4 5

COURSE OUTCOME (CO)

Name of Course	**B. Pharmacy**
Subject Name	Pharmaceutics I (Theory)
Subject Code	BP 103T
Name of the teacher	**Payal S. Gawali**
Academic Year	**2023-24**

CO No.	Course Outcome Statement	Bloom Levels (1-Knowledge, 2-Understand, 3-Apply, 4-Analyze, 5-Evaluate, 6-Creat)
1	Explain history of pharmacy profession and Pharmacopoeias	**2**
2	Explain various dosage form solid(powder),liquid, semisolid dosage form with respect to nature, classification ,preparation, advantage and disadvantage.	2
3	Explain parts of prescription and errors of prescription including calculation of dose.	**2**
4	Describe different pharmaceutical incompatibilities in pharmaceutical preparation.	2
5	Use imperial and metric system to prepare percentage solution, alligation, proof spirit, isotonic solution based on freezing point and molecular weight.	3

After successful completion of course student will able to

PROGRAM OUTCOMES (PO) -

1. **Pharmacy Knowledge**: Possess knowledge and comprehension of the core and basic knowledge associated with the profession of pharmacy, including biomedical sciences; pharmaceutical sciences; behavioural, social, and administrative pharmacy sciences; and manufacturing practices.
2. **Planning Abilities**: Demonstrate effective planning abilities including time management, resource management, delegation skills and organizational skills. Develop and implement plans and organize work to meet deadlines.
3. **Problem analysis**: Utilize the principles of scientific enquiry, thinking analytically, clearly and critically, while solving problems and making decisions during daily practice. Find, analyze, evaluate and apply information systematically and shall make defensible decisions.
4. **Modern tool usage**: Learn, select, and apply appropriate methods and procedures, resources, and modern pharmacy-related computing tools with an understanding of the limitations.
5. **Leadership skills**: Understand and consider the human reaction to change, motivation issues, leadership and team-building when planning changes required for fulfilment of practice, professional and societal responsibilities. Assume participatory roles as responsible citizens or leadership roles when appropriate to facilitate improvement in health and wellbeing.
6. **Professional Identity**: Understand, analyze and communicate the value of their professional roles in society (e.g.

health care professionals, promoters of health, educators, managers, employers, employees).

7. **Pharmaceutical Ethics**: Honour personal values and apply ethical principles in professional and social contexts. Demonstrate behaviour that recognizes cultural and personal variability in values, communication and lifestyles. Use ethical frameworks; apply ethical principles while making decisions and take responsibility for the outcomes associated with the decisions.

8**. Communication**: Communicate effectively with the pharmacy community and with society at large, such as, being able to comprehend and write effective reports, make effective presentations and documentation, and give and receive clear instructions.

9. **The Pharmacist and society**: Apply reasoning informed by the contextual knowledge to assess societal, health, safety and legal issues and the consequent responsibilities relevant to the professional pharmacy practices.

10. **Environment and sustainability:** Understand the impact of the professional pharmacy solutions in societal and environmental contexts, and demonstrate the knowledge of, and need for sustainable development.

11. **Life-long learning**: Recognize the need for, and have the preparation and ability to engage in independent and life-long learning in the broadest context of technological change. Self-assess and use feedback effectively from others to identify learning needs and to satisfy these needs on an ongoing basis.

Mapping of Course Outcome (CO) with Program Outcome (PO)

CO/PO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO 9	PO 10	PO 11
CO1	√	√	--	--	--	√	√	--	--	--	√
CO2	√	√	√	√	--	--	--	--	--	--	√
CO3	√	--	√	--	--	√	--	--	√	--	√
CO4	√	√	√	--	--	--	--	--	--	--	√
CO5	√	--	√	--	--	--	--	--	_	--	√

Justification:

CO's	Justification
CO1	PO1: basic knowledge of the pharmacy profession. PO2:deals with understanding the use of Pharmacopoeia. PO6: deals with the development and understanding of pharmacy profession PO7: understand the role of pharmacist for the benefit of society. PO11: basic knowledge of the pharmacy profession.
CO2	PO1: basicknowledge of various dosage forms. PO2: formulating and evaluating the pharmaceutical dosage form. PO3: problem analysis during formulation and evaluation of pharmaceutical dosage form. PO4: modern tools and techniques for development of dosage form and its evaluation.

	PO11:Understanding and implementing theoretical and practical knowledge of development of pharmaceutical dosage form in pharmacy practice.
CO3	PO1:knowledge of prescription and posology for community and hospital pharmacy PO3:prescription and posology related problem of pharma based system for public health and safety PO6: theoretical as well as practical knowledge of dose calculation and analyze the prescription PO9: deals with application of prescription and posology knowledge at community pharmacy. PO11:Understand the professional way of handling the prescription.
CO4	PO1: Knowledge about different pharmaceutical incompatibilities in pharmaceutical preparations. PO2:Planning the use of excipients to avoid incompatibilities in dosage forms. PO3:Understand and solve problems related to incompatibilities in dosage forms. PO11:basic knowledge about pharmaceutical incompatibilities.
CO5	PO1: Knowledge about different pharmaceutical calculations for pharmaceutical preparations. PO3: Understand and solve problems related to pharmaceutical calculations for dosage forms. PO11: basic knowledge about pharmaceutical calculations.

MAPPING STRENGTH OF CO's TO PO's

CO/PO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO 9	PO 10	PO 11
CO1	3	3	--	--	--	2	2	--	--	--	3
CO2	3	3	2	2	--	--	--	--	--	--	3
CO3	3	--	3	--	--	2	--	--	2	--	2
CO4	3	3	2	--	--	--	--	--	---	--	2
CO5	3	--	3	--	--	--	--	--	--	--	1

1: Low 2: Moderate 3: High

Note: Following general guidelines may be used to identify the strength of mapping

1. Pharmacy Knowledge (PO1) for all the CO's may be mapped at level 3 or 2.
2. PO2, PO3, PO4 may be mapped at Level 2, however level 3 can be considered for some CO's.
3. PO6, PO7, PO8 and PO11 may be mapped at level 2 or 1.
4. Consider content of the course for mapping strength to the particular PO like Jurisprudence, Analysis, QA etc (Level 3).
5. Consider the number of hours utilized in teaching particular CO
6. All department faculties should be involved in mapping CO to PO and identifying its strength.

FINAL CO ATTAINMENT

Direct Attainment= Avg. CO of CIE * 0.25 + Avg. CO of SEE*0.75

= 0.25*2.73+2*0.75

=0.6825+1.5

=2.182

Final Attainment = Direct Attainment * 0.9+Indirect Attainment*0.1

=2.182*0.9+2.938*0.1

=1.963 + 0.2938

=2.2576

CIE: Continuous Internal Evaluation

SEE: Semester End Examination

Pharmaceutical Inorganic Chemistry – Theory

Evaluation	CIE					SEE
CO's	MT1	MT2	CT1	CT2	Average	
1	2	--	3	3	2.5	2
2	2.42	2.15	3	3	2.77	2
3	3	--	3	3	2.75	2
4	---	---	3	3	2.66	2
5	---	--	3	3	3	2
Avg.					2.73	2

Pharmaceutical Inorganic Chemistry-I (Practical) BP 110 P

SYLLABUS (B. Pharm)

Course Name and code: Pharmaceutical Inorganic Chemistry-I (Practical) BP 110 P
Year and Semester: I Year I Semester
Year of study: 2023-24 (2019 Pattern)

Scope: -

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

Objective: -

Upon completion of course student shall be able to

1. Know the sources of impurities and methods to determine the impurities in drugs and pharmaceuticals
2. Understand the medicinal and pharmaceutical importance of inorganic compound

SYLLABUS

Theory	Practical	Tutorial	Credits
-	3	-	4

Sr. No	Title of the Experiment	Session In Hr.
1.	To perform and report the limit test for sulphates on the given sample.	04
2.	To perform and report the limit test for Chlorides in the given sample.	04
3.	To perform and report the limit test for Heavy Metals in the given sample as per I.P.	04
4.	To perform and report the limit test for Iron in the given sample as per I.P.	04
5.	To perform and report the limit test for Arsenic in the given sample as per I.P.	04
6.	To carry out the identification tests of Ferrous Sulphate as per I.P	04

7.	To perform the Identification tests of Copper Sulphate as per I.P.	04
8.	To carry out the identification tests of Sodium Bicarbonate as per I.P.	04
9.	To carry out the identification tests of Magnesium Hydroxide as per I.P.	04
10.	To prepare and submit Ferrous Sulphate as per I.P	04
11.	To Prepare and submit Aluminium Hydroxide Gel.	04
12.	To Prepare and submit Boric Acid.	04
13.	To Prepare and submit Potash Alum	04
14.	To study the swelling power of Bentonite Clay.	04
15.	Neutralizing capacity of Aluminum hydroxide gel	04

COURSE OUTCOMES (B.Pharm)

Course Name and code: Pharmaceutical Inorganic Chemistry (Theory) BP 110 P
Year and Semester: I Year I Semester

Year of study: 2023-24 (2019 Pattern)

CO	Course Outcomes	CL (Cognitive level)	KC (Knowledge Category)	Class Session Hrs.	Units
CO1	Evaluate presence of inorganic impurities in pharmaceutical subtances	5	P	24	1
CO2	Identify inorganic pharmaceutical compounds using appropriate pharmacopeial procedure.	1	P	12	2
CO3	Assess to purity of inorganic pharmaceutical compound based on its physical & chemical properties.	5	P	12	3
CO4	Prepare various Pharmaceutical Inorganic Compounds using pharmacopeial procedure	6	p	12	4

Cognitive level (CL): Bloom's taxonomy Cognitive level (1/2/3/4/5)
Knowledge Category (KC): F= Factual Knowledge, C= Conceptual Knowledge, P= ProceduralKnowledge, M= Metacognitive Knowledge

Mapping of COs to POs

Course Name and code - PIC I First year B Pharm
Year of study 2023-24

Mapping of Course Outcome (CO) with Program Outcome (PO)

CO No.	Course Outcome Statement
CO1	Evaluate presence of inorganic impurities in pharmaceutical subtances
CO2	Identify inorganic pharmaceutical compounds using appropriate pharmacopeial procedure.
CO3	Assess to purity of inorganic pharmaceutical compound based on its physical & chemical properties.
CO4	Prepare various Pharmaceutical Inorganic Compounds using pharmacopeial procedure

CO/PO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO 9	PO 10	PO 11
CO1	√	√	√	√	--	--	--	--	--	--	√
CO2	√	√	√	√	--	--	--	--	--	--	√
CO3	√	√	√	√	--	--	--	--	--	--	√
CO4	√	√	√	√	--	--	--	--	--	--	√

MAPPING STRENGTH OF CO's TO PO's

CO/PO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO 9	PO 10	PO 11
CO1	3	3	3	2	0	0	0	0	0	0	2
CO2	3	3	3	3	0	0	0	0	0	0	2

CO3	3	3	3	2	0	0	0	0	0	0	2
CO4	3	3	3	2	0	0	0	0	0	0	2

1: Low 2: Moderate 3: High

COURSE OUTCOME (CO)

After successful completion of course student will able to

Upon the completion, students are able to

Mapping course outcome with Programme outcome

Justification of CO and PO mapping

COs	Justification
CO1	PO1: it demonstrate the core and basic knowledge associated with the identification of impurities in chemical compound.
	PO2: The limit test useful for designing and developing compound preparation
	PO3: it understand the basic parameters to identify chemical compound while developing and optimizing the drug to attaining desired product.
	PO4: The use of modern technique and tools for interpreting and analyzing the impurities in official compound.
	PO11: It's deals with semi quantitative determination by limit test its continous process for assess of chemical compound
CO2	PO1: it demonstrate the technical knowledge of identification test for assess chemical compound using official test.
	PO2: the identification test useful for design and development of assess compound and their preparation.
	PO3: the knowledge about identification of chemical compound by official test.
	PO4: The use of modern technique and tools for interpreting and analyzing the in official compound.
	PO11: the qualitative analysis of chemical compound by official identified test.
CO3	PO1: The knowledge of assay of purity to detect percentage and quantitative data of purity of various inorganic compound.
	PO2: it demonstrate effective planning abilities for designing and developing by performing assay of purity
	PO3: it deals with acquiring knowledge of assay of purity to detect percentage and quantitative data of purity of various inorganic compound.
	PO4: It uses the modern analytical tools and techniques with different interpreting software to detect purity of organic compound .
	PO11: the test of purity of chemical compound by official method for checking quality and quantity.
CO4	PO1: The knowledge of concept and method of official compound preparation method.

	PO2: it demonstrate effective planning abilities for determination of Qualitative and Quantitative analysis of chemical compound by preparation of compound.
	PO3: it deals with knowledge of official preparation of specified compound.
	PO4: it demonstrate the use of modern computing tools and different instruments for preparation of chemical compound as per official method .
	PO11: The preparation of inorganic compounds as per official method its continuous process and adopts the latest/updated technology for Profession development.

