SELF ASSESSMENT REPORT (SAR)

2024-2025

FOR FIRST TIME ACCREDITATION OF

DIPLOMA IN PHARMACY PROGRAM

SUBMITTED TO

NATIONAL BOARD OF ACCREDITATION

NEW DELHI

SUBMITTED BY

COLLEGE OF PHARMACY (POLY), SAWARDE

Vahal Phata, Sawarde, Chiplun, Ratnagiri-415606

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PART A- INSTITUTIONAL INFORMATION

1. **Name and Address of the Institution** : Sahyadri Shikshan Sanstha's College of Pharmacy (Poly), Sawarde, Tal: Chiplun, Dist: Ratnagiri, State: Maharashtra, Pincode:- 415606
2. **Name and Address of the Affiliating University/Board** : Maharashtra State Board of Technical Education, Mumbai, 4th Floor, Government Polytechnic, 49, Kherwadi, Bandra (East), Mumbai: 400 051
3. **Year of Establishment of the Institution** : **1984**
4. **Type of the Institution**

University	:	
Deemed University	:	
Autonomous	:	
Affiliated	:	√
Any Other (Please Specify)	:	

5. **Owner Ship Status**

Central Government	:	
State Government	:	
Grant-in-Aid	:	
Self-Financing	:	
Trust	:	√
Society	:	
Section 25 Company	:	
Any Other (Please Specify)	:	

Provide Details:- Sahyadri Shikshan Sanstha (SSS) was established in 1957 as a registered trust by the founder **Hon. Late. Shri Govindraoji Nikam and Hon. Late. Shri Anuradhatai Nikam;** with the vision to cater to the education needs in the rural areas of Ratnagiri District and to quench the thirst of Technical Education.

The D. Pharm course was introduced by establishing the **College of Pharmacy (Poly), Sawarde (COPS)** in the year 1984.

Sahyadri Shikshan Sanstha is an Educational Trust working under the visionary leadership of **Hon. Late. Shri Govindraoji Nikam and Hon. Late. Shri Anuradhatai Nikam**. It is a leading educational society since the establishment year. The Sanstha consists of 33 Secondary Schools, 06 Higher Secondary Schools, 04 Primary Schools, 04 English Medium Schools, 19 Higher Education Institutes along with 06 Boys Hostel, 09 Girls Hostel, 01 Government Girls Hostel for Underprivileged girls. Most Institutes are affiliated to Maharashtra State Board of Education and ISO along with professional institutes are approved by Mumbai University, AICTE, MSBTE, PCI, MCAER, DGET, DTE, DAM, NCTE, Dr. B. S. K. K. V. (An Agricultural University).

PART A- INSTITUTIONAL INFORMATION

College of Pharmacy (Poly), Sawarde is the pioneer institute and topmost college in the ranking, choice and preference in the region for the students aspiring for Pharmacy.

6. Other Academic Institutions of the Trust/Society/etc., if any

Sr. No	Name of the Institutions	Year of Establishment	Programs of Study	Location
1	SSS College of Pharmacy (Poly)	1984	Diploma in Pharmacy	Sawarde
2	Sahyadri College of Hotel Management & Tourism	2007	BSC. Hospitality	Agave
3	Govindrao Nikam College of Pharmacy	2005 & 2019	B. Pharm & D. Pharm	Sawarde
4	Govindrao Nikam College of Pharmacy	2005	M. Pharm	Sawarde
5	Sahyadri Polytechnic	1985	Diploma in Engineering	Sawarde
6	Sahyadri Institute of Management & Research	2011	MBA/MMS	Sawarde
7	Industrial Training Institute	1984	ITI	Sawarde
8	Sahyadri School of Art	1993	Drawing & Painting, Foundation Art Teacher	Sawarde
9	D. G. Tatkare Agri Polytechnic,	1985	Diploma in Agriculture	Dahivali-Kharvate
10	Sharadchandraji Pawar College of Agriculture	2006	B.Sc. Agri	Dahivali-Kharvate
11	Sharadchandraji Pawar College of Horticulture	2001	B.Sc. Horti	Dahivali-Kharvate
12	Sharadchandraji Pawar College of Food Technology	2004	BTech. Food Tech.	Dahivali-Kharvate
13	College of Agriculture Biotechnology	2010	B. Tech. Biotech	Dahivali-Kharvate

15	Sahyadri Institute Of Computer Science & Information Technology	2009	B.Sc. Comp. & It	Sawarde
16	B.A.Alias Bhaisaheb Sawant Adhyapak Mahavidyalaya	1985	B. ED	Sawarde
17	Rajabhau Redij Adhyapak Vidyalaya	1984	D. L. ED	Sawarde
18	Arts And Science College Sawarde	2001	B.A & B. Com, BMS	Sawarde
19	Sahyadri Institute Of Nursing Education	2024	ANM & GNM	Sawarde

7. Details of all the programs being offered by the Institution under consideration:-

Sr. No	Program Name	Year of Start	Intake	Increase in intake, if any	Year of increase	AICTE Approval	Year of Obtaining PCI Approval	Accreditation Status*
1.	Diploma in Pharmacy	1984	60	-	-	1994	1987	Applying First Time

Write applicable one:

* Applying first time -
* Granted accreditation for two/three years for the period(specify period)
* Granted accreditation for 5/6 years for the period (specify period)
* Not accredited (specify visit dates, year)
* Withdrawn (specify visit dates, year)
* Not eligible for accreditation
* Eligible but not applied

Note:- Add rows as needed.

8. Name of the Program to be considered for Accreditation vide this application:-

Sr. No	Program Name
1.	Diploma in Pharmacy (D. Pharm)

PART A- INSTITUTIONAL INFORMATION

9. Total Number of Employees:- 25

A. Regular Faculty and Staff:-

Items		CAY (2023-24)		CAYm1(2022-23)		CAYm2 (2021-22)	
		Min	Max	Min	Max	Min	Max
Faculty in Pharmacy	M	04	03	03	03	02	02
	F	03	03	04	04	05	05
Non-Teaching Staff	M	13	13	13	13	12	12
	F	05	05	05	05	05	05

B. Contractual Staff (Not covered in Table A):-

Items		CAY (2023-24)		CAYm1(2022-23)		CAYm2 (2021-22)	
		Min	Max	Min	Max	Min	Max
Faculty in Pharmacy	M	0	0	0	0	0	0
	F	0	0	0	0	0	0
Non-Teaching Staff	M	0	0	0	0	0	0
	F	0	0	0	0	0	0

Note:-

1. **All faculty whether regular or contractual (except Part-Time), will be considered. The contractual faculty (doing away with the terminology of visiting/adjunct faculty, whatsoever) who have taught for 02 consecutive semester in the corresponding academic year on full time basis shall be considered. However, following will be ensured in case of contractual faculty:-**
   a. **Shall have the AICTE prescribed qualifications and experience.**
   b. **Shall be appointed on full time basis and worked for consecutive two semesters during the particular academic year under consideration.**
   c. **Should have gone through an appropriate process of selection and the records of the same shall be made available to the visiting team during NBA visit.**

CAY- Current Academic Year (2023-2024)

CAYm1- Current Academic Year minus 1= Current Assessment Year (2022-2023)

CAYm2- Current Academic Year minus 2= Current Assessment Year minus 1 (2021-2022)

10. Total Number of Pharmacy Students in the Institute:-

Student Numbers	CAY (2023-2024)	CAY (2022-2023)	CAY (2021-2022)
Total No of Boys	42	46	52
Total No of Girls	90	84	74
Total No of Students	132	130	126

(Instruction:- The data may be categorized in tabular form in case institute runs UG, PG and Doctoral Programs. Please separate table for each level, if applicable)

PART A- INSTITUTIONAL INFORMATION

11. Contact Information of the Head of the Institution and NBA Co-ordinator, if designated:-

1.

Name	**:**	Mr. Sanjay Gulabrao Desai
Designation	**:**	Principal
Mobile No	**:**	9421138323
Email Id	**:**	sanjaydis8323@gmail.com

2. NBA Co-ordinator, if designated :-

Name	**:**	Mrs. Ruchi Rohit Bhuran
Designation	**:**	Lecturer
Mobile No	**:**	7743842253
Email Id	**:**	ruchibhuran@gmail.com

PART B- INSTITUTIONAL INFORMATION

CRITERIA SUMMARY

NAME OF THE PROGRAM: DIPLOMA IN PHARMACY

CRITERIA NO.	CRITERION	MARKS/ WEIGHTAGE
1	Vision, Mission & Program Educational Objectives (PEOs)	**50**
2	Program Curriculum and Teaching- Learning Process	**50**
3	Course Outcomes and Program Outcomes	**60**
4	Student's Performance	**75**
5	Faculty Information and Contributions	**75**
6	Facilities and Technical Support	**100**
7	Continuous Improvement	**30**
8	Governance, Institutional Support and Financial Resources	**60**
TOTAL		**500**

CRITERION 1: Vision, Mission & Program Education Objectives

CRITERION 1	VISION, MISSION AND PROGRAM EDUCATIONAL OBJECTIVES	50

1.1. State the Vision and Mission (5)

(Vision statement typically indicates aspirations and Mission statement states the broad approach to achieve aspirations)

- **Vision:-**

  THE INSTITUTION ENVISIONS BEING A GLOBAL LEADED IN PHARMACEUTICAL EDUCATION, RESEARCH AND COMMUNITY SERVICE, MAKING A LASTING IMPACT ON HEALTHCARE WORDLWIDE.

- **Mission:-**

M1	TO IMPART PHARMACY KNOWLEDGE AND SKILLS ALONG WITH THE ETHICAL AND SOCIAL VALUES.
M2	TO STRENGTHEN OUR ASSOCIATION WITH PHARMACY COMMUNITY AND OUR ALUMINI TO MAKE STUDENTS SOCIALLY RESPONSIBLE CITIZENS.
M3	TO ENCOURAGE STUDENTS TO PURSUE HIGHER STUDIES IN REPUTED INSTITUTES.
M4	TO ENSURE EMPLOYABILITY, ENCOURAGE ENTREPRENEURSHIP AND PROMOTE LIFELONG LEARNING.

1.2. State the Program Educational Objectives (PEOs) (5)

(State the Program Educational Objectives 3 to 5 of the program seeking accreditation)

PEO 1	TO ENRICH THE STUDENTS WITH THE NECESSARY KNOWLEDGE AND SKILL ENABLING THEM TO SERVE AS PROFESSIONALLY COMPETENT AND SOCIALLY RESPONSIBLE CITIZENS.
PEO 2	TO NURTURE PHARMACISTS TO PROVIDE COMMUNITY SERVICES WITH ETICAL VALUES
PEO 3	TO ENCOURAGE STUDENTS TO BE LIFELONG LEARNERS AND TO PURSUE ENTREPRENEURSHIP AND TO SERVE AS AN IDEAL PHARMACIST TO OUR SOCIETY.

1.3. Indicate where and how the Vision, Mission and PEOs are published and disseminated among stakeholders (15)

(Describe where (websites, curricula, posters etc.) the Vision, Mission and PEOs are published and detail the process which ensures awareness among internal and external stakeholders with effective process implementation)

(Internal stakeholders may include Management, Governing Board Members, Faculty, Support Staff, Students etc. and External Stakeholders may include Employers, Industry, Alumini, Funding Agencies, etc.)

Every effort is made to ensure that the Vision and Mission of the Institute is communicated effectively to all the Internal Stakeholders and External Stakeholders namely Management, Governing Board Members, Faculty, Support Staff, Students, Employers, Industry, Alumini, Funding Agencies etc. and also ensure that an awareness is created regarding the Vision and Mission of the Institute to progress towards the development of the Institute.

The Vision, Mission and PEO statements are published and disseminated through the following methods to create awareness about it:-

1. The Vision, Mission and Program Education Objectives (PEOs) were published on the website, information brochure and display boards/ flexi-boards were placed on the walls of the college to create awareness about the Vision, Mission and Program Education Objectives (PEOs) among the Management, Governing Body, Faculty, Students and Alumini.

2. The awareness about the Vision, Mission and Program Educational Objectives (PEOs) was created with the help of a Google Meet with the Management and Governing Body.

3. A Session was organized with the Teaching Faculty, Non-Teaching Faculty and Supporting Staff to create an awareness about the Vision, Mission and Program Educational Objectives (PEOs).

4. An Interactive session was organized from the Teaching Faculty for the Students to create an awareness about the Vision, Mission and Program Educational Objectives (PEOs)

5. With our External Stakeholders i.e., Alumini, Industrial Experts a Google Meet session was organized regarding the awareness about the Vision, Mission and Program Educational Objectives (PEOs)

1.4. State the process for defining the Vision, Mission and Program Educational Objectives (PEOs) of the program (10)

(Articulate the process for defining the Vision, Mission and Program Educational Objectives (PEOs) of the program)

The Institute has established the Vision, Mission and Program Educational Objectives (PEOs) statements through the consultative process involving the stakeholders: Internal Stake Holders (Management, Governing Body Members, Faculty, Supporting Staff, Students etc.) and External Stake Holders (Employees, Industry, Alumini, Funding Agencies). Then department framed the Institutional Vision and Mission statements with the consultation of respective stake holders aligned with the Vision and Mission statement of Institute formed with the intention of fulfilling the societal and professional needs. The Institute framed the Vision and Mission through a Consultative process as shown in Figure 1.1.

1. The Vision, Mission, Curriculum and Program Objectives (POs) statements are taken the basis to interact with the stakeholders for formulating the PEOs.

2. The Vision, Mission and Program Educational Objectives (PEOs) were prepared by the Program Assessment and Quality Improvement Committee (PAQIC).

3. Drafting of Department Vision, Mission and Program Educational Objectives (PEOs) was done.

4. The PAQIC committee made further discussion on the Vision, Mission and Program Educational Objectives (PEOs).

5. The suggestions were taken from the Internal Stakeholders and External Stakeholders i.e., Students, Parents, Alumini, Industry Experts etc.

6. The final Vision, Mission and Program Educational Objectives (PEOs) were send to the Governing Body for the approval.

7. The final Vision, Mission and Program Educational Objectives (PEOs) were also approved the Department Advisory Board (DAB)

8. After the final approval the dissemination was carried out and the Vision, Mission and PEOs were published through the appropriate media.

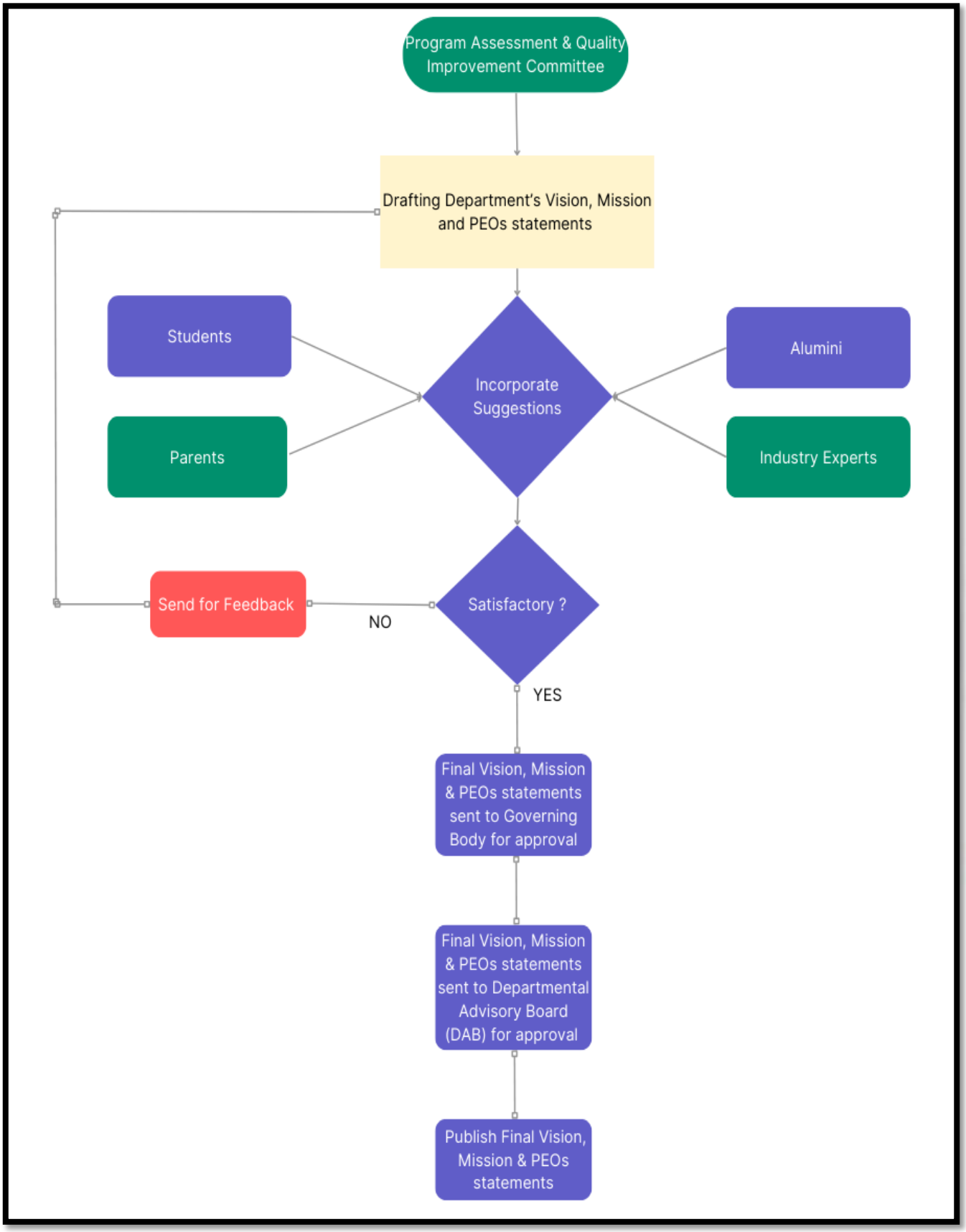


Fig 1.1: Flow Chart of process for defining the Vision, Mission and PEOs of Diploma in Pharmacy Program

CRITERION 1: Vision, Mission & Program Education Objectives

- **Drafting of Vision, Mission and Program Educational Objectives (PEOs) statements of the program:-**

In framing the Vision, Mission and PEOs of the department, the following steps were followed:-

Step 1:- Vision and Mission of the Institute are taken as an origin.

Step 2:- Collection of views from the Internal and External Stake holders.

Step 3:- Based on the available information, views from the stake holders, contents from program and syllabus content analysis, brainstorming sessions are carried out by the staff and a draft copy of Vision and Mission statement is prepared along with PEO statements.

Step 4:- The draft copy is reviewed by the Head of the Institute

Step 5:- Approval of Final draft copy is taken from the Department Advisory Board (DAB).

Step 6:- After approval from the Departmental Advisory Board (DAB) dissemination is carried out through appropriate channels as mentioned in point 1.3.

The above steps are highlighted in Fig 1.2.

The inputs from stake holders, faculty, alumini, industry and professional bodies are considered to formulate our course PEOs. Formatted survey data is utilized to gather comprehensive information for scrutiny and analysis. Formal and informal visits by the alumini give scope for direct personal interaction, discussion and also give an opportunity to collect and record information required for improving the program based on their professional experiences. A similar format can be used in other cases.