Course Name and code: Pharmaceutical Inorganic Chemistry-I (Theory) BP 104 T

Year and Semester: I Year I Semester
Year of study: 2023-24 (2019 Pattern)

Scope:-

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

Objective:- Upon completion of course student shall be able to

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

T	P	T	Hrs.
03	-----	01	04

Unit	Content	Session in Hrs.
1	**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. **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	**08 hours** **02hours**
2	**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	**4 hours** **4 hours**

	chloride*, Potassium chloride, Calcium gluconate* and Oral Rehydration Salt (ORS), Physiological acid base balance. **c) Dental products**: Dentifrices, role of fluoride in the treatment of dental caries, Desensitizing agents, Calcium carbonate, Sodium fluoride, and Zinc eugenol cement	**2 hours**
3	**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, Kaolin and Bentonite **b) Protectives and Adsorbents**: Kaolin and Bentonite **c) Antimicrobials**: Mechanism, classification, Potassium permanganate, Boric acid, Hydrogen peroxide*, Chlorinated lime*, Iodine and its preparations	**05 hours** **02 hours** **03 hours**
4	**Miscellaneous compounds** **a) Expectorants:** Potassium iodide, Ammonium chloride*. **b) Emetics**: Copper sulphate*, Sodium potassium tartarate **c) Haematinics:** Ferrous sulphate*, Ferrous gluconate **d) Poison and Antidote:** Sodium thiosulphate*, Activated charcoal, Sodium nitrite333 **e) Astringents**: Zinc Sulphate, Potash Alum	**02 hours** **02 hours** **01 hours** **02 hours** **01 hours**
5	**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 , Chromium 51 , Erbium169, Gallium68, Technetium99m, Storage conditions, precautions & pharmaceutical applications of radioactive substances.	**07 hours**
		45 hours

CO	Course Outcomes	CL (Cognitive level)	KC (Knowledge Category)	Class Session Hrs.	Units
CO1	Explain various of type, sources & significance of impurities & procedure involved in their identification with their official limit in pharmaceutical substances.	2	C	10	1
CO2	Describe theory & monograph of acid base, bufferes & there role in pharmaceutical & isotonicity preparation.	2	C	04	2
CO3	Summarize physiological function of ion & acid bace balance with their significance & monograph of specified electrolyte preparation of electrolyte replacement therapy solution.	2	F	04	2
CO4	Explain various dental product used as dentifrices, anticaries, desentization & cementing agents. (Level 02)	2	C	02	2
CO5	Classify various inorganic agents used in preparation of acidifier, antacid, catheretics,antimicrobial as gastrointenstinal agents including monograph of specified agents . (Level 02)	2	C	10	3
CO6	Classify various inorganic agents used in preparation of expectorant, emetics, antidotes, Haematinics, astringent agents including their monograph of specified agents .	2	C	08	4
CO7	Explain principle & measurement of radiation therapy including handling, storage & uses of specified radio isotopes.	2	C	07	5

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COURSE OUTCOMES (B.Pharm)

Course Name and code: Pharmaceutical Inorganic Chemistry (Theory) BP 104T

Year and Semester: I Year I Semester

Year of study: 2023-24 (2019 Pattern)

Cognitive level (CL): Bloom's taxonomy Cognitive level (1/2/3/4/5)

Knowledge Category (KC): F= Factual Knowledge, C= Conceptual Knowledge, P= ProceduralKnowledge, M= Metacognitive Knowledge

Mapping of COs to POs

Course Name and code - PIC I First year B Pharm Year of study 2023-24

Mapping of Course Outcome (CO) with Program Outcome (PO)

CO/PO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO 9	PO 10	PO 11
CO1	√	√	√	√	--	√	--	√	√	√	√
CO2	√	√	√	√	--	√	--	√	√	--	√
CO3	√	√	√	√	--	√	--	√	√	--	√
CO4	√	√	√	--	--	√	--	√	√	--	√
CO5	√	√	√	--	--	√	--	√	√	--	√
CO6	√	√	√	--	--	√	--	√	√	--	√
CO7	√	√	√	√	--	√	--	√	√	√	√

MAPPING STRENGTH OF CO's TO PO's

CO/PO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO 9	PO 10	PO 11
CO1	3	3	2	2	0	2	0	2	2	2	2
CO2	3	3	2	2	0	1	0	2	1	0	2

CO3	3	3	2	2	0	1	0	2	1	0	2
CO4	3	3	2	0	0	1	0	1	1	0	1
CO5	3	1	2	0	0	1	0	1	1	0	1
CO6	3	1	2	0	0	1	0	1	1	0	1
CO7	3	2	2	2	0	2	0	2	2	2	2

1: Low 2: Moderate 3: High

COURSE OUTCOME (CO)

After successful completion of course student will able to

Upon the completion, students are able to

CO No.	Course Outcome Statement
CO1	Explain various of type, sources & significance of impurities & procedure involved in their identification with their official limit in pharmaceutical substances.(Level 02)
CO2	Describe theory & monograph of acid base, bufferes & there role in pharmaceutical & isotonicity preparation. (Level 02)
CO3	Summarize physiological function of ion & acid bace balance with their significance & monograph of specified electrolyte preparation of electrolyte replacement therapy solution. (Level 02)
CO4	Explain various dental product used as dentifrices, anticaries, desentization & cementing agents. (Level 02)
CO5	Classify various inorganic agents used in preparation of acidifier, antacid, catheretics,antimicrobial as gastrointenstinal agents including monograph of specified agents . (Level 02)
CO6	Classify various inorganic agents used in preparation of expectorant, emetics, antidotes, Haematinics, astringent agents including their monograph of specified agents . (Level 02)
CO7	Explain principle & measurement of radiation therapy including handling, storage & uses of specified radio isotopes. (Level 02)

Justification-

COs	Justification
CO1	PO1: it demonstrates the knowledge of basic type, sources & significance of impurities & procedure involved in their identification with their official limit in pharmaceutical substances. PO2:CO1 is aligned with PO2 because it deals with concept and practical inorganic chemistry PO3:CO1 is aligned with PO3 because it deals with the design of inorganic practical methods to identify the impurity. PO4:CO1 is aligned with PO9 because it learns, select, and apply appropriate methods and procedures, resources identify impurities. PO11:CO1 is aligned with PO11 because its demonstrate the knowledged of inorganic compound guidelines and norms by regulatory bodies and there is need for lifelong learning of chemical compounds.
CO2	PO1:CO2 is aligned with PO1 because it demonstrates the knowledge of theory & monograph of acid base, bufferes & there role in pharmaceutical & isotonicity preparation PO2:CO2 is aligned with PO2 because it deals with acid base, bufferes & there role in pharmaceutical & isotonicity preparation PO3:CO2 is aligned with PO3 because it deals with pH calculation and isotonicity preparation. PO4:CO2 is aligned with PO4 because it deals appropriate method for understanding limitation of acid base, bufferes & there role in pharmaceutical & isotonicity preparation PO11:CO2 is aligned with PO11 because it demonstrates the studies of acid base, buffers & there role in pharmaceutical & isotonicity preparation which are never ever changing and constant.
CO3	PO1:CO3 is aligned with PO1 because it demonstrates the knowledge of physiological function of ion & acid bace balance with their significance & monograph of specified electrolyte preparation of electrolyte replacement therapy solution. PO2:CO3 is aligned with PO2 because it deals with physiological acid bace balance with their electrolyte replacement therapy solution PO3:CO3 is aligned with PO3 because it deals with physiological acid bace balance & specified electrolyte preparation of electrolyte replacement therapy solution. PO4:CO3 is aligned with PO4 because it deals physiological function of ion & acid bace balance with their significance & specified electrolyte preparation of electrolyte replacement therapy solution PO11:CO3 is aligned with PO11 because it demonstrates the studies of of physiological function of ion & acid bace balance with their significance & monograph of specified electrolyte preparation of electrolyte replacement therapy solution. which are never ever changing and constant.
CO4	PO1:CO4 is aligned with PO1 because it demonstrates the knowledge of various dental product used as dentifrices, anticaries, desentization & cementing agents PO2:CO4 is aligned with PO2 because it deals with various product for dental used as dentifrices, anticaries, desentization & cementing agents. PO3:CO4 is aligned with PO3 because it deals with quantity of chemical compound used for preparation of dental product PO4:CO4 is aligned with PO4 because it deals various dental product finding disorder in

	teeth by using different instruments. PO11:CO4 is aligned with PO11 because it demonstrates the studies of physiological function of ion & acid bace balance with their significance & monograph of specified electrolyte preparation of electrolyte replacement therapy solution. which are never ever changing and constant.
CO5	PO1:CO45 is aligned with PO1 because it demonstrates the knowledge of various dental product used as dentifrices, anticaries, desentization & cementing agents PO2:CO5 is aligned with PO2 because it deals with various product for dental used as dentifrices, anticaries, desentization & cementing agents. PO3:CO5 is aligned with PO3 because it deals with quantity of chemical compound used for preparation of dental product PO4:CO5 is aligned with PO4 because it deals various dental product finding disorder in teeth by using different instruments. PO11:CO5 is aligned with PO11 because it demonstrates the studies of preparation of acidifier, antacid, catheretics,antimicrobial as gastrointenstinal agents including monograph of specified agents which are never ever changing and constant.
CO6	PO1:CO46 is aligned with PO1 because it demonstrates the knowledge of various inorganic agents used in preparation of expectorant, emetics, antidotes, Haematinics, astringent agents including their monograph of specified agents PO2:CO6 is aligned with PO2 because it deals with various inorganic agents used in preparation, treatments and precaution agents disorders. PO3:CO6 is aligned with PO3 because it demonstrate the PO4:CO6 is aligned with PO4 because it deals various dental product finding disorder in teeth by using different instruments. PO11:CO6 is aligned with PO11 because it demonstrates the studies of physiological function of ion & acid bace balance with their significance & monograph of specified electrolyte preparation of electrolyte replacement therapy solution. which are never ever changing and constant.
CO7	PO1:CO7 is aligned with PO1 because it demonstrates the knowledge of principle & measurement of radiation therapy including handling, storage & uses of specified radio isotopes PO2:CO7 is aligned with PO2 because it deals measurement of handling, storage & uses of specified radio isotopes. PO3:CO7 is aligned with PO3 because it deals detection of quality, quantity diagnosis and identification of chemical compound and product. PO4:CO7 is aligned with PO4 because it deals with different radio isotope intruments used for measurements of quality, quantity diagnosis and identification PO11:CO7 is aligned with PO11 because it demonstrates the studies of principle & measurement of radiation therapy including handling, storage & uses of specified radio isotopes which are never ever changing and constant.

FINAL CO ATTAINMENT

Evaluation	CIE					SEE
CO's	MT1	MT2	CT1	CT2	Average	
1	3	0	3	3	3	3
2	3	0	3	3	3	3
3	3	3	3	3	3	3
4	3	3	3	3	3	3
5	0	3	3	3	3	3
6	0	3	3	3	3	3
7	0	0	3	3	3	3
					3	3

Direct Attainment= Avg. CO of CIE * 0.25 + Avg. CO of SEE*0.75

= 0.25*3+3*0.75

=0.75+2.25

=3

Final Attainment = Direct Attainment * 0.9+Indirect Attainment*0.1

=3 *0.9+ 2.87*0.1

=2.7 + 0.287

=2.987

CIE: Continuous Internal Evaluation
SEE: Semester End Examination

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SYLLABUS (B.Pharm)

Course Name and code: Human Anatomy and Physiology – Practical (BP 107P)

Year and Semester: I Year I Semester
Year of study: 2023-24 (2019 Pattern)
Scope:
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.
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

Theory	Practical	Tutorial	Credits
------	4 Hours/week	-----	4

Unit	Content	Session in Hrs.
1	Study of compound microscope	4
2	Microscopic study of epithelial and connective tissue	4
3	Microscopic study of muscular and nervous tissue	4
4	Identification of axial bones	4
5	Identification of appendicular bones	4
6	Introduction to haemocytometer.	4
7	Enumeration of white blood cell (WBC) count	4
8	Enumeration of total red blood corpuscles (RBC) count	4
9	Determination of bleeding time	4
10	Determination of clotting time	4
11	Estimation of haemoglobin content	4
12	Determination of blood group.	4
13	Determination of erythrocyte sedimentation rate (ESR).	4
14	Determination of heart rate and pulse rate.	4
15	Recording of blood pressure.	4
16	Visit to Blood bank.	
Total		60 Hrs

Mapping of COs to POs

Course Name and code -HAP I First Year B Pharm BP 107P

Year of study 2023-24

Cos/POs	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO 9	PO10	PO11
1	√	√	√	√	-	√	-	√	√	-	√
2	√	-	√	√	-	√	-	√	√	-	√
3	√	√	√	√	-	√	-	√	√	-	√
4	√	√	√	√	-	-	-	√	-	-	√

Justification-

COs	Justification
CO1	CO1 is aligned with PO1 because it demonstrates the knowledge of basic of human anatomy and physiology by studying each system. CO1 is aligned with PO3 because it demonstrates ability to identify problem by comparing it with normal anatomy of that specific living thing pattern. CO1 is aligned with PO4 because it promotes to utilize various updated tools for performing practical. CO1 is aligned with PO6 because it promotes the counselling of patient as a pharmacist. CO1 is aligned with PO8 because it demonstrates ability to comprehend and write assignments, making presentation and documentation. CO1 is aligned with PO9 because it demonstrates to apply the reasoning to assess legal issues for effective medical guidelines. CO1 is aligned with PO11 because it demonstrates the studies of human anatomy and physiology which are never ever changing and constant.