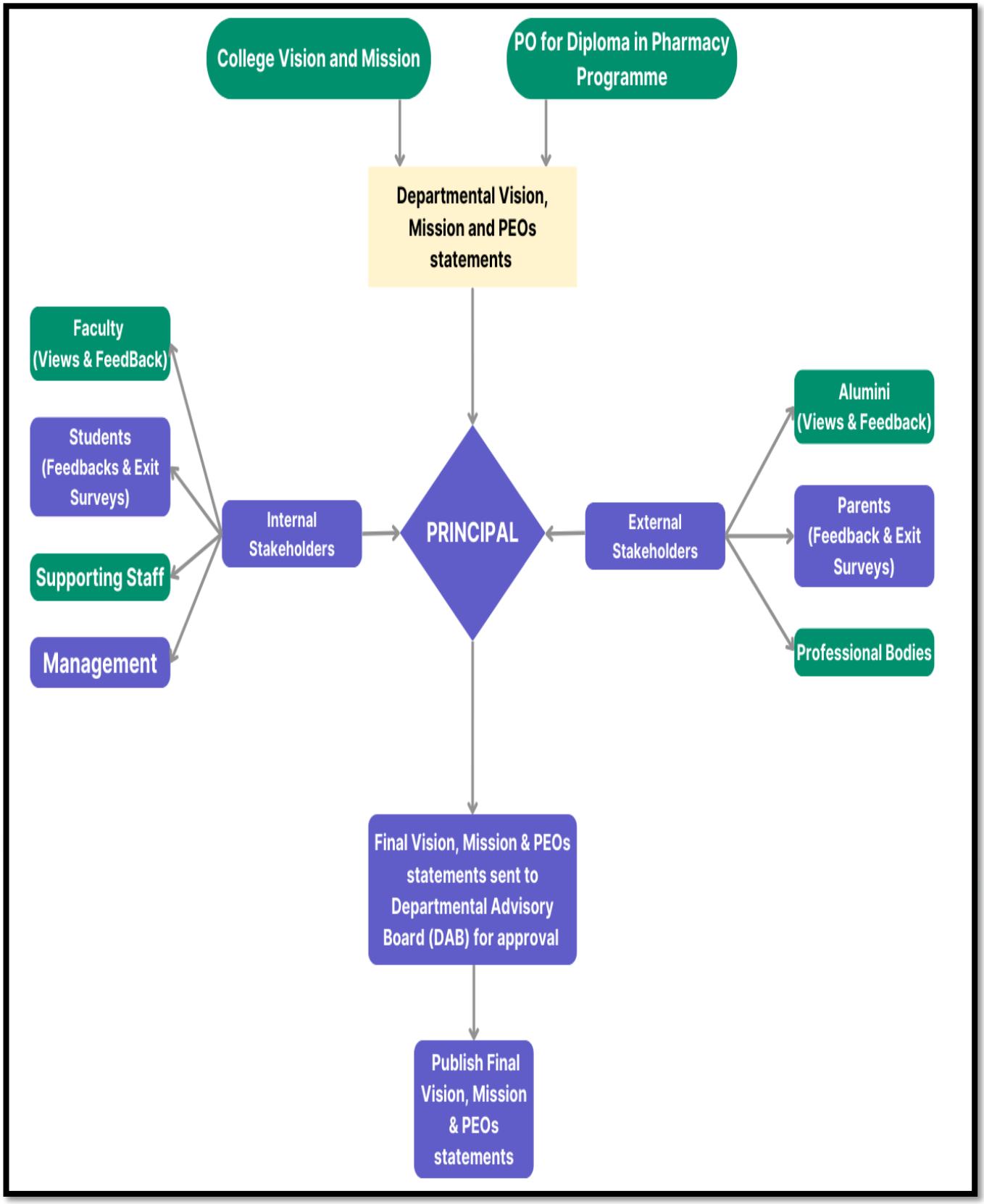


Fig 1.2: Drafting of Vision, Mission and Program Educational Objectives (PEOs) of Diploma in Pharmacy Program

1.5. Establish consistency of Program Educational Objectives (PEOs) statements with the Mission of the Institute (15)

(Generate a "Mission of the Institute-PEOs Matrix" with justification and rationale of the mapping)

The consistency of the Program Educational Objectives (PEOs) statements is based on the survey conducted amongst Internal and External stake holders and following interpretation is indicated in mapping of PEOs with Mission statement.

PEO Statements	M1	M2	M3	M4
PEO 1:- To enrich the students with the necessary knowledge and skill enabling them to serve as professionally competent and socially responsible citizens,	**3**	**2**	**2**	**2**
PEO 2:- To nurture pharmacist to provide community services with ethical values.	**2**	**3**	**2**	**2**
PEO 3:- To encourage students to be lifelong learners and to pursue entrepreneurship and to serve as an ideal pharmacist to our society.	**2**	**2**	**2**	**3**

***Note*:** M1, M2…. Mn are distinct elements of Mission statement. Enter correlation levels 1, 2 or 3 as defined below:

1: Slight (Low) **2:** Moderate (Medium) **3:** Substantial (High)

If there is no correlation, put "-"

***Note*:** In this document wherever the term 'process' has been used its meaning is process formulation, notification and implementation.

The following justifications have been derived on the basis of the survey reports obtained through the exit interview, alumini feedback, employer feedback and parent feedback of the students after the completion of the course, three years prior to the current assessment year of PEO attainments.

The program justifies the PEOs with its mission statements by following missionary steps and collects feedbacks from the stake holders for rationale mapping of mission with PEO and its attainments:-

a. Mission of the Department:- Matrix Survey of Exit Interview –

PEO Statements	M1	M2	M3	M4
PEO 1:- To enrich the students with the necessary knowledge and skill enabling them to serve as professionally competent and socially responsible citizens,	**3**	**2**	**2**	**2**
PEO 2:- To nurture pharmacist to provide community services with ethical values.	**2**	**3**	**2**	**2**
PEO 3:- To encourage students to be lifelong learners and to pursue entrepreneurship and to serve as an ideal pharmacist to our society.	**2**	**2**	**2**	**3**

b. Mission of the Department:- Matrix survey of Alumini Feedback

PEO Statements	M1	M2	M3	M4
PEO 1:- To enrich the students with the necessary knowledge and skill enabling them to serve as professionally competent and socially responsible citizens,	**3**	**2**	**2**	**2**
PEO 2:- To nurture pharmacist to provide community services with ethical values.	**2**	**3**	**2**	**2**
PEO 3:- To encourage students to be lifelong learners and to pursue entrepreneurship and to serve as an ideal pharmacist to our society.	**2**	**2**	**2**	**3**

c. Mission of the Department:- Matrix survey of Parents Meeting:-

PEO Statements	M1	M2	M3	M4
PEO 1:- To enrich the students with the necessary knowledge and skill enabling them to serve as professionally competent and socially responsible citizens,	**3**	**2**	**2**	**2**
PEO 2:- To nurture pharmacist to provide community services with ethical values.	**2**	**3**	**2**	**2**
PEO 3:- To encourage students to be lifelong learners and to pursue entrepreneurship and to serve as an ideal pharmacist to our society.	**2**	**2**	**2**	**3**

d. Mission of the Department:- Matrix survey of Industry Experts:-

PEO Statements	M1	M2	M3	M4
PEO 1:- To enrich the students with the necessary knowledge and skill enabling them to serve as professionally competent and socially responsible citizens,	**3**	**2**	**2**	**2**
PEO 2:- To nurture pharmacist to provide community services with ethical values.	**2**	**3**	**2**	**2**
PEO 3:- To encourage students to be lifelong learners and to pursue entrepreneurship and to serve as an ideal pharmacist to our society.	**2**	**2**	**2**	**3**

CRITERION 2: Program Curriculum and Teaching Learning Process

CRITERION 2	PROGRAM CURRICULUM AND TEACHING-LEARNING PROCESS	50

2.1. CONTENTS AND COMPLIANCE OF THE CURRICULUM (5)

(State the contents of the syllabus; about the course/learning material/content/laboratory experiments/projects etc. also mentioned identified curriculum gaps, if any)

Sahyadri Shikshan Sanstha's College of Pharmacy (Poly), Sawarde (COPS) is affiliated to MSBTE, Mumbai and follows the syllabus prescribed under the Education Regulation of Pharmacy Act-1948. The Diploma in Pharmacy is having two levels.

The previous Education Regulations in the Course are Education Regulation- 1991 (E.R.91) for Level-II of the program (i.e. D. Pharm Second Year) and the new Education Regulation-2020 is implemented for the Level-I and Level-II of the program (i.e. D. Pharm 1st year and D. Pharm 2nd Year) for the Current Academic Year (CAY-2023-24) and Current Academic Year minus 1 (CAYm1-2022-2023). The new Education Regulations 2020 were also implement for Current Academic Year minus 2 (CAY-2021-2022) for only Level-I of the program (i.e. D. Pharm 1st Year) and the previous Education Regulations 1991 were implemented for only Level-II of the program (i.e. D. Pharm 2nd Year).

The Level-I and Level-II of the program consists of six courses respectively. As per the provision of ER-91, the syllabus of the course is imparted through the Theory and Practical classes. Details of the contents of the syllabus are given in the Annexure-II (As per ER-1991. As per the provision of ER-2020, the syllabus of the course is imparted through Theory, Practical and Tutorial classes along with the required visits of Hospital, Industry and Medicinal Gardens. Details of the contents of syllabus are given in Annexure-II.a (As per ER 2020)

CRITERION 2: Program Curriculum and Teaching Learning Process

2.1.1. Contents of the Syllabus: - Course and Course wise Identified gaps (as per the ER-91)

(Annexure II: - The syllabus approved under the section 10 of Pharmacy Act 1948 as per ER-1991).

Level 2

Table No 2.1.1.1

Course Code	Course Name	Mode of Teaching		Gap Identified
		Theory	Practical	
811	Pharmaceutics-II	75 Hours (3 Hrs/Week)	100 Hours (4 Hrs/Week)	No Gap identified
812	Pharmaceutical Chemistry- II	100 Hours (4 Hrs/Week)	75 Hours (3 Hrs/Week)	No Gap identified
813	Pharmacology & Toxicology	75 Hours (3 Hrs/Week)	50 Hours (2 Hrs/Week)	No Gap identified
814	Pharmaceutical Jurisprudence	50 Hours (2 Hrs/Week)	-	No Gap identified
815	Drug Store & Business Management	75 Hours (3 Hrs/Week)	-	No Gap identified
816	Hospital & Clinical Pharmacy	75 Hours (3 Hrs/Week)	50 Hours (2 Hrs/Week)	No Gap identified

2.1.2. Content of the Syllabus:- Course and Course Wise Identified gaps (as per the ER-2020)

(Annexure II. a:- They syllabus approved under section 10 of Pharmacy Act 1948 as per ER-2020)

Level 1 (ER 2020 implemented for CAYm2 i.e. 2021-22)

Table 2.1.2.1

Course Code	Course Name	Mode of Teaching			Gap Identified
		Theory	Practical	Tutorial	
C20111	Pharmaceutics Theory	75 Hours (3 Hrs/Week)	-	25 Hours (1 Hr/Week)	No Gap identified
C20112	Pharmaceutical Chemistry Theory	75 Hours (3 Hrs/Week)	-	25 Hours (1 Hr/Week)	No Gap identified
C20113	Pharmacognosy Theory	75 Hours (3 Hrs/Week)	-	25 Hours (1 Hr/Week)	No Gap identified
C20114	Human Anatomy & Physiology Theory	75 Hours (3 Hrs/Week)	-	25 Hours (1 Hr/Week)	No Gap identified
C20115	Social Pharmacy Theory	75 Hours (3 Hrs/Week)	-	25 Hours (1 Hr/Week)	No Gap identified
C20051	Pharmaceutics Practical	-	75 Hours (3 Hrs/Week)	-	No Gap identified
C20052	Pharmaceutical Chemistry Practical	-	75 Hours (3 Hrs/Week)	-	No Gap identified
C20053	Pharmacognosy Practical	-	75 Hours (3 Hrs/Week)	-	No Gap identified

C20054	**Human Anatomy & Physiology Practical**	-	**75 Hours** (3 Hrs/Week)	-	**No Gap identified**
C20055	**Social Pharmacy Practical**	-	**75 Hours** (3 Hrs/Week)	-	**No Gap identified**

Level 2 (ER 2020 implemented for CAYm1 i.e. 2022-2023)

Table 2.1.2.2

Course Code	Course Name	Mode of Teaching			Gap Identified
		Theory	Practical	Tutorial	
C20221	**Pharmacology Theory**	**75 Hours** (3 Hrs/Week)	-	**25 Hours** (1 Hr/Week)	**No Gap identified**
C20222	**Community Pharmacy & Management Theory**	**75 Hours** (3 Hrs/Week)	-	**25 Hours** (1 Hr/Week)	**No Gap identified**
C20223	**Biochemistry & Clinical Pathology Theory**	**75 Hours** (3 Hrs/Week)	-	**25 Hours** (1 Hr/Week)	**No Gap identified**
C20224	**Pharmacotherapeutics Theory**	**75 Hours** (3 Hrs/Week)	-	**25 Hours** (1 Hr/Week)	**No Gap identified**
C20225	**Hospital & Clinical Pharmacy Theory**	**75 Hours** (3 Hrs/Week)	-	**25 Hours** (1 Hr/Week)	**No Gap identified**
C20226	**Pharmacy Law & Ethics Theory**	**75 Hours** (3 Hrs/Week)	-	**25 Hours** (1 Hr/Week)	**No Gap identified**
C20056	**Pharmacology Practical**	-	**50 Hours** (2 Hrs/Week)	-	**No Gap identified**
C20057	**Community Pharmacy & Management Practical**	-	**75 Hours** (3 Hrs/Week)	-	**No Gap identified**
C20058	**Biochemistry & Clinical Pathology Practical**	-	**50 Hours** (2 Hrs/Week)	-	**No Gap identified**
C20059	**Pharmacotherapeutics Practical**	-	**25 Hours** (1 Hr/Week)	-	**No Gap identified**
C20060	**Hospital & Clinical Pharmacy Practical**	-	**25 Hours** (1 Hr/Week)	-	**No Gap identified**

The prescribed syllabus is delivered through the prescribed number of lectures and practicals in each course. For that, the time-table is framed and the facilities like classrooms are provided.

CRITERION 2: Program Curriculum and Teaching Learning Process

For the better understanding of students, lectures are delivered using ICT tools apart from the traditional chalk and board method of teaching. COPS believes in blended technique of teaching for effective but not for the CAYm2 (2021-2022) due to the Covid 19 Pandemic scenario and Lockdown implemented by the Government the complete teaching, learning and major delivery of the syllabus content was done by using virtual methods of teaching by using online platforms like Google Meet, Google Classrooms, Google Forms and the literature and notes of the syllabus were circulated to students through Whatsapp groups.

For the time bound delivery of syllabus, Teaching Plan and Lesson Plans are prepared at the start of each academic session and meticulously followed to get the syllabus completed. The syllabus is reviewed by the Course Incharge and dealt against the Program Outcomes provided by the NBA. The Course Incharge considering the syllabus, frame the Cos and map it with the POs, after which the gap of the syllabus for the particular course is identified and reported to the Head of the Program along with the suggestions for the measures to be taken for bridging the identified gap so as to further strengthen the Program Educational Objectives.

Head of the program after the final approval of measures to be taken for bridging the gap from the concern Course Incharge, prepares the academic calendar for the upcoming session including the planned measures to be taken for bridging the gap.

The delivery of the syllabus and the teaching learning tools used and developed by the faculty are audited by the internal and external bodies and the reports are submitted to the Principal for necessary action. On the basis of these reports, necessary changes in the infrastructure and human resource facilities are done with the consent of the Governing Body.

The attainment of Cos and POs is calculated after completion of each session and on the basis of the attainment, the methods for bridging the gap are modified for the next upcoming session.

In the CAYm2, ER 2020 was implemented framed by the apex body complying the gaps of previous ER. Hence no gaps were identified at the time of the implementation.

2.2. ADHERENCE TO ACADEMIC CALENDAR (10)

(Demonstrate notified academic calendar & its adherence)

In the beginning of every academic year, an academic calendar is prepared by Head of the Program with an objective to plan the academic activities to be undertaken in the upcoming session based on the MSBTE academic calendar. It is finalized by the Principal and ICIU. The academic calendar prescribes beginning of session dates and end of session dates. It also specifies dates for conducting Progressive Theory Test and Progressive Skill Test and other vacations. The other events including Cultural Events, Guest Lectures, Co-curricular events and sports activities planned for the session are separately mentioned in an Academic Event Calendar. Departmental time-table is prepared and displayed on the notice board. All the faculty members strictly follow the Academic Calendar, Event Academic Calendar and Time-table.

The timetable is prepared by considering the academic calendar and the scheme of lectures and practicals is given in the E.R., which specifies designated classrooms, laboratories and respective Course Incharge. The timetable includes theory classes, tutorial classes, laboratory practicals etc. (Annexure: III Time Table). Teaching Plans are prepared, documented and followed by the respective Course Incharge according to the Institute's Academic Calendar considering total working days excluding holidays and Sundays and then lectures are planned accordingly which should cover the syllabus. Adherence to the Institutional Academic Calendar is monitored by the Academic Co-ordinator and IMC throughout the session. Academic audits are conducted twice in a session by internal and once in a session by external agencies.

The Academic calendar and its adherence for Last Three Years are given below:-

CAYm2: 2021-2022 (Academic Calendar)

Sr.No	Activities	S.Y.D.Pharm	F.Y.D.Pharm
1	First Parents Meeting	18/09/2021	09/10/2021
2	First Term	15/09/2021 to 31/12/2021	01/10/2021 to 08/01/2022
3	Ganpati Vacation	09/09/2021 to 14/09/2021	
4	World Pharmacist Day	25/09/2021	
5	First Sessional Exam	27/10/2021 to 01/11/2021 24/11/2021 to 28/11/2021	
6	Diwali Vacation	01/11/2021 to 06/11/2021	
7	Second Term	09/01/2022 to 21/05/2022	
8	Second Parents Meeting	22/12/2021	
9	National Pharmacy Week	13/12/2021 to 18/12/2021	
10	Industrial Tour	Second Week of Dec 2021	
11	Second Sessional Exam	07/03/2022 to 12/03/2022	
12	Jayanti Utsav	16/01/2022	
13	Zonal Sports	March 2022 to April 2022	
14	Third Sessional Exam	22/05/2022 to 27/05/2022	
15	Third Parent Meeting	21/05/2022	
16	Annual Practical Exam	28/05/2022 to 06/06/2022	
17	Annual Theory Exam	08/06/2022 to 28/06/2022	
18	Result Declaration	Second Week of August 2022	
Start of Next Academic Session (2022-2023) Aug 2022			

CAYm2: 2021-2022 (Event Calendar)