CO2	CO2 is aligned with PO1 because it demonstrates the knowledge of anatomical organization, morphology & physiological functions of the skeletal system and joints. CO2 is aligned with PO3 because it demonstrates ability to identify problem by comparing it with normal anatomy of that specific skeletal system. CO2 is aligned with PO6 because it promotes the counselling to those who having ortho related medication in their prescription. CO2 is aligned with PO8 because it demonstrates ability to comprehend and write assignments, making presentation and documentation. CO2 is aligned with PO9 because it demonstrates the need to apply the reasoning to assess legal issues. CO2 is aligned with PO11 because it demonstrates the studies of human anatomy and physiology which are never ever changing and constant.
CO3	CO3 is aligned with PO1 because it demonstrates the knowledge of various counts of cells by using haemocytometer. CO3 is aligned with PO4 because it promotes to utilize various updated tools and methods to determine different cell count by performing practical. CO3 is aligned with PO4 because it promotes to utilize various updated tools and methods for performing practical of cell counting. CO2 is aligned with PO6 because it promotes the counselling to those who having special issues or disease condition in which cell count get hampered CO3 is aligned with PO8 because it demonstrates ability to comprehend and write assignments, making presentation and documentation. CO3 is aligned with PO9 because it demonstrates the need to apply the reasoning to assess legal issues as per WHO guidelines. CO3 is aligned with PO11 because it demonstrates the studies of different body fluids, their mechanism, physiology and regulation which are never ever changing and constant.
CO4	CO4 is aligned with PO1 because it demonstrates the knowledge of nervous system and special senses with their disorders. CO4 is aligned with PO4 because it promotes to utilize various updated diagnostic tools and methods to determine different cell count by performing practical. CO4 is aligned with PO4 because it promotes to utilize various updated tools and methods for performing practical. CO4 is aligned with PO6 because it promotes the counselling to those who having blood and cardiovascular system related problems. CO4 is aligned with PO8 because it demonstrates ability to comprehend and write assignments, making presentation and documentation. CO4 is aligned with PO9 because it demonstrates the need to apply the reasoning to assess legal issues as per WHO guidelines. CO4 is aligned with PO11 because it demonstrate the studies of human anatomy and physiology of nervous system and special sense organs which are never ever changing and constant

CO-PO matrix of course (mapping strength)

Cos/POs	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11
1	3	1	3	3	-	1	-	1	1	-	2
2	3	-	3	3	-	1	-	1	2	-	2
3	3	1	3	3	-	1	-	1	3	-	2
4	3	1	3	3	-	-	-	1	-	-	2

CO PO MAPPING WITH JUSTIFICATION
HAP I
ACADEMIC YEAR 2023-24

ODD SEMESTER

NAME OF THE SUBJECT	**:**	**Human Anatomy & Physiology I**
SUBJECT CODE	**:**	**BP101PR**
SYLLABUS PATTERN	**:**	**2019**
SEMESTER	**:**	**I**
NUMBER OF CREDITS	**:**	**02**

Course Outcomes (COs):

After successful completion of course student will able to

CO101.1. Explain the gross morphology, structure and functions of various organizations of the human body by using compound microscope.

CO101.2. Explain anatomical organization, morphology & physiological functions of the skeletal system and joints

CO101.3. Determination of various counts of cells by using haemocytometer.

CO101.4. Determination of bleeding, clotting time, haemoglobin content, blood group, erythrocyte sedimentation rate, heart rate and pulse rate blood pressure.

STATEMENT OF PROGRAM OUTCOME, PROGRAM SPECIFIC OUTCOMES, PROGRAM EDUCATIONAL OBJECTIVES

PO1	**PHARMACY KNOWLEDGE**	Possess knowledge and comprehension of the core and basic knowledge associated with the profession of pharmacy, including biomedical sciences; pharmaceutical sciences; behavioral, social, and administrative pharmacy sciences; and manufacturing practices

PO2	**PLANNING ABILITIES**	Demonstrate effective planning abilities including time management, resource management, delegation skills and organizational skills. Develop and implement plans and organize work to meet deadlines.
PO3	**PROBLEM ANALYSIS**	Utilize the principles of scientific enquiry, thinking analytically, clearly and critically, while solving problems and making decisions during daily practice. Find, analyze, evaluate and apply information systematically and shall make defensible decisions.
PO4	**MODERN TOOL USAGE**	Learn, select, and apply appropriate methods and procedures, resources, and modern pharmacy-related computing tools with an understanding of the limitations.
PO5	**LEADERSHIP SKILLS**	Understand and consider the human reaction to change, motivation issues, leadership and team-building when planning changes required for fulfillment of practice, professional and societal responsibilities. Assume participatory roles as responsible citizens or leadership roles when appropriate to facilitate improvement in health and well- being.
PO6	**PROFESSIONAL IDENTITY**	Understand, analyze and communicate the value of their professional roles in society (e.g. health care professionals, promoters of health, educators, managers, employers, employees).

PO7	**PHARMACEUTICAL ETHICS**	Honour personal values and apply ethical principles in professional and social contexts. Demonstrate behavior that recognizes cultural and personal variability in values, communication and lifestyles. Use ethical frameworks; apply ethical principles while making decisions and take responsibility for the outcomes associated with the decisions.
PO8	**COMMUNICATION**	Communicate effectively with the pharmacy community and with society at large, such as, being able to comprehend and write effective reports, make effective presentations and documentation, and give and receive clear instructions.
PO9	**THE PHARMACIST AND SOCIETY**	Apply reasoning informed by the contextual knowledge to assess societal, health, safety and legal issues and the consequent responsibilities relevant to the professional pharmacy practice.
PO10	**ENVIRONMENT & SUSTAINABILITY**	Understand the impact of the professional pharmacy solutions in societal and environmental contexts, and demonstrate the knowledge of, and need for sustainable development.
PO11	**LIFE LONG LEARNING**	Recognize the need for, and have the preparation and ability to engage in independent and life-long learning in the broadest context of technological change. Self-assess and use feedback effectively from others to identify learning needs and to satisfy these needs on an ongoing basis.

FINAL CO ATTAINMENT

Evaluation	CIE				SEE	Average	Final Attainment
CO's	MT1	MT2	CT1	CT2			
1	2.2	0	3	3	3	2.7	2.92
2	2.3	0	3	3	3	2.8	
3	0	2.2	3	3	3	2.7	
4	0	2	3	3	3	2.7	
					Avg.SEE=3	Avg CIE=2.7	

Direct Attainment= Avg. CO of CIE * 0.25 + Avg. CO of SEE*0.75

= 0.25*2.7+3*0.75

=0.675+2.25

=2.92

Final Attainment = Direct Attainment * 0.9+Indirect Attainment*0.1

=2.92*0.9+2.74*0.1

=2.63 + 0.274

=2.90

CIE: Continuous Internal Evaluation

SEE: Semester End Examination

PRAVARA RURAL EDUCATION SOCIETY'S
PRAVARA RURAL COLLEGE OF PHARMACY
LONI

Course Name and code: PHARMACEUTICAL ANALYSIS-I (Practical)
BP108 P

Year and Semester: Ist Year I Semester
Year of study: 2023-24 (2019 Pattern)
Course Delivery:

The course will be delivered through lectures, class room interaction, and presentations.

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

7. Understand the principles of volumetric and electro chemical analysis.
8. Carryout various volumetric and electrochemical titrations.
9. Develop analytical skills.

Theory	Practical	Tutorial	Credits
	4 Hours/week		2

Unit	Content	Session in Hrs.
1	Introduction to laboratory requirements and laboratory techniques.	4
2	To prepare and standardization of sodium hydroxide (0.1M) using Primary standard potassium hydrogen phthalate	4
3	To prepare and standardization of Sulphuric acid (0.1M) using primary Standard Sodium carbonate.	4
4	To prepare and standardization of Sodium Thiosulphate (0.1N) using Primary standard potassium iodate.	4
5	To prepare and standardization of Potassium Permanganate (0.1N) using Primary standard Oxalic acid.	4
6	To prepare and standardization of Ceric Ammonium Sulphate (0.1M using primary standard arsenic trioxide.	4
7	To perform the assay of Ammonium Chloride by Acid base titration	4
8	To perform the assay of Ferrous Sulphate by Cerimetry	4
9	To perform the assay of Copper Sulphate by Iodometry	4
10	To perform the assay of Calcium Gluconate by Complexometry	4
11	To perform the assay of Hydrogen Peroxide (H2O2) by Titration.	4
12	To perform the assay of Sodium Benzoate by Non-aqueous titration	4
13	To perform the assay of Sodium Chloride by precipitation titration (Mohr's Method)	4
14	To determine the strength of strong acid using strong base by Conductometry	4
15	To determine the strength of mixture of strong and weak acid using Strong base by Conductometry	4

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COURSE OUTCOMES (B.Pharm)

Name of Teacher : Mr. Amol Sopanrao Dighe
Subject : Pharmaceutical Analysis-1 (T) BP102
Class : First Year B.Pharm

Cognitive level (CL): Bloom's taxonomy Cognitive level (1/2/3/4/5/6)
Knowledge Category (KC): F= Factual Knowledge, C= Conceptual Knowledge,

CO	Course Outcomes	CL (Cognitive level)	KC (Knowledge Category)	Class Session Hrs.	Units
CO1	Prepare & standardization different chemical reagent as per pharmacopoeia.	3	C	22	
CO2	Measure percentage purity of given pharmaceutical drugs by titrimetric analysis	3	C	22	
CO3	Measure / calculate Determine normality of a solution by electro-analytical methods	3	C	8	
CO4	Measure refracto index as selected sample by using refract meter.	2	C	8	

P= ProceduralKnowledge, M= Metacognitive Knowledge

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Name of Course	**B.Pharmacy**
Subject Name	**PHARMACEUTICAL ANALYISIS-I**
Subject Code	**BP102T**
Name of the teacher	**Mr. Amol S. Dighe**
Academic Year	**2023-24**

COURSE OUTCOME (CO)

CO No.	Course Outcome Statement	Bloom Levels (1-Knowledge,2-Understand,3-Apply,4-Analyze,5-Evaluate,6-Creat)
1	Prepare & standardization different chemical reagent as per pharmacopoeia.	4
2	Measure percentage purity of given pharmaceutical drugs by titrimetric analysis	4
3	Measure / calculate Determine normality of a solution by electro-analytical methods	4
4	Measure refracto index as selected sample by using refract meter.	3

After successful completion of course student will able to

PROGRAM OUTCOMES (PO) -

1. **Pharmacy Knowledge**: Possess knowledge and comprehension of the core and basic knowledge associated with the profession of pharmacy, including biomedical sciences; pharmaceutical sciences; behavioural, social, and administrative pharmacy sciences; and manufacturing practices.
2. **Planning Abilities**: Demonstrate effective planning abilities including time management, resource management, delegation skills and organizational skills. Develop and implement plans and organize work to meet deadlines.
3. **Problem analysis**: Utilize the principles of scientific enquiry, thinking analytically, clearly and critically, while solving problems and making decisions during daily practice. Find, analyze, evaluate and apply information systematically and shall make defensible decisions.
4. **Modern tool usage**: Learn, select, and apply appropriate methods and procedures, resources, and modern pharmacy-related computing tools with an understanding of the

limitations.

5. **Leadership skills**: Understand and consider the human reaction to change, motivation issues, leadership and team-building when planning changes required for fulfilment of practice, professional and societal responsibilities. Assume participatory roles as responsible citizens or leadership roles when appropriate to facilitate improvement in health and wellbeing.

6. **Professional Identity**: Understand, analyze and communicate the value of their professional roles in society (e.g. health care professionals, promoters of health, educators, managers, employers, employees).

7. **Pharmaceutical Ethics**: Honour personal values and apply ethical principles in professional and social contexts. Demonstrate behaviour that recognizes cultural and personal variability in values, communication and lifestyles. Use ethical frameworks; apply ethical principles while making decisions and take responsibility for the outcomes associated with the decisions.

8**. Communication**: Communicate effectively with the pharmacy community and with society at large, such as, being able to comprehend and write effective reports, make effective presentations and documentation, and give and receive clear instructions.

9. **The Pharmacist and society**: Apply reasoning informed by the contextual knowledge to assess societal, health, safety and legal issues and the consequent responsibilities relevant to the professional pharmacy practices.

10. **Environment and sustainability:** Understand the impact of the professional pharmacy solutions in societal and environmental contexts, and demonstrate the knowledge of, and need for sustainable development.

11. **Life-long learning**: Recognize the need for, and have the preparation and ability to engage in independent and life-long learning in the broadest context of technological change. Self-assess and use feedback effectively from others to identify learning needs and to satisfy these needs on an ongoing basis.

Mapping of Course Outcome (CO) with Program Outcome (PO)

CO/PO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11
CO1	√	√	√	√	√	--	--	--	--	--	√
CO2	√	√	√	√	√	--	--	--	--	--	√
CO3	√	√	√	√	√	--	--	--	--	--	√
CO4	√	√	√	√	√	--	--	--	--	--	√
CO5	√	√	√	√	√	--	--	--	--	--	√

MAPPING STRENGTH OF CO's TO PO's

CO/PO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11

CO1	3	2	2	2	1	--	--	--	--	--	2
CO2	3	2	2	2	1	--	--	--	--	--	2
CO3	3	2	2	2	1	--	--	--	--	--	2
CO4	3	2	2	2	1	--	--	--	--	--	2
CO5	3	1	2	2	1	--	--	--	--	---	2

1: Low 2: Moderate 3: High

Note: Following general guidelines may be used to identify the strength of mapping

7. Pharmacy Knowledge (PO1) for all the CO's may be mapped at level 3 or 2.
8. PO2, PO3, PO4 may be mapped at Level 2, however level 3 can be considered for some CO's.
9. PO6, PO7, PO8 and PO11 may be mapped at level 2 or 1.
10. Consider content of the course for mapping strength to the particular PO like Jurisprudence, Analysis, QA etc (Level 3).
11. Consider the number of hours utilized in teaching particular CO
12. All department faculties should be involved in mapping CO to PO and identifying its strength.

FINAL CO ATTAINMENT

Evaluation	**CIE**					**SEE**
CO's	**MT1**	**MT2**	**CT1**	**CT2**	**Average**	
1	3	---	3	---	3	3
2	2.5	---	3	---	2.85	3
3	---	3	---	3	3	3
4	.....	3	---	3	3	3
Avg.					**2.96**	**3**

Direct Attainment= Avg. CO of CIE * 0.25 + Avg. CO of SEE*0.75

= 0.25*2.96+3*0.75

=0.74+2.25

=2.99

PRAVARA RURAL EDUCATION SOCIETY'S
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Course Name and code: Pharmaceutics 1 (Practical) BP 109 P

Year and Semester: I Year I Semester
Year of study: 2023-24 (2019 Pattern)
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:

Theory	Practical	Tutorial	Credits
---	3	1	4

Unit	Content	Session in Hrs.
1	To prepare and submit Syrup IP	3
2	To prepare and submit Compound syrup of Ferrous Phosphate BPC'68	3
3	To prepare and submit Piperazine citrate Elixir	3
4	To prepare and submit Paracetamol pediatric Elixir	3
5	To prepare and submit Terpin Hydrate Linctus IP'66	3
6	To prepare and submit Iodine Throat Paint (Mandles Paint)	3
7	To prepare and submit Strong solution of ammonium acetate	3
8	To prepare and submit Cresol with soap solution	3
9	To prepare and submit Lugol's solution	3
10	To prepare and submit Calamine lotion	3

11	To prepare and submit Magnesium Hydroxide mixture	3
12	To prepare and submit Aluminimum Hydroxide gel	3
13	To prepare and submit Turpentine Liniment	3
14	To prepare and submit Liquid paraffin emulsion	3
15	To prepare and submit ORS powder (WHO)	3
16	To prepare and submit Effervescent granules	3
17	To prepare and submit Dusting powder	3
18	To prepare and submit Divded powders	3
19	To prepare and submit Glycero gelatin suppository	3
20	To prepare and submit Coca butter suppository	3
21	To prepare and submit Zinc Oxide suppository	3
22	To prepare and submit Sulphur ointment	3
23	To prepare and submit Non staining-iodine ointment with methyl salicylate	3
24	To prepare and submit Carbopal gel	3
25	To prepare and submit Iodine gargle	3
26	To prepare and submit Chlorhexidine mouthwash	3

Name of Course	**B. Pharmacy**
Subject Name	**Pharmaceutics 1**
Subject Code	BP 109 P
Name of the teacher	**P. S Gawali**
Academic Year	**2023-24**

COURSE OUTCOME (CO)

After successful completion of course student will able to

PROGRAM OUTCOMES (PO) -

CO No.	Course Outcome Statement	Bloom Levels (1-Knowledge, 2-Understand, 3-Apply, 4-Analyze, 5-Evaluate, 6-Creat)
1	To use procedure and material to prepare solid, liquid and semi-solid dosage forms.	**3**
2	Identify an appropriate container for storing the the prepared dosage form.	1
3	To prepare label of pharmaceutical product..	**3**

Knowledge: Possess knowledge and comprehension of the core and basic knowledge associated with the profession of pharmacy, including biomedical sciences; pharmaceutical sciences; behavioural, social, and administrative pharmacy sciences; and manufacturing practices.

2. **Planning Abilities**: Demonstrate effective planning abilities including time management, resource management, delegation skills and organizational skills. Develop and implement plans and organize work to meet deadlines.

3. **Problem analysis**: Utilize the principles of scientific enquiry, thinking analytically, clearly and critically, while solving problems and making decisions during daily practice. Find, analyze, evaluate and apply information systematically and shall make defensible decisions.

4. **Modern tool usage**: Learn, select, and apply appropriate methods and procedures, resources, and modern pharmacy-related computing tools with an understanding of the limitations.

5. **Leadership skills**: Understand and consider the human reaction to change, motivation issues, leadership and team-building when planning changes required for fulfilment of practice, professional and societal responsibilities. Assume participatory roles as responsible citizens or leadership roles when appropriate to facilitate improvement in health and wellbeing.

6. **Professional Identity**: Understand, analyze and communicate the value of their professional roles in society (e.g. health care professionals, promoters of health, educators, managers, employers, employees).

7. **Pharmaceutical Ethics**: Honour personal values and apply ethical principles in professional and social contexts. Demonstrate behaviour that recognizes cultural and personal variability in values, communication and lifestyles. Use ethical frameworks; apply ethical principles while making decisions and take responsibility for the outcomes associated with the decisions.

8**. Communication**: Communicate effectively with the pharmacy community and with society at large, such as, being able to comprehend and write effective reports, make effective presentations and documentation, and give and receive clear instructions.

9. **The Pharmacist and society**: Apply reasoning informed by the contextual knowledge to assess societal, health, safety and legal issues and the consequent responsibilities relevant to the professional pharmacy practices.

10. **Environment and sustainability:** Understand the impact of the professional pharmacy solutions in societal and environmental contexts, and demonstrate the knowledge of, and need for sustainable development.

11. **Life-long learning**: Recognize the need for, and have the preparation and ability to engage in independent and life-long learning in the broadest context of technological change. Self-assess and use feedback effectively from others to identify learning needs and to satisfy these needs on an ongoing basis.

Mapping of Course Outcome (CO) with Program Outcome (PO)

CO/PO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO 9	PO 10	PO 11
CO1	√	--	√	-	--	--	--	--	--	--	-
CO2	√	--	√	-	--	--	--	--	--	--	-

CO3	√	--	√	-	--	--	--	--	--	--	-
CO4	√	--	√	-	--	--	--	--	--	--	-

Justification:

CO's	Justification
CO1	PO1: Basic knowledge about preparation of various dosage form. PO3: identification of problem related stability
CO2	PO1: knowledge about selection of container for various dosage form PO3: analysis of problem during storage condition
CO3	PO1: knowledge about preparation of label PO3: analysis of problem regarding designing label

CO-PO MATRIX OF COURSE (MAPPING STRENGTH)

CO/PO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO 9	PO 10	PO 11
CO1	2	-	2	-	--	--	--	--	--	--	--
CO2	2	-	2	-	--	--	--	--	--	--	--
CO3	2	-	2	-	--	--	--	--	--	--	--

1: Low 2: Moderate 3: High

Note: Following general guidelines may be used to identify the strength of mapping

13. Pharmacy Knowledge (PO1) for all the CO's may be mapped at level 3 or 2.
14. PO2, PO3, PO4 may be mapped at Level 2, however level 3 can be considered for some CO's.
15. PO6, PO7, PO8 and PO11 may be mapped at level 2 or 1.
16. Consider content of the course for mapping strength to the particular PO like Jurisprudence, Analysis, QA etc (Level 3).
17. Consider the number of hours utilized in teaching particular CO
18. All department faculties should be involved in mapping CO to PO and identifying its strength.

FINAL CO ATTAINMENT

Evaluation	CIE					SEE
CO's	MT1	MT2	CT1	CT2	Average	
1	2	--	3	3	2.5	2
2	2.42	2.15	3	3	2.77	2
3	3	--	3	3	2.75	2
4	---	---	3	3	2.66	2
5	---	--	3	3	3	2
Avg.					2.73	2

Direct Attainment= Avg. CO of CIE * 0.25 + Avg. CO of SEE*0.75

= 0.25*2.97+3*0.75

=0.74+2.25

=2.99

FinalAttainment = Direct Attainment * 0.9+Indirect Attainment*0.1

=2.99*0.9+ 2.81*0.1

=2.69+ 0.281

= **2.97**

CIE: Continuous Internal Evaluation

SEE: Semester End Examination

PRAVARA RURAL EDUCATION SOCIETY'S
PRAVARA RURAL COLLEGE OF PHARMACY
LONI

ACADEMIC MONITORING COMMITTEE 2023-24

Sr. No.	Name	Designation	Designation in AMC committee
1.	Dr. Sanjay Bhawar	Principal Chairman	Chairman
2.	Dr. Sunayana Vikhe	Academic Dean UG Programme coordinator Class Incharge Final Y B Pharm	Member
3.	Dr. Suhas Siddheshwar	PG Programme coordinator	Member
4.	Dr. Gaurao Damre	Pharm D. Programme coordinator. Class Incharge F. Y. Pharm. D.	Member
5.	Mrs. Tejal Nirmal	D. Pharm Programme coordinator	Member
6.	Mrs. Rajashree Ghogare	Class Incharge F. Y. B. Pharm	Member
7.	Mrs. Kavita Dhamak	Class Incharge S. Y. B. Pharm	Member
8.	Mr. Sagar Magar	Class Incharge T. Y. B. Pharm	Member
9.	Dr. Vaibhav Bhone	Class Incharge S. Y. Pharm. D.	Member
10.	Mrs. Nilima Wani	Class Incharge F. Y. D. Pharm	Member
11.	Mrs. Sneha Vikhe	Class Incharge S. Y. D. Pharm	Member

DUTIES OF THE COMMITTEE:

- Periodically reviewing the progress of the classes.
- Discussing the problems concerning curriculum, syllabus and the conduct of classes.
- 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.
- Communicating its recommendation to the Head of the institution on academic matters.
- The committee shall take periodic feedback of students regarding teaching learning process, analyze it and decide the course of action.

FREQUENCY OF THE MEETING:

- The AM Committee shall meet at least twice in a semester and as and when required

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)*

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*

EVALUATION GUIDELINES

Scheme for Continuous mode (Theory): [Total: 10 Marks]

Criteria	Maximum Marks	
Attendance	4	2
Academic activities (Average of any 2 activities e.g. class test, quiz, assignment,open book test, field work, group discussion and seminar)	4	3
Student -Teacher interaction	2	
Total	10	05

Guidelines for the allotment of marks for attendance Percentage of Attendance

	Theory
95 – 100	4
90 – 94	3
85 – 89	2
80 – 84	1
Less than 80	0

In-Semester Examination (Sessional): [Total: 15 Marks]

Two Sessional exams shall be conducted for each theory / practical course as per theschedule fixed by college. The scheme of question paper is given below. The average marks of two Sessional exams shall computed for internal assessment.

Paper pattern and marks distribution for In Semester Exam: As per universityguideline

I. Objective Type Questions (Answer 5 out of 7) = 05 x 2 = 10

II. 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 (1.5 Hrs)

Sessional exam shall be conducted for 30 marks for theory and shall be computedfor 15 marks.

End Semester Examination [Total: 75 Marks]:

Paper pattern and marks distribution for End Semester Exam: As per universityguideline

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

II. Short Answers (Answer 8 out of 10) = 8 x 5 = 40

Total = 75 marks (3 hrs)

SEMESTER –II

Course Name and code: HUMAN ANATOMY AND PHYSIOLOGY-II (Theory) BP 201 T
Year and Semester: I Year II Semester
Year of study: 2023-24 (2019 Pattern)
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.