Sr. No	Month	Date	Speaker of Event/Event Organiser	Activity/Event
1	November	18/11/2021	Sahyadri Shikshan Sanstha	**Dipotsav** (Cultural Programme)
2	December	09/12/2021	Miss. Shreya Gavade	**International Business Management** (Guest Lecture)
3	December	10/12/2021	Dr. Swati Mone	**Women's Health and Awareness of Corona** (Alumini)
4	December	15/12/2021	College of Pharmacy (Poly), Sawarde	**Induction Programme** (Cultural Programme)
5	January	03/01/2022	Hon. Kedar Suvarnapathki	**Regulatory Affairs (**Guest Lecture)
6	February	18/02/2022	Dr. Rashmi Patil	**First Aid and How to Prevent Covid-19** (Personality Development)
7	February	19/02/2022	College of Pharmacy (Poly), Sawarde	**SPANDAN- Mismatch Day/Twins day** (Cultural Programme)
8	February	20/02/2022	College of Pharmacy (Poly), Sawarde	**SPANDAN- Bollywood Day/Black and White Day** (Cultural Programme)
9	February	21/02/2022	College of Pharmacy (Poly), Sawarde	**SPANDAN- Saree Day/Tie Day/Chocolate Day/Rose Day/Fish pond** (Cultural Programme)
10	February	22/02/2022	Mr. Ashok Tambe	**Formulation of Ayurvedic Dosage Forms** (Guest Lecture)
11	March	01/03/2022	College of Pharmacy (Poly), Sawarde	**Varshik Satyanarayan Mahapooja** (Cultural Programme)
12	March	12/03/2022	Mr. Prashant Patwardhan	**Importance of Quality Control and Quality Assurance in Pharmacy** (Guest Lecture)
13	March	14/03/2022	College of Pharmacy (Poly), Sawarde	**Shriram Aushadhi Bhandar, Chiplun** (Field Visit)
14	March	14/03/2022	Mr. Akshay Shinde	**Opportunity in Pharmacy Carrier** (Alumini/Personality Development)
15	March	16/03/2022	Mr. S. A. Patil	**How to do Research?** (Guest Lecture)
16	April	09/04/2022	College of Pharmacy (Poly), Sawarde	**Konkan Pathology Laboratory Sawarde, Chiplun** (Lab Visit)
17	April	23/04/2022	College of Pharmacy (Poly), Sawarde	**Chirayu Hospital, Sawarde** (Hospital Visit)
18	May	20/05/2022	College of Pharmacy (Poly), Sawarde	**Rajasee Medical, Sawarde** (Medical Visit)

CAYm1: 2022-2023 (Academic Calendar)

Sr. No	Activities	S.Y.D. Pharm	F.Y.D.Pharm
1	First Parents Meeting	17/08/2022	19/12/2022
2	First Term	01/08/2022 to 24/12/2022	19/12/2022 to 06/05/2023
3	Ganpati Vacation	31/08/2022 to 07/09/2022	
4	World Pharmacist Day	25/09/2022	
5	Diwali Vacation	23/10/2022 to 29/10/2022	
6	First Sessional Exam	07/11/2022 to 12/11/2022 06/02/2023 to 10/02/2023	
7	Second Term	26/12/2022 to 06/05/2022	
8	National Pharmacy Week	19/12/2022 to 24/12/2022	
9	Jayanti Utsav	16/01/2023 to 18/01/2023	
10	Industrial Tour	4th Week of Jan 2023/3rd Week of Feb 2023	
11	Second Sessional Exam	20/02/2023 to 26/02/2023 03/04/2023 to 07/04/2023	
12	Zonal Sports	1st Week of March 2023	
13	Second Parents Meeting	01/03/2023 11/04/2023	
14	Third Sessional Exam	24/04/2023 to 29/04/2023 24/04/2023 to 28/04/2023	
15	Third Parent Meeting	03/05/2023	
16	Annual Practical Exam	07/05/2023 to 14/05/2023	
17	Annual Theory Exam	17/05/2023 to 06/06/2023	
18	Result Declaration	4th Week of June 2023	
Start of Next Academic Session (2023-2024) 24/07/2023			

CAYm1: 2022-2023 (Event Calendar)

Sr. No	Month	Date	Speaker of Event/Event Organiser	Activity/Event
1	August	15/08/2022	College of Pharmacy (Poly), Sawarde	**Independence Day** (Cultural Programme)
2	August	19/08/2022	College of Pharmacy (Poly), Sawarde	**Dahihandi** (Cultural Programme)
3	September	25/09/2022	College of Pharmacy (Poly), Sawarde	**Pharmacist Day** (Model Making Competition, Logo Creation, Poster Competition)
4	September	26/09/2022	College of Pharmacy (Poly), Sawarde	**Navratra Utsav** (Cultural Programme)
5	September	28/08/2022	Dr. Satyajeet Ekande	**Scope of Ayurveda** (Guest Lecture)
6	October	15/10/2022	Mr. Ashok Tambe	**Formulation of Ayurvedic Dosage Forms** (Guest Lecture)
7	November	05/11/2022	Dr. Rashmi Patil	**First Aid and Awareness of Non- Communicable Disease** (Personality Development & Alumini)
8	November	13/11/2022	College of Pharmacy (Poly), Sawarde	**Chirayu Hospital, Sawarde** (Hospital Visit)
9	December	10/12/2022	College of Pharmacy (Poly), Sawarde	**Darshan Medical, Sawarde** (Medical Visit)
10	December	10/12/2022	Mr. Mansoor Dalwai	**Hospital Pharmacy** (Alumini & Personality Development)
11	December	14/12/2022	Ms. Pratima R. Shelar	**Systematic Investment Planning** (Personality Development)
12	December	16/12/2022 to 18/12/2022	Sahyadri Shikshan Sanstha	**Sahyadri Krida Sangram** (Sanstha Sports)

13	**December**	**17/12/2022**	**College of Pharmacy (Poly), Sawarde**	**Omkar Medical, Sawarde** (Medical Visit)
14	**December**	**17/12/2022**	**College of Pharmacy (Poly), Sawarde**	**Rajasee Medical, Sawarde** (Medical Visit)
15	**December**	**21/12/2022**	**Dr. Krushnakant Patil**	**Information about Various Communicable Disease** (Personality Development)
16	**December**	**30/12/2022**	**College Of Pharmacy (Poly), Sawarde**	**Induction Programme** (Cultural Programme)
17	**January**	**07/01/2023**	**College of Pharmacy (Poly), Sawarde**	**Konkan Pathology Laboratory, Sawarde** (Lab Visit)
18	**January**	**16/01/2023 to 17/01/2023**	**Sahyadri Shikshan Sanstha**	**Jayanti Mahotsav** (Cultural Programme)
19	**January**	**18/01/2023**	**Mr. Anil A. Khade**	**Intellectual Property Rights** (Guest Lecture)
20	**January**	**26/01/2023**	**College of Pharmacy (Poly), Sawarde**	**Republic Day** (Cultural Programme)
21	**January**	**27/01/2023**	**Dr. Milind Futane**	**Scope of Ayurvedic Formulation in Pharmaceutical Industry** (Guest Lecture)
22	**January**	**27/01/2023**	**College of Pharmacy (Poly), Sawarde**	**Shriram Aushadhi Bhandar, Pimpli, Chiplun** (Field Visit & Industrial Visit)
23	**January**	**31/01/2023**	**College of Pharmacy (Poly), Sawarde**	**Workshop on Food Adulteration & Workshop on Addiction** (NSS Activity)
24	**February**	**01/02/2023 to 07/01/2023**	**College of Pharmacy (Poly), Sawarde along with Raahi Tours**	**Industry Visit- Delhi, Manali & Kasol**
25	**February**	**03/02/2023**	**College of Pharmacy (Poly), Sawarde**	**Konkan Ayur Pharma Pvt. Ltd., Dhamni, Sangmeshwar** (Industry Visit & Field Visit)

26	**February**	**12/02/2023**	**College of Pharmacy (Poly), Sawarde**	**A-29 & B-29, S. G. Phytopharma, Kolhapur** (Industry Visit & Field Visit)
27	**February**	**19/02/2023**	**College of Pharmacy (Poly), Sawarde**	**Shivjayanti** (Cultural Programme)
28	**February**	**21/02/2023**	**College of Pharmacy (Poly), Sawarde**	**Vashishti Milk and Milk Product, Pimpli, Chiplun** (Industry Visit & Field Visit)
29	**March**	**01/03/2023 to 02/03/2023**	**College of Pharmacy (Poly), Sawarde**	**Varshik Satyanarayan Mahapooja & Spandan 2k23** (Cultural Programme)
30	**March**	**02/03/2023**	**Mr. Prashant Patwardhan**	**Importance of Quality Control and Quality Assurance in Pharmacy** (Guest Lecture)
31	**March**	**06/03/2023**	**College of Pharmacy (Poly), Sawarde**	**Social Awareness Programme on Various Communicable Diseases, New English School, Mandki** (NSS Activity)
32	**March**	**17/03/2023**	**Mr. Prashant B. Gurav**	**Defining and Mapping of Course Outcomes and Program Outcomes (CO-PO)** (Personality Development)
33	**March**	**17/03/2023**	**Mr. Nikul N. Patel**	**Career Opportunity in Pharma** (Personality Development)
34	**March**	**21/03/2023**	**Mrs. Akansha Mayekar**	**Care to be taken during Menstrual Hygiene** (Personality Development)
35	**March**	**28/03/2023**	**College of Pharmacy (Poly), Sawarde**	**Medicinal Garden Visit, Dahivali, Kharvate** (Field Visit)
36	**April**	**01/04/2023**	**College of Pharmacy (Poly), Sawarde**	**PHC, Sawarde** (Field Visit)
37	**April**	**12/04/2023**	**College of Pharmacy (Poly), Sawarde**	**Winery Plant Visit, Dahivali-Kharvte** (Field Visit)

CAY: 2023-2024 (Academic Calendar)