Theory	Practical	Tutorial	Credits
3	-----	1	4

Sr. No.	Topics	Hrs
Unit I	**Nervous system** Organization of nervous system, neuron, neuroglia, classification and properties of nerve fibre, electrophysiology, action potential, nerve impulse, receptors, synapse, neurotransmitters. Central nervous system: 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)	**10**
Unit II	**Digestive system** 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 & large intestine,	08

	anatomy and functions of salivary glands, pancreas and liver, movements of GIT, digestion and absorption of nutrients and disorders of GIT. **Energetics** Formation & role of ATP, Creatinine Phosphate and BMR.	
Unit III	**Respiratory system** 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** 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	**10**
Unit IV	**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.	08
Unit V	**Reproductive system** 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** Chromosomes, genes and DNA, protein synthesis, genetic pattern of inheritance	09

COURSE OUTCOMES

Cognitive level (CL): Bloom's taxonomy Cognitive level (1/2/3/4/5)
Knowledge Category (KC): F= Factual Knowledge, C= Conceptual Knowledge, P= Procedural Knowledge, M= Metacognitive Knowledge

Mapping of COs to POs

Course Name and code – HAP II (Theory) BP201T
Year of study 2023-24

CO/PO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO 9	PO 10	PO 11
CO1	√	√	√	√	--	--	--	--	--	--	--
CO2	√	√	√	√	--	--	--	--	--	--	--
CO3	√	√	√	√	--	--	--	--	--	--	--
CO4	√	√	√	√	--	--	--	--	--	--	--
CO5	√	√	--	√	--	--	--	--	--	--	--

Justification-

COs	Justification
CO1	PO1: it demonstrates the knowledge of basic of terminologies of human anatomy and physiology by studing different level of organization. PO6:CO1 is aligned with PO6 because it promotes the counseling of patient as a pharmacist. PO8:CO1 is aligned with PO8 because it demonstrates ability to comprehend and write assignments, making presentation and documentation. PO9:CO1 is aligned with PO9 because it demonstrates to apply the reasoning to assess legal issues for effective medical guidelines. PO11:CO1 is aligned with PO11 because it demonstrates the studies of human anatomy and physiology which are never ever changing and constant.
CO2	PO1:CO2 is aligned with PO1 because it demonstrates the knowledge of musculoskeletal system along with its normal accessory organ system. PO6:CO2 is aligned with PO6 because it promotes the counselling to those who having special body fluids related medication in their prescription. PO8:CO2 is aligned with PO8 because it demonstrate ability to comprehend and write assignments, making presentation and documentation PO11:CO1 is aligned with PO11 because it demonstrates the studies of human anatomy and physiology of musculoskeletal system along with its normal accessory organ system which are never ever changing and constant.

CO3	PO1:CO3 is aligned with PO1 because it demonstrates the knowledge of various body fluids and homeostasis different body system. PO6:CO3 is aligned with PO6 because it promotes the counselling to those who having related medication in their prescription. PO8:CO3 is aligned with PO8 because it demonstrates ability to comprehend and write assignments, making presentation and documentation. PO9:CO3 is aligned with PO9 because it demonstrates the need to apply the reasoning to assess legal issues as per WHO guidelines. PO11:CO3 is aligned with PO11 because it demonstrates the studies of different body fluids, their mechanism, physiology and regulation which are never ever changing and constant.
CO4	PO1:CO4 is aligned with PO1 because it demonstrates the knowledge of nervous system and special senses with their disorders. PO6:CO4 is aligned with PO6 because it promotes the counselling to those who having nervous system related medication in their prescription. PO8:CO4 is aligned with PO8 because it demonstrate ability to comprehend and write assignments, making presentation and documentation PO9:CO4 is aligned with PO9 because it demonstrates the need to apply the reasoning to assess legal issues as per WHO guidelines. PO11:CO4 is aligned with PO11 because it demonstrate the studies of human anatomy and physiology of nervous system and special sense organs which are never ever changing and constant
CO5	PO1:CO5 is aligned with PO1 because it demonstrates the knowledge of concept and mechanisms of cardiovascular system with their disorders. PO6:CO5 is aligned with PO6 because it promotes the counselling to those who having cardiovascular system related medication in their prescription. PO8:CO5 is aligned with PO8 because it demonstrate ability to comprehend and write assignments, making presentation and documentation PO9: CO5 is aligned with PO8 because it demonstrate ability to comprehend and write assignments, making presentation and documentation PO11:CO5 is aligned with PO11 because it demonstrate the studies of human anatomy and physiology of cardiovascular system which are never ever changing and constant

CO-PO matrix of course (mapping strength)

CO/PO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO 9	PO 10	PO 11
CO1	3	2	2	2	2	--	--		--	--	--
CO2	3	2	2	2	2	--	--	----	--	--	--
CO3	3	2	2	2	2	--	--	--	--	--	--
CO4	3	2	2	2	2	--	--	--	--	--	--
CO5	3	2	--	2	2	--	--	--	--	--	--

Course Name and code: PHARMACEUTICALORGANICCHEMISTRY–I (Theory)
Year and Semester: First year II Semester
Year of study: 2023-24 (2019 Pattern)
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 course the students shall 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

Theory	Practical	Tutorial	Credits
3	-----	1	4

Unit	Content	Session in Hrs.
1	**UNIT1** **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, electro meric, meso meric effect and resonance, hyper conjugation, concept of tautomerism.	**04 Hours**
2	i. UNIT–II ii. Classification of organic compounds. iii. Compounds containing carbon and hydrogen atoms only : hydrocarbons(alkanes, alkenes alkynes, aromatic hydrocarbons, poly nuclear aromatic hydrocarbons, aryl-alkyl hydrocarbons, alicyclic hydrocarbons) iv. Compounds containing carbon, hydrogen and oxygen atoms only(alcohols, phenols, ethers and epoxides, carbonyl compounds, carboxylic acids, esters, anhydrides) v. Compounds containing carbon, hydrogen and nitrogen atoms only vi. (amines and imine, nitriles ,hydrazines, nitro compounds) vii. Compoundscontainingcarbon,hydrogen,andhalogenswithoxygen(alkylhalides, aryl halides,acyl halides) viii. Compoundscontainingcarbon,hydrogen,oxygenandnitrogenatomsonly(amides , imides, aldoximeand ketoxime)	**18 Hours**

	ix. Alkanes*,Alkenes*andConjugateddienes* x. Halogenationofalkanes, usesofparaffins. xi. Stabilities of alkenes, E1 and E2 reactions – kinetics, order of reactivity of alkyl halides, rearrangement of carbocations, Saytzeff's orientation, Hofmann orientation and evidences. FactorsaffectingE1andE2 reactions. xii. Chemical Reactions: Ozonolysis, electrophilic addition reactions of alkenes, Markownikoff's orientation, free radical addition reactions of alkenes, AntiMarkownikoff's orientation. xiii. Stabilityofconjugateddienes,Diel's-Alder,1,2and1,4-electrophilicaddition,freeradicaladditionreactionsofconjugateddienes,allylic rearrangementnames	
3	**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. ii. b. Structure and uses of ethylchloride, chloroform, trichloroethylene, dichloromethane, tetrachloromethane and iodoform. **b) Alcohols*-**Qualitative tests, structure and uses of ethyl alcohol, chloro butanol, cetosteryl alcohol, benzyl alcohol, glycerol, and propylene glycol.	**10 Hours**
4	**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. Qualitative tests, structure and uses of formaldehyde, paraldehyde, acetone, chloralhydrate, benzaldehyde, vanillin, and cinnamaldehyde	**08 Hours**
5	**UNIT V** ii. Carboxylicacids* iii. Acidity of carboxylicacids, effect of substituent/so acidity, qualitative tests for carboxylic acids, amide and ester. Reactions of interconversion of carboxylic acids,amides and esters. iv. Structure and uses of acetic acid, lactic acid, tartaric acid/s, citric acid,succinic acid, oxalic acid, salicylic acid, benzoic acid, benzylbenzoate,dimethylphthalate,methylsalicylateandacetylsalicylicacid. v. Aliphatic amines* - Basicity, effect of substituent on basicity, qualitative test, structure and uses of ethanolamine, ethylenediamine	**07 Hours**
		45

PRAVARA RURAL EDUCATION SOCIETY'S
PRAVARA RURAL COLLEGE OF PHARMACY
LONI

COURSE OUTCOMES (B.Pharm)

Course Name and code: Pharmaceutical Organic Chemistry –I (Theory) BP 202 T
Year and Semester: First Year Semester:-II
Cognitive level (CL): Bloom's taxonomy Cognitive level (1/2/3/4/5/6)
Knowledge Category (KC): F= Factual Knowledge, C= Conceptual Knowledge, P= ProceduralKnowledge, M= Metacognitive Knowledge

Mapping of COs to POs

Course Name and code – Pharmaceutical Organic Chemistry-I BP202T
Year of study 2023-24

CO NO.	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11
CO-201.1	✓	✓	✓	✓	-	-	-	-	-	-	✓
CO-201.2	✓	✓	✓	✓	-	-	-	-	-	-	✓
CO-201.3	✓	✓	✓	✓	-	-	-	-	-	-	✓
CO-201.4	✓	✓	✓	✓	-	-	-	-	-	-	✓
CO-201.5	✓	✓	✓	✓	-	-	-	-	-	-	✓

Justification-

CO's	Justification
CO1	PO1: Knowledge of basic principle and other chemicals natures is required for classification. PO2: To plan and follow the rule of nomenclature of organic compounds. PO3: To interpret uses basic moiety for the numbering. PO4: Drawing the structure and using different software's tools based on the classification. PO11: To understand information related to new chemical class of drug.
CO2	PO1: Knowledge of IUPAC, Nomenclature and isomerism of organic compound. PO2: Numbering of basic structure moiety for IUPAC system. PO3: To interpret basic structure moiety for IUPAC system. PO4: Drawing the structure and using different software's tools based on the classification. PO11: To understand information related Nomenclature of compound.
CO3	PO1: Knowledge of synthesis, their reactions of organic compound. PO2: Plan and reaction for the synthesis of organic compound. PO3: To interpret basic structure moiety for IUPAC system. PO4: Drawing the structure and using different software's tools based on the classification. PO11: To understand information related synthesis of organic compound.
CO4	PO1: Knowledge of synthesis, their reactions organic compound. PO2: Plan and reaction for the synthesis of organic compound. PO3: To interpret basic structure moiety for IUPAC system. PO4: Drawing the structure and using different software's tools based on the classification. PO11: To understand information related synthesis of organic compound for synthesis.
CO5	PO1: Knowledge of synthesis, their reactions organic compound. PO2: Plan and reaction for the synthesis of organic compound. PO3: To interpret basic structure moiety for IUPAC system. PO4: Drawing the structure and using different software's tools based on the classification. PO11: To understand information related synthesis of organic compound for synthesis.

CO-PO matrix of course (mapping strength)

PRAVARA RURAL EDUCATION SOCIETY'S
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CO	Course Outcomes	CL (Cognitive level)	KC (Knowledge Category)	Class Session Hrs.	Units
CO1	Describe basic principle of organic chemistry and its significance.	2	C	4	1
CO2	Explain classification IUPAC, Nomenclature and isomerism of given organic compound.	3	F	18	2
CO3	Understand reaction synthesis important of alkene, alkane, conjugated dines.	3	P	08	3
CO4	Understand reaction synthesis important of carbonyl compound.	2	C	8	4
CO5	Understand reaction synthesis important of carboxylic acid.	2	F	7	5

CO NO.	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11
CO-201.1	2	2	1	1	-	-	-	-	-	-	2
CO-201.2	2	2	2	2	-	-	-	-	-	-	2
CO-201.3	2	2	2	1	-	-	-	-	-	-	2
CO-201.4	2	2	1	2	-	-	-	-	-	-	2
CO-201.5	1	1	1	1	-	-	-	-	-	-	2

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Course Name and code: PHARMACEUTICAL ORGANIC CHEMISTRY–I (Theory)

Year and Semester: First year II Semester
Year of study: 2023-24 (2019 Pattern)

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 course the students shall 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

Theory	Practical	Tutorial	Credits
3	-----	1	4

Unit	Content	Session in Hrs.
1	**UNIT1** **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, electro meric, meso meric effect and resonance, hyper conjugation, concept of tautomerism.	**04 Hours**
2	xiv. UNIT–II xv. Classification of organic compounds. xvi. Compounds containing carbon and hydrogen atoms only : hydrocarbons(alkanes, alkenes alkynes, aromatic hydrocarbons, poly nuclear aromatic hydrocarbons, aryl-alkyl hydrocarbons, alicyclic hydrocarbons) xvii. Compounds containing carbon, hydrogen and oxygen atoms only(alcohols, phenols, ethers and epoxides, carbonyl compounds, carboxylic acids, esters, anhydrides) xviii. Compounds containing carbon, hydrogen and nitrogen atoms only xix. (amines and imine, nitriles ,hydrazines, nitro compounds) xx. Compoundscontainingcarbon,hydrogen,andhalogenswithoxygen(alkylhalides, aryl halides,acyl halides) xxi. Compoundscontainingcarbon,hydrogen,oxygenandnitrogenatomsonly(amides , imides, aldoximeand ketoxime)	**18 Hours**

	xxii. Alkanes*,Alkenes*andConjugateddienes* xxiii. Halogenationofalkanes, usesofparaffins. xxiv. Stabilities of alkenes, E1 and E2 reactions – kinetics, order of reactivity of alkyl halides, rearrangement of carbocations, Saytzeff's orientation, Hofmann orientation and evidences. FactorsaffectingE1andE2 reactions. xxv. Chemical Reactions: Ozonolysis, electrophilic addition reactions of alkenes, Markownikoff's orientation, free radical addition reactions of alkenes, AntiMarkownikoff's orientation. xxvi. Stabilityofconjugateddienes,Diel's-Alder,1,2and1,4-electrophilicaddition,freeradicaladditionreactionsofconjugateddienes,allylic rearrangementnames	
3	**UNIT–III** **c) 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. ii. b. Structure and uses of ethylchloride, chloroform, trichloroethylene, dichloromethane, tetrachloromethane and iodoform. **d) Alcohols*-**Qualitative tests, structure and uses of ethyl alcohol, chloro butanol, cetosteryl alcohol, benzyl alcohol, glycerol, and propylene glycol.	**10 Hours**
4	**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. Qualitative tests, structure and uses of formaldehyde, paraldehyde, acetone, chloralhydrate, benzaldehyde, vanillin, and cinnamaldehyde	**08 Hours**
5	**UNIT V** ii. Carboxylicacids* iii. Acidity of carboxylicacids, effect of substituent/so acidity, qualitative tests for carboxylic acids, amide and ester. Reactions of interconversion of carboxylic acids,amides and esters. iv. Structure and uses of acetic acid, lactic acid, tartaric acid/s, citric acid,succinic acid, oxalic acid, salicylic acid, benzoic acid, benzylbenzoate,dimethylphthalate,methylsalicylateandacetylsalicylicacid. v. Aliphatic amines* - Basicity, effect of substituent on basicity, qualitative test, structure and uses of ethanolamine, ethylenediamine	**07 Hours**
		45

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COURSE OUTCOMES (B.Pharm)

Course Name and code: Pharmaceutical Organic Chemistry –I (Theory) BP 202 T
Year and Semester: First Year Semester:-II
Cognitive level (CL): Bloom's taxonomy Cognitive level (1/2/3/4/5/6)
Knowledge Category (KC): F= Factual Knowledge, C= Conceptual Knowledge, P= ProceduralKnowledge, M= Metacognitive Knowledge

Mapping of COs to POs

Course Name and code – Pharmaceutical Organic Chemistry-I BP202T
Year of study 2023-24

CO NO.	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11
CO-201.1	✓	✓	✓	✓	-	-	-	-	-	-	✓
CO-201.2	✓	✓	✓	✓	-	-	-	-	-	-	✓
CO-201.3	✓	✓	✓	✓	-	-	-	-	-	-	✓
CO-201.4	✓	✓	✓	✓	-	-	-	-	-	-	✓
CO-201.5	✓	✓	✓	✓	-	-	-	-	-	-	✓

Justification-

CO's	Justification
CO1	PO1: Knowledge of basic principle and other chemicals natures is required for classification. PO2: To plan and follow the rule of nomenclature of organic compounds. PO3: To interpret uses basic moiety for the numbering. PO4: Drawing the structure and using different software's tools based on the classification. PO11: To understand information related to new chemical class of drug.
CO2	PO1: Knowledge of IUPAC, Nomenclature and isomerism of organic compound. PO2: Numbering of basic structure moiety for IUPAC system. PO3: To interpret basic structure moiety for IUPAC system. PO4: Drawing the structure and using different software's tools based on the classification. PO11: To understand information related Nomenclature of compound.
CO3	PO1: Knowledge of synthesis, their reactions of organic compound. PO2: Plan and reaction for the synthesis of organic compound. PO3: To interpret basic structure moiety for IUPAC system. PO4: Drawing the structure and using different software's tools based on the classification. PO11: To understand information related synthesis of organic compound.
CO4	PO1: Knowledge of synthesis, their reactions organic compound. PO2: Plan and reaction for the synthesis of organic compound. PO3: To interpret basic structure moiety for IUPAC system. PO4: Drawing the structure and using different software's tools based on the classification. PO11: To understand information related synthesis of organic compound for synthesis.
CO5	PO1: Knowledge of synthesis, their reactions organic compound. PO2: Plan and reaction for the synthesis of organic compound. PO3: To interpret basic structure moiety for IUPAC system. PO4: Drawing the structure and using different software's tools based on the classification. PO11: To understand information related synthesis of organic compound for synthesis.

CO-PO matrix of course (mapping strength)

CO NO.	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11
CO-201.1	2	2	1	1	-	-	-	-	-	-	2
CO-201.2	2	2	2	2	-	-	-	-	-	-	2
CO-201.3	2	2	2	1	-	-	-	-	-	-	2
CO-201.4	2	2	1	2	-	-	-	-	-	-	2
CO-201.5	1	1	1	1	-	-	-	-	-	-	2

CO	Course Outcomes	CL (Cognitive level)	KC (Knowledge Category)	Class Session Hrs.	Units
CO1	Describe basic principle of organic chemistry and its significance.	2	C	4	1
CO2	Explain classification IUPAC, Nomenclature and isomerism of given organic compound.	3	F	18	2
CO3	Understand reaction synthesis important of alkene, alkane, conjugated dines.	3	P	08	3
CO4	Understand reaction synthesis important of carbonyl compound.	2	C	8	4
CO5	Understand reaction synthesis important of carboxylic acid.	2	F	7	5

Course Name and code: Biochemistry (Theory) BP203 T

Year and Semester: First year II Semester
Year of study: 2023-24 (2019 Pattern)

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.

Theory	Practical	Tutorial	Credits
3	-----	1	4

Unit	Content	Session in Hrs.
1	a**) Biomolecules** Introduction, classification, chemical nature and biological role of carbohydrates, lipids, nucleic acids, amino acids and proteins. **b) Carbohydrate metabolism** i. Glycolysis – Pathway, energetic and significance. ii. Citric acid cycle- Pathway, energetic and significance. iii. HMP shunt and its significance; Glucose-6-Phosphate dehydrogenase (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.	10

2	**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. **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.	08
3	a) **Lipid metabolism** 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 (Phenyketonuria, alkaptonuria, tyrosinemia) iii. Synthesis and significance of biological substances; 5-HT, melatonin, dopamine, noradrenaline, adrenaline iv. Catabolism of heme; hyperbilirubinemia	10
4	**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
5	**Enzymes**	07

	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.	
		45

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COURSE OUTCOMES (B. Pharm)

Course Name and code: Biochemistry (Theory) BP 203T
Year and Semester: II Year III Semester
Year of study: 2023-24 (2019 Pattern)

CO No.	Course Outcome Statement	CL	KC	Class Hr	Units
CO 203T.1	Classify biomolecules with chemical nature & significance.	2	C	4	1
CO 203T.2	Illustrate metabolic pathway of carbohydrate in physiological & pathological condition	3	C	6	1
CO 203T.3	Explain biological oxidation process &bioenergetics involved in biological reactions	2	C	8	2
CO 203T.4	Describe metabolic pathway of lipid, amino acids & its metabolic disorder.	2	C	10	3
CO 203T.5	Understand the genetic organization of mammalian genome and functions of DNA in synthesis of RNA and proteins.	2	C	10	4
CO 203T.6	Discuss types, mechanism of action& application of enzymes.	2	F	7	5

Cognitive level (CL): Bloom's taxonomy Cognitive level (1/2/3/4/5/6)
Knowledge Category (KC): F= Factual Knowledge, C= Conceptual Knowledge, P= Procedural Knowledge, M= Metacognitive Knowledge

Mapping of COs to POs

Course Name and code – Biochemistry BP 203T
Year of study 2023-24

CO/PO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11
CO1	√	√	√	--	--	--	--	--	--	--	--
CO2	√	√	√	√	--	--	--	--	--	--	--

CO3	√	√	√	√	--	--	--	--	--	--	--
CO4	√	√	√	√	--	--	--	--	--	--	--
CO5	√	√	√	√	--	--	--	--	--	--	--
CO6	√	√	√	√	--	--	--	--	--	--	--

Justification-

CO's	Justification
CO1	PO1: Basic knowledge of biomolecules like carbohydrate, protein, amino acid, lipid etc. PO2: it develops effectively planning and organizing the basic knowledge to understand concepts and applications of biomolecules. PO3: it has ability to identify, analyzed to solve problems related to basics of biomolecules.
CO2	PO1: demonstrates core and basic knowledge to understand the metabolic pathway of Carbohydrates. PO2: it develops effectively planning and organizing the basic knowledge to understand concepts and applications of metabolism of Carbohydrate. PO3: it has ability to identify, analyzed to solve problems related to basics of biochemistry and metabolism. PO: 4 it understands to choose and utilize modern techniques for biochemistry.
CO3	PO1: demonstrates core knowledge to understand and apply the mechanism of electron transport chain. PO2: it develops effectively planning and organizing the basic knowledge to understand identification of enzyme and biological system. PO3: it has ability to identify, analyzed to solve problems related synthesis of ATP. PO4: it understands to choose and utilize modern techniques for biochemistry.
CO4	PO1: it demonstrates core and basic knowledge to understand the metabolic pathways of Lipids and Amino acids in health & disease. PO2: it develops effectively planning and organizing the basic knowledge to understand concepts and applications of metabolism of lipids & amino acids. PO3: it has ability to identify, analyzed to solve problems related to the metabolism of lipids, amino acids in health and diseased condition. PO4: it demonstrates physiological activity related with Lipids, amino acids.
CO5	PO1: it demonstrates core and basic knowledge to understand the synthesis of nucleic acids, their role in metabolic pathways transcriptional, translational, Hereditary Diseases PO2: it develops effectively planning and organizing the basic knowledge to understand metabolic pathways related to genetics and diseases. PO3: it has ability to identify, analyzed to solve problems related to hereditary diseases and genetics. PO4: it understands to choose and utilize modern techniques for biochemistry.
CO6	PO1: it gives the basic knowledge of role of enzymes in health & disease. PO2: develops effectively planning and organizing the basic knowledge to understand identification of enzyme.

PO3: it has ability to identify, analyzed to solve problems related to enzyme action.
PO4: it understands to choose and utilize modern techniques for biochemistry.

CO-PO matrix of course (mapping strength)

CO/PO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11
CO1	3	1	1	--	--	--	--	--	--	--	--
CO2	3	1	1	2	--	--	--	--	--	--	--
CO3	3	2	2	2	--	--	--	--	--	--	--
CO4	3	2	2	2	--	--	--	--	--	--	--
CO5	3	1	1	1	--	--	--	--	--	--	--
CO6	3	2	2	1	--	--	--	--	--	--	--

FINAL CO ATTAINMENT

Evaluation	CIE					SEE
CO's	MT1	MT2	CT1	CT2	Average	
1	2	---	3	---	2.5	3
2	3	---	3	---	3	3
3	3	2	3	3	2.75	3
4	---	2	---	3	2.5	3
5	---	3	----	3	3	3
6	---	2.3	----	3	2.65	3
Avg. CIE					2.73	3

Direct Attainment= Avg. CO of CIE * 0.25 + Avg. CO of SEE*0.75

= 0.25*2.73+3*0.75
=0.6825+2.25
=2.93

Final Attainment = Direct Attainment * 0.9+Indirect Attainment*0.1

=2.93*0.9+2.90*0.1
=2.637 + 0.29
=2.92

CIE: Continuous Internal Evaluation SEE: Semester End Examination

PRAVARA RURAL EDUCATION SOCIETY'S
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F.Y.B.PHARM SEMESTER – II

BP204T. Pathophysiology (Theory)

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

Theory	Practical	Tutorial	Credits
3	-----	1	4

Unit	Content	No. of. Hrs
Unit-I	**Basic principles of Cell injury and Adaptation** Introduction& definitions Causes of cellular injury,Pathogenesis (Cellmembrane damage, Mitochondrial damage, Ribosome damage, Nuclear damage), Morphology of cell injury – Adaptive changes(Atrophy, Hypertrophy, Hyperplasia, Metaplasia, Dysplasia),Cellswelling, Intracellular accumulation,Calcification, Enzyme leakageand 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 Hours**

UNIT– II	**CardiovascularSystem:** Hypertension, Congestive heart failure, Ischemic heart diseases (angina,myocardial infarction, atherosclerosis and arteriosclerosis) **Respiratory system**: Asthma, Chronic obstructive airwaysdiseases **Renal system:** Acute and chronicrenalfailure	**10 Hours**
Unit-III	**HaematologicalDiseases:** Iron deficiencyanaemia, Megaloblasticanaemia (Vit B12 and folic acid), Sickle cell anemia, Thalassemia, Hereditary acquired anemia, Hemophilia **Endocrine system:** Diabetes, Thyroid diseases(Hypothyroidism, hyperthyroidism, Goitre)Disorders of sexhormones(Amenorrhoea, polycystic ovarian syndrome, hypogonadism) **Nervous system:** Epilepsy, Parkinson's disease, Stroke, Psychiatricdisorders: Depression, Schizophrenia and Alzheimer'sdisease **Gastrointestinal system:** PepticUlcer, Inflammatory Bowel Diseases, Jaundice, Hepatitis (A,B,C,D,E,F), Alcoholicliver disease	**12 Hours**
Unit-IV	**Diseases of bones and joints** Rheumatoid Arthritis,Osteoporosis,Gout **Cancer**: Classification, etiology and pathogenesis ofcancer	**06 Hrs**
Unit-V	**Infectiousdiseases** Tuberculosis, Leprosy, Malaria, Dengue, Meningitis,Typhoid, Urinary tractinfections **Sexually transmitted diseases** AIDS, Syphilis,Gonorrhea	**07 Hrs**