Sr.No	Activities	S.Y.D.Pharm	F.Y.D.Pharm
1	First Parent Meeting	26/10/2023	10/11/2023
2	First Term	17/07/2023 to 10/11/2023	04/09/2023 to 10/11/2023
3	First Sessional Exam	09/10/2023 to 14/10/2023	30/10/2023 to 04/11/2023
4	Second Term	16/11/2023 to 09/04/2024	
5	Second Sessional Exam	15/01/2024 to 20/01/2024	
6	Second Parents Meeting	29/01/2024	
7	Third Sessional Exam	25/03/2024 to 30/03/2024	
8	Third Parent Meeting	02/04/2024	
9	Annual Practical Exam	10/04/2024 to 19/04/2024	
10	Annual Theory Exam	23/04/2024 to 16/05/2024	
11	Result Declaration	3rd Week of June 2024	
Other Activities			
12	Ganpati Vacation	18/09/2023 to 23/09/2023	
13	World Pharmacist's Day	25/09/2023	
14	Diwali Vacation	13/11/2023 to 18/11/2023	
15	National Pharmacy Week	18/12/2023 to 23/12/2023	
16	Jayanti Utsav	16/01/2024 to 17/01/2024	
17	Industrial Tour	3rd Week of Jan 2024	
18	Zonal Sports	1st Week of March 2024	
Start of Next Academic Session (2024-25) 1/07/2024			

CAY: 2023-2024 (Event Calendar)

Sr. No	Month	Date	Speaker of Event/Event Organiser	Activity/Event
1	July	24/07/2023 to 25/07/2023	Mrs. Madhavi Jadhav	**Rajmata Jijau Yuvati Self Defense Training Programme** (Personality Development)
2	July	27/03/2023	Mr. Ashok Nandikurle	**Hasri Maifil** (Personality Development)
3	July	28/07/2023	College of Pharmacy (Poly), Sawarde	**Gurupournima** (Cultural Programme)
4	August	15/08/2023	College of Pharmacy (Poly), Sawarde	**Independence Day** (Cultural Programme)
5	August	17/08/2023	Mr. Pradip Ghadi Mr. Aniket Ghadi	**Earn and Learn** (Alumini, Entrepreneurship, Personality Development)
6	August	30/08/2023	College of Pharmacy (Poly), Sawarde	**Rakshabandhan** (Cultural Programme)
7	September	05/09/2023	College of Pharmacy (Poly), Sawarde	**Teacher's Day** (Cultural Programme)
8	September	07/09/2023	College of Pharmacy (Poly), Sawarde	**Dahihandi** (Cultural Programme)
9	September	09/09/2023	College of Pharmacy (Poly), Sawarde	**Induction Programme** (Cultural Programme)
10	September	25/09/2023	College of Pharmacy (Poly), Sawarde	**Pharmacist Day Celebration** (Cultural Programme) **Drawing Competition** (Any Other activities)
11	September	25/09/2023	Mr. Sameer Vaje	**Interactive Session on Career Guidance of Role of a Pharmacist and Evolution of Pharmacy Sector** (Alumini)
12	October	14/10/2023	Mr. Devvrat Tambe	**Formulation of Ayurvedic Dosage Form** (Alumini & Guest Lecture)
13	October	16/10/2023	College of Pharmacy (Poly), Sawarde	**Parshuram Hospital, Lote** (Hospital Visit & Field Visit)

14	**October**	**17/10/2023**	**College of Pharmacy (Poly), Sawarde**	**Rajasee Medical, Sawarde & Omkar Medical, Sawarde** (Medical Visit)
15	**October**	**18/10/2023**	**College of Pharmacy (Poly), Sawarde**	**Darshan Medical, Sawarde** (Medical Visit)
16	**October**	**25/10/2023**	**Medicinal Department, PHC Sawarde**	**Personal Hygiene/Family Planning Device, Various Government Health Policy**
17	**October**	**28/10/2023**	**Mr. Santosh Ayare**	**Biz-Talk (TWJ)** (Guest Lecture, Earn & Learn, Entrepreneurship skills)
18	**November**	**16/11/2023 to 18/11/2023**	**Mrs. Kashmira Shinde**	**Stress Management** (Personality Development and to Develop Entrepreneurship Skills)
19	**November**	**26/11/2023**	**Mrs. Kashmira Shinde**	**Stress Management for Teaching & Non-Teaching Faculty** (Personality Development)
20	**November**	**29/11/2023**	**College of Pharmacy (Poly), Sawarde**	**Water Purification Plant, Dahivali-Kharvte** (Field Visit)
21	**November**	**29/11/2023**	**College of Pharmacy (Poly), Sawarde**	**Winery Plant, Dahivali-Kharvte** (Field Visit)
22	**December**	**04/12/2023**	**Mr. Sanjay Oswal**	**Goal Setting/Career Post Pharmacy and Pharma Sales and Marketing** (Guest Lecture & Alumini)
23	**December**	**09/12/2023**	**College of Pharmacy (Poly), Sawarde**	**Shriram Aushadhi Bhandar, Chiplun** (Industry Visit & Field Visit)
24	**December**	**10/12/2023**	**Dr. Swati Mone**	**Women's Health and Awareness of Corona** (Guest Lecture & Alumini)
25	**December**	**15/12/2023**	**Medicinal Department**	**CPR Techniques & First Aid Treatment** (Guest Lecture)
26	**December**	**18/12/2023**	**Medicinal Department**	**Demonstration of Surgical Instrument & Determination of Blood Pressure**

27	**January**	**09/01/2024**	**College of Pharmacy (Poly), Sawarde**	**S. G. Phytopharma, Gokul MIDC & R. K. Hospital, Kolhapur** (Industry Visit, Field Visit & Hospital Visit)
28	**January**	**20/01/2024**	**College of Pharmacy (Poly), Sawarde**	**Fertilization Plant, Dahivali-Kharvte** (Field Visit)
29	**January**	**26/01/2024**	**College of Pharmacy (Poly), Sawarde**	**Republic Day**
30	**January**	**27/01/2024**	**College of Pharmacy (Poly), Sawarde**	**Vashishti Milk & Milk Products, Pimpli, Chiplun** (Field Visit)
31	**February**	**06/02/2024**	**Election Department of District**	**Demonstration of Voting Machine** (Any other activities)
32	**February**	**20/02/2024 to 26/02/2024**	**College of Pharmacy (Poly), Sawarde**	**Industry Visit- Delhi, Agra, Jaipur**
33	**February**	**22/02/2024**	**Maharashtra State Board of Technical Education**	**Meri Matti Mera Desh** (Tree Plantation Programme)
34	**March**	**01/03/2024**	**College of Pharmacy (Poly), Sawarde**	**Varshik Mahapooja** (Cultural Programme)
35	**March**	**01/03/2024**	**College of Pharmacy (Poly), Sawarde**	**Health Awareness Programme** (CEP Programme)
36	**March**	**02/03/2024**	**College of Pharmacy (Poly), Sawarde**	**Konkan Pathology Laboratory, Sawarde** (Lab Visit)
37	**March**	**02/03/2024**	**Mrs. Kashmira Shinde**	**Stress Management** (Personality Development)
38	**March**	**04/03/2024**	**College of Pharmacy (Poly), Sawarde**	**PHC Sawarde** (Field Visit)
39	**March**	**05/03/2024**	**College of Pharmacy (Poly), Sawarde**	**Social Awareness Programme for Nutrition and Health** (CEP)
40	**March**	**08/03/2024**	**Dr. Jyoti Amol Jadhav**	**Guest Lecture on Women's Health on the Occasion of International Women's Day** (Personality Development)

2.3. INITIATIVES IN TEACHING AND LEARNING PROCESS (15)

(*Implementation of teaching learning process and Initiatives in improving instruction methods, the quality of laboratory experiences with regard to conduct, record observations, analysis and continuous evaluation, encouraging bright students, assisting weak students etc. The initiatives, implementation details and impact analysis need to be documented).*

In **COPS**, the teaching and learning process begins with an Induction program for the newly admitted students. The main of the induction program is to orient the students towards professional education and the students are made aware of **Institute Vision, Mission and Program Educational Objectives (PEOs)** and **POs** during the induction itself. The students are also made aware of various courses to be taught during the program levels and are acquainted with the Exam Regulation and evaluation parameters set by MSBTE.

COPS firmly believes in blended techniques of teaching comprising of use of modern ICT tools along with traditional chalk and board system.

Course Incharge for standard teaching follows **CIAAN Norms** under which they maintain Session Plan, Plan for Lecture Execution and Continuous Assessment statements along with attendance record in their course files.

Apart from Classical Class Room lecture delivery system of teaching, Innovative Methods of teaching are also adopted by the faculty members of the department for effective teaching and learning.

- **Concept Based Teaching with the use of ICT Tools:-**

  With the help of Power Point Presentation the contents from the syllabus are explained to the students and the whole topic is analysed with rapid questioning and questions for assignments based on the topics are allotted to the students.

- **Flipped Class Room:-**

  The learning material of course content is provided to the students in the form of URL or Video Clips and students are asked to prepare questionnaires to clear their doubts for better understanding of the syllabus contents.

- **Learning by Doing:-**

  - ✓ The practicals for Lab Work based on contents of syllabus are designed considering the facts that the students can better understand the concepts by actual performance of procedures to facilitate their learning. All labs are well equipped with sophisticated instruments with Standard Operating Procedures (SOP). Aseptic Room, Medicinal Plant Garden, Instrument Room and Computer Lab have been developed by the Institute. Focus is given on developing the abilities and skills of students for lifelong learning.

- ✓ Various activities like Poster Competitions, Paper Presentation Competitions, Model Making Competitions and Technical Quiz were students represents the Institute which helps to motivate the students to prepare topics from syllabus for their better learning.
- ✓ Industrial Training of three months under Registered Pharmacist is made compulsory for students.
- ✓ Time to time visits to Industries and Hospitals are organized so that the students can have the First-hand experience of Industrial working.

➢ **Problem Based Teaching:-**

To develop the thinking ability and logic building capacity of the students problem based experiment are designed for students and time to time assignments and project reports were asked from the students.

➢ **Use of Audio Visual Teaching Aids:-**

- ✓ Well-equipped and furnished ICT Class rooms are developed by the department.
- ✓ Topics are explained to the students with e-learning in the form of clips from Internet or YouTube to make them understand more clearly about the concepts and mechanisms for learning. The institute provides computer facilities with internet and Wi-Fi facility which provides open access to the students which can help them for self-learning.
- ✓ Learning charts and models are prepared and displayed by the faculty of department in the institutional premises for better understanding of concepts.
- ✓ Theme based Museums are displayed in the premises for the ease of learning to the students.