Course Name and code: Pathophysiology BP204T
Year and Semester: First Year II Semester
Year of study: 2023-24 (2019 Pattern)

Cognitive level (CL): Bloom's taxonomy Cognitive level (1/2/3/4/5/6)
Knowledge Category (KC): F= Factual Knowledge, C= Conceptual Knowledge, P= Procedural Knowledge, M= Metacognitive Knowledge

COURSE OUTCOMES (B.Pharm)

CO	Course Outcomes	CL (Cognitive level)	KC (Knowledge Category)	Class Session Hrs.	Units
CO1	Understand basic principles of cell injury its adaptations and process of inflammation.	**2**	C	10	1
CO2	Understand etiology and pathogenesis of cardiovascular, respiratory and renal disorders.	2	C	10	2
CO3	Describe pathophysiology and complications of hematological, endocrine, nervous and gastrointestinal system.	**1**	C	12	3
CO4	Summarize signs and symptoms of different inflammatory diseases, diseases of bones, joints and cancer.	2	C	06	4
CO5	Explain etiology and pathogenesis of infectious diseases.	2	C	07	5

Mapping of COs to POs

Course Name and code – Pathophysiology BP204T

Year of study 2023-24

CO/PO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO 9	PO 10	PO 11
CO1	√	--	√	√	√	√	√	√	--	--	√
CO2	√	--	√	√	√	√	√	√	--	--	√
CO3	√	--	√	√	√	√	√	√	--	--	√

CO4	√	--	√	√	√	√	√	√	--	--	√
CO5	√	--	√	√	√	√	√	√	--	--	√

Justification-

CO's	Justification
CO1	CO1 is aligned with PO1 because CO1 gives the Highly basic knowledge of cell essential in the pharmacy. CO1 is aligned with PO3 because it deals with the identification of cell, inflammation related to Pharmaceutical Industry, Community & Hospital Pharmacy.. CO1 is aligned with PO4 because it deals cell injury, its adaptations and process of inflammation work and analysis of results. CO1 is aligned with PO5, PO6 and PO7 because it helps to improve the ability to use current techniques, skills, and modern tools necessary for pharmaceutical practice. CO1 is aligned with PO11 because it correlate the pharmaceutical principals, demonstrate the knowledge and apply it at work place for sustainable development.
CO2	CO2 is aligned with PO1 because it gives the Highly basic knowledge of etiology and pathogenesis of cardiovascular, respiratory and renal disorders in the pharmacy CO2 is aligned with PO3 because it deals with the etiology and pathogenesis of cardiovascular, respiratory and renal disorders related to Pharmaceutical Industry, Community & Hospital Pharmacy. CO2 is aligned with PO4 because it deals etiology and pathogenesis of cardiovascular, respiratory and renal disorders with appropriate consideration for public health and safety, cultural, societal and environmental considerations. CO2 is aligned with PO5 because it deals with etiology and pathogenesis of cardiovascular, respiratory and renal disorders work and analysis of results. CO2 is aligned with PO6, PO7 and PO8 because it helps to improve the ability to use current techniques, skills, and modern tools necessary for pharmaceutical practice. CO2 is aligned with PO11 because it deals with application of pharmacy knowledge for pharma process
CO3	CO3 is aligned with PO1 because gives the Highly basic knowledge of pathogenesis of

	haematological, endocrine, nervous and gastrointestinal system in the pharmacy CO3 is aligned with PO3 because it deals with pathogenesis of haematological, endocrine, nervous and gastrointestinal system related to Pharmaceutical Industry, Community & Hospital Pharmacy. CO3 is aligned with PO4 because it deals pathogenesis of haematological, endocrine, nervous and gastrointestinal system with appropriate consideration for public health and safety, cultural, societal and environmental considerations. CO3 is aligned with PO5 because it pathogenesis of haematological, endocrine, nervous and gastrointestinal system work and analysis of results. CO3 is aligned with PO6, PO7, PO8 because it helps to improve the ability to use current techniques, skills, and modern tools necessary for pharmaceutical practice. CO3 is aligned with PO11 because it deals with application of pathogenesis and its principles in pharmacy practice. .
CO4	CO4 is aligned with PO1 because it gives the Highly basic knowledge of inflammatory diseases, diseases of bones and joints and cancer in the pharmacy. CO4 is aligned with PO3 because it deals with the inflammatory diseases, diseases of bones and joints and cancer related to Pharmaceutical Industry, Community & Hospital Pharmacy CO4 is aligned with PO4 because it deals inflammatory diseases, diseases of bones and joints and cancer with appropriate consideration for public health and safety, cultural, societal and environmental considerations. CO4 is aligned with PO5 because it deals with inflammatory diseases, diseases of bones and joints and cancer work and analysis of results. CO4 is aligned with PO6, PO7 and PO8 because it helps to improve the ability to use current techniques, skills, and modern tools necessary for pharmaceutical practice. CO4 is aligned with PO11 because it deals with Understanding and implementing theoretical and practical knowledge in pharmacy practice for lifetime
CO5	CO5 is aligned with PO1 because CO5 gives the Highly basic knowledge of etiology and pathogenesis of infectious and sexually transmitted diseases in the pharmacy. CO5 is aligned with PO3 because it deals with the etiology and pathogenesis of infectious and sexually transmitted diseases related to Pharmaceutical Industry, Community & Hospital Pharmacy

	CO5 is aligned with PO4 because it deals etiology and pathogenesis of infectious and sexually transmitted diseases with appropriate consideration for public health and safety, cultural, societal and environmental considerations. CO5 is aligned with PO5 because it deals etiology and pathogenesis of infectious and sexually transmitted diseases work and analysis of results. CO5 is aligned with PO6, PO7 and PO8 because it helps to improve the ability to use current techniques, skills, and modern tools necessary for pharmaceutical practice. CO5 is aligned with PO11 because it deals with implementation of pharma based system in pharmacy practice

CO-PO matrix of course (mapping strength)

CO/PO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO 9	PO 10	PO 11
CO1	3	--	3	1	1	2	1	2	--	--	3
CO2	3	--	3	1	1	2	1	2	--	--	3
CO3	3	--	3	2	1	2	1	2	--	--	3
CO4	3	--	3	2	1	2	1	2	--	--	3
CO5	3	--	3	3	1	2	2	2	--	--	3

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FINAL CO ATTAINMENT

Evaluation	CIE					SEE
CO's	MT1	MT2	CT1	CT2	Average	
1	**3**	--	**3**	**3**	3	3
2	**2**	**2.5**	**3**	**3**	2.62	3
3	--	**2.5**	**3**	**3**	2.83	3
4	--	**3**	**3**	**3**	3	3
5	--	**3**	**3**	**3**	3	3
Avg.					2.88	3

Direct Attainment= Avg. CO of CIE * 0.25 + Avg. CO of SEE*0.75

= 0.25*2.88+3*0.75

=0.72 + 2.25

=2.97

FinalAttainment = Direct Attainment * 0.9+Indirect Attainment*0.1

= 2.97 *0.9+2.850*0.1

= 2.67 + 0.285

=2.95

CIE: Continuous Internal Evaluation

SEE: Semester End Examination

Course Name and code: Human Anatomy and Physiology – Practical (BP 207P)

Year and Semester: I Year II Semester
Year of study: 2023-24 (2019 Pattern)
Scope:
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.
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.

Theory	Practical	Tutorial	Credits
3	-----	1	4

Sr. No	Title of Experiment	Hrs
01	To study the integumentary and special senses using specimen, models, etc.,	4
02	To determine the Platelet count.	4
03	To perform the differential leukocyte count (DLC).	4
04	To determine the Arneth index.	4
05	Determination of osmotic fragility of RBCs.	4
06	To study the nervous system using specimen, models, etc.,	4
07	To study the endocrine system using specimen, models, etc	4
08	To demonstrate the general neurological examination	4

09	To demonstrate the function of olfactory nerve	4
10	To examine the different types of taste.	4
11	To demonstrate the visual acuity	4
12	To demonstrate the reflex activity	4
13	Recording of body temperature	4
14	To demonstrate positive and negative feedback mechanism.	4
15	Determination of tidal volume and vital capacity.	4
16	Study of Digestive, respiratory, cardiovascular systems, urinary and reproductive systems with the help of models, charts and specimens.	4
17	Recording of basal mass index.	4
18	Study of family planning devices and pregnancy diagnosis test.	4
19	Demonstration of total blood count by cell analyzer.	4
20	Permanent slides of vital organs and gonads.	4
21	Visit to Hospital/ Pathology Laboratory.	4

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COURSE OUTCOMES (B.Pharm)

Cognitive level (CL): Bloom's taxonomy Cognitive level (1/2/3/4/5)
Knowledge Category (KC): F= Factual Knowledge, C= Conceptual Knowledge, P= Procedural Knowledge, M= Metacognitive Knowledge

Mapping of COs to POs

CO	Course Outcomes	CL (Cognitive level)	KC (Knowledge Category)	Class Session Hrs.	Units
CO1	Study of Nervous, Endocrine ,digestive, respiratory, cardiovascular ,urinary ,reproductive, integumentary system and special senses with the help of models, charts and specimens.	1	F,C	12	1
CO2	Demonstrate general neurological examination, the function of olfactory nerve, visual acuity, reflex activity , positive and negative feedback mechanism and total blood count by cell analyser.	2	C,K P	24	2
CO3	Record body temperature,basal mass index, determine DLC, arneth index, platelet count and osmatic fragility.	3	C,K P	12	3
CO4	Examine the different types of taste and determine tidal volume and vital capacity.	4	C,K P	8	4
CO5	Identify the Permanent slides of vital organs and gonads and study family planning devices and pregnancy diagnosis test	1	F,C	4	5

Course Name and code – HAP II (Theory) (BP 207P)
Year of study 2023-24

CO/PO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO 9	PO 10	PO 11
CO1	√	√	√	√	--	--	--	--	--	--	--
CO2	√	√	√	√	--	--	--	--	--	--	--
CO3	√	√	√	√	--	--	--	--	--	--	--
CO4	√	√	√	√	--	--	--	--	--	--	--
CO5	√	√	--	√	--	--	--	--	--	--	--

Justification-

COs	Justification
CO1	PO1: it demonstrates the knowledge of basic of terminologies of human anatomy and physiology by studing different level of organization. PO6:CO1 is aligned with PO6 because it promotes the counseling of patient as a pharmacist. PO8:CO1 is aligned with PO8 because it demonstrates ability to comprehend and write assignments, making presentation and documentation. PO9:CO1 is aligned with PO9 because it demonstrates to apply the reasoning to assess legal issues for effective medical guidelines. PO11:CO1 is aligned with PO11 because it demonstrates the studies of human anatomy and physiology which are never ever changing and constant.
CO2	PO1:CO2 is aligned with PO1 because it demonstrates the knowledge of musculoskeletal system along with its normal accessory organ system. PO6:CO2 is aligned with PO6 because it promotes the counselling to those who having special body fluids related medication in their prescription. PO8:CO2 is aligned with PO8 because it demonstrate ability to comprehend and write assignments, making presentation and documentation PO11:CO1 is aligned with PO11 because it demonstrates the studies of human anatomy and physiology of musculoskeletal system along with its normal accessory organ system which are never ever changing and constant.
CO3	PO1:CO3 is aligned with PO1 because it demonstrates the knowledge of various body fluids and homeostasis different body system. PO6:CO3 is aligned with PO6 because it promotes the counselling to those who having related medication in their prescription. PO8:CO3 is aligned with PO8 because it demonstrates ability to comprehend and write assignments, making presentation and documentation.

	PO9:CO3 is aligned with PO9 because it demonstrates the need to apply the reasoning to assess legal issues as per WHO guidelines. PO11:CO3 is aligned with PO11 because it demonstrates the studies of different body fluids, their mechanism, physiology and regulation which are never ever changing and constant.
CO4	PO1:CO4 is aligned with PO1 because it demonstrates the knowledge of nervous system and special senses with their disorders. PO6:CO4 is aligned with PO6 because it promotes the counselling to those who having nervous system related medication in their prescription. PO8:CO4 is aligned with PO8 because it demonstrate ability to comprehend and write assignments, making presentation and documentation PO9:CO4 is aligned with PO9 because it demonstrates the need to apply the reasoning to assess legal issues as per WHO guidelines. PO11:CO4 is aligned with PO11 because it demonstrate the studies of human anatomy and physiology of nervous system and special sense organs which are never ever changing and constant
CO5	PO1:CO5 is aligned with PO1 because it demonstrates the knowledge of concept and mechanisms of cardiovascular system with their disorders. PO6:CO5 is aligned with PO6 because it promotes the counselling to those who having cardiovascular system related medication in their prescription. PO8:CO5 is aligned with PO8 because it demonstrate ability to comprehend and write assignments, making presentation and documentation PO9: CO5 is aligned with PO8 because it demonstrate ability to comprehend and write assignments, making presentation and documentation PO11:CO5 is aligned with PO11 because it demonstrate the studies of human anatomy and physiology of cardiovascular system which are never ever changing and constant

CO-PO matrix of course (mapping strength)

CO/PO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO 9	PO 10	PO 11
CO1	3	2	2	2	2	--	--	--	--	--	--
CO2	3	2	2	2	2	--	--	--	--	--	--
CO3	3	2	2	2	2	--	--	--	--	--	--
CO4	3	2	2	2	2	--	--	--	--	--	--
CO5	3	2	--	2	2	--	--	--	--	--	--

FINAL CO ATTAINMENT

Evaluation	CIE				SEE	CIE Average
CO's	MT1	MT2	CT1	CT2		
1	2.2	…..	3	…..	3	2.6
2	2	…..	3	…..	3	2.5
3	2.6	…..	3	…..	3	2.8
4	……	1.2	0	3	3	2.1
5	……	1.5	0	3	3	2.25
					3	**2.45**

Direct Attainment= Avg. CO of CIE * 0.25 + Avg. CO of SEE*0.75

= 0.25*2.45+3*0.75

=0.6125+2.25

=2.86

Final Attainment = Direct Attainment * 0.9+Indirect Attainment*0.1

=2.86*0.9+2.75*0.1

=2.59 + 0.275

=2.865

CIE: Continuous Internal Evaluation

SEE: Semester End Examination

Course Name and code: BP208 P.PHARMACEUTICAL ORGANIC CHEMISTRY–I (Practical)

Year and Semester: First year II Semester
Year of study: 2023-24 (2019 Pattern)
Scope

This subject deals with classification and nomenclature of simple organic compounds, isomerism, intermediates for medina 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

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. Identify/confirm the identification of organic compounds.

Theory	Practical	Tutorial	Credits
-------	4	----	4

Unit	Content	Session in Hrs.
1	Safety measures in an organic laboratory	**1 hours**
2	Introduction to laboratory techniques: Calibration of thermometer, melting point, boiling point, distillation, and crystallization.	**3 Hours**
3	***Systematic qualitative analysis of unknown organic compounds (min 5)*** 1.Preliminary test: color, odour, aliphatic/aromatic compounds, saturation and unsaturation, etc. 2.Detection of elements like nitrogen, sulphur and halogen by Lassaigne'stest. 1.Solubility test 2.Functionalgrouptestlikephenols,amides,carbohydrates,amines,carboxylic acids, aldehydes and ketones, alcohols, esters, aromatic and halogen ated hydrocarbons, nitro compounds and anilides. 3. Melting point/Boiling point of organic compounds. 4.Identification of the unknown compound from the literature using melting point/ boiling point	**08 Hours**

4	***Preparation of suitable solid derivatives from organic compounds***	**02 Hours**
5	Building of molecular models of structures containing various functional groups.	**01 Hours**
		15

Mapping of COs to POs

Course Name and code – Pharmaceutical Organic Chemistry-I (BP208 P)
Year of study 2023-24

CO NO.	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11
CO-208.1	✓	✓	✓	✓	✓	-	-	✓	-	-	✓
CO-208.2	✓	✓	✓	✓	✓	-	-	✓	-	-	✓
CO-208.3	✓	✓	✓	✓	✓	-	-	✓	-	-	✓
CO-208.4	✓	✓	✓	✓	✓	-	-	✓	-	-	✓
CO-208.5	✓	✓	✓	✓	✓	-	-	✓	-	-	✓

Justification-

CO's	Justification
CO1	PO1: Knowledge of basic principle and other chemicals natures is required for classification. PO2: To plan and follow the rule of practical. PO3: To identify the problem during practicals. PO4: Drawing the structure and using different software's tools based on the classification. PO5: Make group and perform the practical. PO8: Communicate with each other's during practicals. PO11: To understand and apply the knowledge during practical.
CO2	PO1: To calibrate and handling of instruments duringpractical. PO2: To plan and follow the rule of practical. PO3:.To identify the problem during practicals PO4: Drawing the structure and using different software's tools based on the classification. PO5: Make group and perform the practical. PO8: Communicate with each other's during practicals. PO11: To understand and apply the knowledge during practical
CO3	PO1: Knowledge of basic principle and other chemicals natures is required for classification. PO2: To plan and follow the rule of practical. PO3:To identify the problem during practicals. PO4: Drawing the structure and using different software's tools based on the classification. PO5: Make group and perform the practical. PO8: Communicate with each other's during practicals. PO11: To understand and apply the knowledge during practical.
CO4	PO1: Knowledge of basic principle and other chemicals natures is required for classification. PO2: To plan and follow the rule of practical. PO3: To identify the problem during practical. PO4: Drawing the structure and using different software's tools based on the classification. PO5: Make group and perform the practical. PO8: Communicate with each other's during practical. PO11: To understand and apply the knowledge during practical.
CO5	PO1: Knowledge of basic principle and other chemicals natures is required for classification. PO2: To plan and follow the rule of practical. PO3: To identify the problem during practical. PO4: Drawing the structure and using different software's tools based on the classification. PO5: Make group and perform the practical. PO8: Communicate with each other's during practicals. PO11: To understand and apply the knowledge during practical.

CO-PO matrix of course (mapping strength)

Name of Course	**B.Pharmacy**
Subject Name	**Pharmaceutical Organic Chemistry-I**
Subject Code	**BP208P**
Name of the teacher	**Prof. Sonawane Manisha D.**
Academic Year	**2023-24 (2019 Pattern)**

CO NO.	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11
CO-208.1	2	2	1	1	1	-	-	2	-	-	2
CO-208.2	2	2	2	2	1	-	-	2	-	-	2
CO-208.3	2	2	2	1	1	-	-	2	-	-	2
CO-208.4	2	2	1	2	1	-	-	2	-	-	2
CO-208.5	1	1	1	1	1	-	-	2	-	-	2

FINAL CO ATTAINMENT

Direct Attainment= Avg. CO of CIE * 0.25 + Avg. CO of SEE*0.75

= 3*0.25+3*0.75

=0.75+2.25

=3

Final Attainment = Direct Attainment * 0.9+Indirect Attainment*0.1

=3*0.9+3*0.1

=2.7+ 0.3

=3

Evaluation	CIE					SEE
CO's	MT1	MT2	CT1	CT2	Average	
1	3	--	3	3	3	3
2	3	--	3	3	3	3
3	3	3	3	3	3	3
4	---	3	3	3	3	3
5	---	3	3	3	3	3
Avg.					3	3

CIE: Continuous Internal Evaluation
SEE: Semester End Examination

Course Name and code: Biochemistry (Practical) BP 209P

Year and Semester: First Year II Semester
Year of study: 2023-24 (2019 Pattern)
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 the course the student shall be 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

Theory	Practical	Tutorial	Credits
---	4	--	4

Unit	Content	Session in Hrs.
1	To identify given sample of carbohydrate by qualitative analysis	4
2	To identify given sample of carbohydrate by qualitative analysis	4
3	To identify given sample of carbohydrate by qualitative analysis	4
4	To identify given sample of Amino Acid by Qualitative analysis test	4
5	To identify given sample of protein by Qualitative Analysis test	4
6	To identify given sample of protein by Qualitative Analysis test	4
7	To detect abnormal constituent in given sample of urine by qualitative test	4
8	To detect abnormal constituent in given sample of urine by qualitative test.	4

9	To Prepare buffer solution & measure it's PH.	4
10	To determine salivary amylase activity on starch.	4
11	To Study the effect of temperature on salivary amylase activity.	4
12	To study the effect of substrate concentration on salivary amylase activity	4
13	To determine concentration of Reducing sugar by Dinitrosalicylic Acid (DNSA) Method.	4
14	Estimation of protein by biuret method.	4
15	To determine Blood sugar/Blood glucose.	4

COURSE OUTCOMES (B.Pharm)

Course Name and code: Biochemistry (Practical) BP 209 P

Year and Semester: First Year II Semester
Year of study: 2023-24 (2019 Pattern)

Cognitive level (CL): Bloom's taxonomy Cognitive level (1/2/3/4/5/6)

CO	Course Outcomes	CL (Cognitive level)	KC (Knowledge Category)	Class Session Hrs.	Units
CO.1	Identify primary metabolite in given sample of carbohydrate, protein & Amino acid by qualitative test	1	P	120	1-6
CO .2	Predict abnormal and normal constituents in urine sample.	2	P	40	7-8
CO .3	Prepare and measure the PH of buffer solutions.	3	p	20	9
CO.4	Analyze the factor such as temp, concentration & time affect enzyme activity	4	p	60	10-12
CO.5	Investigate the clinical significance of creatinine Glucose, proteins and serum total cholesterol in blood.	4	p	60	13-15

Knowledge Category (KC): F= Factual Knowledge, C= Conceptual Knowledge, P= Procedural Knowledge, M= Metacognitive Knowledge

CO1	√	√	√	√	--	--	--	--	--	--	--
CO2	√	√	√	√	--	--	--	--	--	--	--
CO3	√	√	√	√	--	--	--	--	--	--	--
CO4	√	√	√	√	--	--	--	--	--	--	--
CO5	√	√	--	√	--	--	--	--	--	--	--

Justification-

CO's	Justification
CO1	PO1: Basic knowledge of Biomolecules like carbohydrate, protein, amino acid their Qualitative study. PO4: Planning ability to perform the different qualitative tests. PO3: to solve the problem arrived during qualitative analysis of Protein, carbohydrate & Amino Acids Po4: it demonstrates physiological activity related with Protein, carbohydrate & Amino Acids.
CO2	PO1: it gives the basic knowledge of role of constituents of urine in health & disease PO2: planning ability to perform the different test for urine analysis. PO3: To solve problem related to the constituent present in the urine which affect the health? PO4: it demonstrates physiological activity related with urine , electrolytes in health & disease
CO3	PO1: Basic Knowledge about the Buffer solutions & their importance. PO2: planning for the preparation of buffer solution of different PH. PO3: To Analyses the problem related to the change physiological conditions of PH Solutions. PO4: To use modern tools like Digital PH Meter.
CO4	PO1: it gives the basic knowledge of role of enzymes in health & disease PO2: it develops effectively planning and organizing the basic knowledge to understand identification of enzyme upon different condition of temp, PH, Salivary amylase. PO3: it has ability to identify, analyzed to solve problems related to enzyme on variable concentration, Po4: It understands to choose and utilize modern techniques for biochemistry. Like calorimeter.

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FINAL CO ATTAINMENT

Evaluation	CIE					SEE
CO's	MT1	MT2	CT1	CT2	Average	
1	2	---	3	---	2.5	3
2	3	---	3	---	3	3
3	3	2	3	3	2.75	3
4	---	2	---	3	2.5	3
5	---	3	----	3	3	3
6	---	2.3	----	3	2.65	3
Avg. CIE					2.73	3

Direct Attainment= Avg. CO of CIE * 0.25 + Avg. CO of SEE*0.75

= 0.25*2.73+3*0.75

=0.6825+2.25

=2.93

Final Attainment = Direct Attainment * 0.9+Indirect Attainment*0.1

=2.93*0.9+2.90*0.1

=2.637 + 0.29

=2.92

CIE: Continuous Internal Evaluation

SEE: Semester End Examination

ACADEMIC MONITORING COMMITTEE 2023-24

1.	Dr. Sanjay Bhawar	Principal Chairman	Chairman
2.	Dr. Sunayana Vikhe	Academic Dean UG Programme coordinator Class Incharge Final Y B Pharm	Member
3.	Dr. Suhas Siddheshwar	PG Programme coordinator	Member
4.	Dr. Gaurao Damre	Pharm D. Programme coordinator. Class Incharge F. Y. Pharm. D.	Member
5.	Mrs. Tejal Nirmal	D. Pharm Programme coordinator	Member
6.	Mrs. Rajashree Ghogare	Class Incharge F. Y. B. Pharm	Member
7.	Mrs. Kavita Dhamak	Class Incharge S. Y. B. Pharm	Member
8.	Mr. Sagar Magar	Class Incharge T. Y. B. Pharm	Member
9.	Dr. Vaibhav Bhone	Class Incharge S. Y. Pharm. D.	Member
10.	Mrs. Nilima Wani	Class Incharge F. Y. D. Pharm	Member
11.	Mrs. Sneha Vikhe	Class Incharge S. Y. D. Pharm	Member

DUTIES OF THE COMMITTEE:

- Periodically reviewing the progress of the classes.
- Discussing the problems concerning curriculum, syllabus and the conduct of classes.
- 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 ofrespective semesters.
- Communicating its recommendation to the Head of the institution on academicmatters.
- The committee shall take periodic feedback of students regarding teaching learning process, analyze it and decide the course of action.

FREQUENCY OF THE MEETING:

- The AM Committee shall meet at least twice in a semester and as and when required.