➢ **Delivery of the Content Beyond Syllabus:-**

- ✓ Various initiatives are taken by the department to deliver the content beyond the syllabus by using Visual Charts, Videos and E-learning through the Digital Library etc.
- ✓ The guest lecture of resource persons from Industry, Hospitals and Academia are regularly organized during the sessions with prior planning in Event Calendar.

➢ **Use of Modern Tools and Software:-**

- ✓ The various types of websites and simulator softwares are used to deliver the content which is included in the Syllabus. The students are motivated to use the software for simulation related to Community Pharmacy, Hospital Pharmacy and Patient Counselling along with the softwares and website to design the atomic structure of a molecule.
- ✓ Argus Lab Software
- ✓ Pharmacy Simulator Software
- ✓ https://molview.org/
- ✓ https://www.chemspider.com/
- ✓ The above softwares are used for teaching and development of the students.

To motivate the self-learning in the students, syllabus content based assignments are given to the students and tutorials are conducted. The impact of each and every method is analysed by the faculty of the department.

The records of lab work are evaluated by Course Incharge with continuous assessment. The internal assessment of students is also carried out on the basis of continuous evaluation through the Progressive Theory Test and Progressive Skill Test. For maintaining transparency in evaluation process, the assessed answer sheets are shown to the students with the suggestive measure for improvement.

The students scoring less than 60 % marks are identified as weak students and the remedial classes are planned and conducted to enhance the learning ability of weak students and the impact analysis of the same is conducted and documented for future references. Weak students are continuously mentored by the mentor faculty during their mentoring sessions for their academic progress and difficulty.

Similarly, the students scoring more than 75% marks are identified as bright students and the bright students are encouraged by the following measures:-

- ✓ Institute provide opportunities to participate the brighter students for representing the college in various competitions like Paper Presentation, Poster Presentation and Model Making Competition in various State and National Level Competitions.
- ✓ Students are felicitated with the cash prizes.

The students having top position in the course in MSBTE Annual Exam by scoring more than 80 % marks awarded by teachers sponsored cash prizes in the Induction Programme. The quality of syllabus delivery is also analysed from the feedbacks of stake holders (students and their parents). The institute follows feedback mechanisms from the students and the ratings are given on various parameters in the scale of five in a fixed feedback format framed by the Institute (**Annexure: IV Format for Faculty Feedback by Students)**. The reports of the feedbacks are analysed by the HOD and reports are submitted to the Principal for the necessary action.

Course Outcome and Program Outcome attainments are calculated after completion of the session for which the question papers for internal and external theory exam and Progressive Skill Test are mapped with COs and POs. The attainment of Cos are calculated with the help of direct and indirect methods for attaining the POs.

2.4. INITIATIVES RELATED TO HOSPITAL AND OTHER RELATED INTERACTIONS (10)

(Give details of the industry/hospital involvement in the program such as industry supported laboratories, partial delivery of appropriate courses by industry experts and / or collaborative initiatives with the hospitals etc. Mention the initiatives implementation details and impact analysis)

COPS always strives to impart education of global standards. In addition to the regular compliance to the prescribed syllabus of E.R. 2020 under Section 10 of Pharmacy Act 1948, several initiatives have been taken to foster the growth of the students.

Apart from in-house course delivery, the eminent personalities from Industry and Academia are invited for partial delivery of contents of the syllabus and content beyond syllabus.

As a part of collaborative gestures benefiting the society in large the Memorandum of Understanding with Industries, Hospitals and Academic Institutes are signed by the department. The details of collaborative activities are given in the following tables:-

Details of Industrial Linkage and its significance:- (Table 2.4.1)

Table 2.4.1

Sr.No	Name of Industry	Date of MOU	Significance of MOU
1	Shriram Aushadhi Bhandar, Chiplun	18/02/2013	Industry & Institute Interaction
2	Life Care Hospital, Chiplun, Ratnagiri	17/08/2013	Industry & Institute Interaction
3	Chirayu Hospital, Sawarde, Chiplun	30/01/2015	Industry & Institute Interaction
4	S. G. Phytopharma, Gokul MIDC, Kolhapur	01/08/2016	Industry & Institute Interaction
5	Konkan Ayur Pharma Pvt. Ltd, Dhamani, Sangmeshwar, Ratnagiri	13/02/2019	Industry & Institute Interaction
6	Maharashtra Centre For Entrepreneurship Development (MCED), Kolhapur Region	30/11/2019	Entrepreneurship Development
7	MES Ayurved Mahavidyalaya, Lote	25/07/2023	Institute-Institute Interaction
8	Trade With Jazz (TWJ) Associates, Shringartali, Guhagar	20/06/2024	Entrepreneurship Development

Details of Activities conducted under Industry Institute Interactions during last three years: (Table 2.4.2)

Table 2.4.2

Academic Session	Sr. No	Name of Activity Conducted	Date of Conduction	Impact Analysis
2021-2022	1	Guest Lecture by Ms. Shreya Gavade on International Business Management	09/12/2021	Students gain add on knowledge on the Business Techniques
	2	Guest Lecture by Dr. Swati Mone on Women's Health and Awareness of Corona	10/12/2021	Students gained the first-hand knowledge for prevention of COVID-19
	3	Guest Lecture by Hon. Kedar Suvarnapathki on Regulatory Affairs	03/01/2022	Additional knowledge beyond syllabus was gained by students
	4	Workshop by Dr. Rashmi Patil on First Aid Techniques and How to prevent COVID-19	18/02/2022	Students gained the basic knowledge of the various First Aid Techniques
	5	Guest Lecture by Mr. Ashok Tambe on Formulation of Ayurvedic Dosage Forms	22/02/2022	Addition knowledge of the content beyond syllabus was gained by the students
	6	Industrial Visit to Shriram Aushadhi Bhandar	14/03/2022	Students gained the first-hand knowledge of actual working
	7	Hospital Visit to Chirayu Hospital, Sawarde	23/04/2022	Students gained the first-hand knowledge of actual working
2022-2023	1	02 Days Online FDP on Effective Execution of Second Year D. Pharmacy Course as per ER 2020	11/08/2022 to 12/08/2022	Knowledge was gained by teachers on contents of syllabus as per ER 2020
	2	Guest Lecture by Dr. Satyajeet Ekande on Scope of Ayurveda	28/09/2022	Students gained the core knowledge of the traditional system of medicine
	3	Guest Lecture by Dr. Rashmi Patil on Communicable and Non-Communicable Disease	05/11/2022	Syllabus content was gained by students in depth delivered by the Expert
	4	Medical Visit to Darshan Medical, Sawarde	10/12/2022	Students gained the first-hand knowledge of actual working
	5	Guest Lecture by Ms. Pratima R. Shelar on Systematic Investment Planning	14/12/2022	Students gained the knowledge about the life time investment in various sectors
	6	Laboratory Visit to Konkan Pathology Laboratory, Sawarde, Chiplun	07/01/2023	Students gain the core knowledge of various haematological test performed

	7	Guest Lecture by Mr. Anil A. Khade on Intellectual Property Rights	18/01/2023	Students gain the knowledge of contents beyond syllabus
	8	Industrial Visit to S.G. Phytopharma, Kolhapur	01/02/2023	Students gain the knowledge of actual working
2023-2024	1	Guest Lecture by Mr. Pradip Ghadi & Mr Aniket Ghadi on Earn & Learn	17/08/2023	Students got to learn about the Entrepreneurship Skills
	2	Interactive Session by Mr. Sameer Vaje and colleagues on Career Guidance of Role of Pharmacist and Evolution of Pharmacy Sector	25/09/2023	Students got to learn about the various opportunities in Pharmacy Profession
	3	Hospital Visit to Parshuram Hospital, Lote	16/10/2023	Students got the first-hand knowledge of actual work
	4	Interactive Session on BIZ-TALK by Mr. Santosh Ayare from TWJ Associates	28/10/2023	Students got to learn about the Entrepreneurship Skills
	5	Guest Lecture on Stress Management and Communication Skills by Mrs. Kashmira Shinde	16/11/2023 to 18/11/2023	Communication Skills of the students were developed.
			26/11/2023	Communications skills of Teachers were developed
	6	Interactive Session was organised on Goal Setting/Career Post Pharmacy and Pharma Sales and Marketing by Mr. Sanjay Oswal	04/12/2023	Students gained knowledge about the marketing skills and over all career after pharmacy
	7	Guest Lecture on CPR was organised by Medicinal Department of Parshuram Hospital	15/12/2023	Syllabus content was gained by the students in depth delivered by the Expert
	8	Industry Visit to S.G. Phytopharma, Gokul MIDC, Kolhapur	09/01/2024	Students gained the first-hand knowledge of actual working.
	9	Field Visit to Fertilization Plant, Dahivali-Kharvte	20/01/2024	Students gained the depth knowledge of syllabus contents

Along with all the Industry Institute Interaction sessions there is also a Three months practical training program for students after end of each academic session where students cleared the concepts of day to day working and knowledge related dispensing, patient counselling, inventory software was gained by the students.

The Institute organizes Educational Tour for Industry Visits, which includes visit to the research laboratories, medicinal and botanical garden, pharmaceutical manufacturing units along with the luxurious tours.

2.5. INITIATIVES RELATED TO SKILL DEVELOPMENT PROGRAMS/INDUSTRY INTERNSHIP/ TRAINING/HOSPITAL PHARMACY (10)

(Mention the initiatives, implementation details and impact analysis)

Every student has to undergo Five hundred hours training under registered pharmacist spread over the period of three months. College Training and Placement Cell facilitates arrangements for training of final year students and provides them the guidelines about the practical training of 3 months. The cell gives orientation to the students regarding the training and procedures to prepare training report of the same. The cell also facilitates to issue Official letters to the students which need to be submitted to the training institute.

On the completion of the training the students are asked to submit the practical training book. A short individual interactive session is held with training cell regarding their observation and experience during training. The evaluation of the training is done on the basis of interaction and report submitted by the students. Students are benefited from such training as they develop the skills required for running drug store as per the rules of Drug and Cosmetic Act 1940. They get confidence and practical knowledge from such trainings. They also get help in the placement for their future career development.

Institute has established an Entrepreneurship Development Cell. Under this cell, students are motivated for entrepreneurship. For this purpose, the cell organizes guest lectures from nearby successful entrepreneurs and renowned alumini on different topics including skill development and source of finance.

Apart from the above activities, department time to time organizes guest lectures and workshops as a part of skill development program for students and staff and the details of the skill development program conducted in last three years are given below:-

Skill Development Program conducted for Students: (Table 2.5.1)

Table 2.5.1

Academic Session	Sr. No	Name of the Event	Date of Conduction	No of Beneficiaries	Benefit
2021-2022	1	Guest Lecture on International Business Management	09/12/2021	120	Skill Development and value addition
	2	Guest Lecture by Alumini on Women's Health and Awareness of Corona	10/12/2021	120	Skill Development and value addition
	3	Guest Lecture on Regulatory Affairs	03/01/2022	115	Skill Development and knowledge of content beyond syllabus
	4	Guest Lecture on First Aid Techniques and How to Prevent Covid-19	18/02/2022	60	Skill Development and value addition

	5	Guest Lecture on Formulation of Ayurvedic Dosage Forms	22/02/2022	60	Skill Development and value addition
	6	Guest Lecture on Importance of Quality Control and Quality Assurance in Pharmacy	12/03/2022	60	Skill Development and value addition
	7	Visit to Shriram Aushadhi Bhandar	14/03/2022	50	Skill Development and value addition
	8	Guest Lecture by Alumini on Opportunity in Pharmacy career	14/03/2022	60	Skill Development and value addition
	9	Guest Lecture on How to do Research?	16/03/2022	60	Skill Development and value addition
	10	Visit to Konkan Pathology Laboratory	09/04/2022	62	Skill Development and value addition
	11	Visit to Chirayu Hospital	23/04/2022	62	Skill Development and value addition
	12	Visit to Rajasee Medical	20/05/2022	20	Skill Development and value addition
2022-2023	1	Guest Lecture on Scope of Ayurveda	28/09/2022	64	Skill Development and value addition
	2	Guest Lecture on Formulation on Ayurvedic Medicines	15/10/2022	64	Skill Development and value addition
	3	Guest Lecture by Alumini on First Aid techniques and Communicable and Non-Communicable diseases	05/11/2022	60	Skill Development and value addition
	4	Visit to Chirayu Hospital	13/11/2022	60	Skill Development and value addition
	5	Visit to Darshan Medical	10/12/2022	20	Skill Development and value addition
	6	Guest Lecture on Hospital Pharmacy	10/12/2022	60	Skill Development and value addition
	7	Guest Lecture on Systematic Investment Planning	14/12/2022	60	Skill Development and value addition
	8	Guest Lecture on Information about various Communicable Disease	21/12/2022	67	Skill Development and value addition
	9	Dam Building Activity in association with Govindrao Nikam College of Pharmacy	22/12/2022	20	Skill Development and value addition
	10	Visit to Konkan Pathology Laboratory	07/01/2023	60	Skill Development and value addition
	11	Guest Lecture on Intellectual Property Rights	18/01/2023	55	Skill Development and value addition
	12	Guest Lecture on Scope of Ayurvedic Formulation in Pharmaceutical Industry	27/01/2023	62	Skill Development and value addition

	13	Visit to Shriram Aushadhi Bhandar	27/01/2023	67	Skill Development and value addition
	14	Workshop on Food Adulteration and Workshop on types of Addiction	31/01/2023	10	Skill Development and value addition
	15	Visit to Konkan Ayur Pharma Pvt. Ltd.	03/02/2023	67	Skill Development and value addition
	16	Visit to S. G. Phytopharma	12/02/2023	67	Skill Development and value addition
	17	Guest Lecture on Importance of Quality Control and Quality Assurance in Pharmacy	02/03/2023	61	Skill Development and value addition
	18	Guest Lecture on Career Opportunity in Pharma	17/03/2023	62	Skill Development and value addition
	19	Guest Lecture on Care to be taken during Menstrual Hygiene	21/03/2023	50	Skill Development and value addition
	20	Visit to Medicinal Garden	28/03/2023	59	Skill Development and value addition
2023-2024	1	Workshop on Rajmata Jijau Yuvati Self Defense Training Programme	24/07/2023 to 25/07/2023	30	Skill Development and value addition
	2	Interactive Session on Hasri Maifil	27/07/2023	60	Skill Development and value addition
	3	Guest Lecture by Alumini on Earn & Learn	17/08/2023	62	Skill Development and value addition
	4	Interactive Session by Alumini on Career Guidance of Role of a Pharmacist and Evolution of Pharmacy Sector	25/09/2023	115	Skill Development and value addition
	5	Guest Lecture by Alumini on Formulation of Ayurvedic Dosage Form	14/10/2023	65	Skill Development and value addition
	6	Visit to Parshuram Hospital	16/10/2023	65	Skill Development and value addition
	7	Visit to Darshan Medical	18/10/2023	60	Skill Development and value addition
	8	Guest Lecture by Medicinal Department on Personal Hygiene/Family Planning Device, Government Health Policy	25/10/2023	60	Skill Development and value addition
	9	Guest Lecture on BIZ-TALK	28/10/2023	120	Entrepreneurship Skill Development

	10	Guest Lecture on Stress Management	16/11/2023 to 18/11/2023	120	Skill Development and value addition
	11	Visit to Water Purification Plant & Winery Plant	29/11/2023	60	Skill Development and value addition
	12	Guest Lecture on Goal Setting/Career post Pharmacy and Pharma Sales and Marketing	04/12/2023	120	Skill Development and value addition
	13	Guest Lecture on Women's Health and Awareness of Corona	10/12/2023	40	Skill Development and value addition
	14	Guest Lecture on CPR Techniques	15/12/2023	60	Skill Development and value addition
	15	Workshop on Demonstration of Surgical Instrument & Determination of Blood pressure using various methods	18/12/2023	66	Skill Development and value addition
	16	Visit to R. K. Hospital and S. G. Phytopharma	09/01/2023	66	Skill Development and value addition
	17	Visit to Vashishti Milk and Milk Products	27/01/2024	59	Skill Development and value addition
	18	Social Program on Meri Matti Mera Desh	22/02/2024	120	Skill Development and value addition
	19	Visit to Konkan Pathology Laboratory	02/03/2024	66	Skill Development and value addition

Apart from all the above skill development programme every year Institute along with the collaboration with other Institutes and Sahyadri Shikshan Sanstha organizes **Sports named as Sahyadri Krida Sangram & Jayanti Mahotsav** also Institute individually organizes many Cultural Programmes to nurture Team building, Leadership & Communication Skills among the students which helps them for their personality & entrepreneur development. The impact analysis of all the efforts taken is done by conducting feedback and external assessment of various activities and prizes are awarded to the best performed for motivating them.

Along with the students institute also take efforts for the skill development of Teaching & Non-Teaching Staff Members by motivating them for the participation in various Industrial Training Programs, Industrial Visits, Conferences, Symposiums & Qualification improvement programs by providing them partial financial support.

Skill Development Program in which Faculties participated: (Table 2.5.2)

Table 2.5.2

Academic Session	Sr. No	Name of the Event	Date of Conduction	No of Beneficiaries	Benefit
2021-2022	1	03 Days Workshop on NBA Accreditation & Quality Management	21/09/2021 to 23/09/2021	01	Skill Development
	2	01 Day Webinar on How to read Scientific Literature? & Introduction to Manav- The Human Atlas Initiative	22/09/2021	03	Skill Development
	3	01 Day International Webinar on Medication Safety: Pharmacy Perspective	25/09/2021	03	Skill Development
	4	01 Day National Webinar on Pharmacy: Always trusted for your Health	30/09/2021	04	Skill Development
	5	03 Days State Level FDP on Effectual execution of First Year Diploma in Pharmacy Course as per ER 2020	15/12/2021 to 17/12/2021	02	Skill Development
	6	01 Day Online Workshop on Critical thinking and Innovation through Mind Mapping	03/02/2022	02	Skill Development
	7	01 Week AICTE Sponsored Short-Term Training Program (STTP) on Educational Program for Pharmacy Teachers on Orientation of Recently Admitted Students	23/02/2022 to 28/02/2022	04	Skill Development
2022-2023	1	02 Days Online FDP on Orientation on S. Y. D. Pharmacy Syllabi as per ER 2020	11/08/2022 to 12/08/2022	04	Skill Development
	2	03 Days Online National Level FDP on Effectual Execution of Second Year Diploma in Pharmacy Courses as per ER 2020	15/09/2022 to 17/09/2022	03	Skill Development
	3	World Pharmacist Day Celebration by Maharashtra State Chemists & Druggist Association- Mumbai Zone	25/09/2022	01	Skill Development
	4	05 Days Online FDP on Novel Drug Delivery System	26/09/2022 to 30/09/2022	01	Skill Development

	5	01 Day International Conference on Pharmaceutical Research: Fundamentals & Advanced Trends	12/11/2022	01	Skill Development
	6	01 Day National Conference on Pharmacy: A Profession Contributing to Research, Innovation & Community	07/01/2023	01	Skill Development
	7	72nd Indian Pharmaceutical Congress, Nagpur	20/01/2023 to 22/01/2023	01	Skill Development
2023-2024	1	MSBTE approved 02 Days National Level E-FDP on Implementing ER 2020: Challenges and Opportunities	07/07/2023 to 08/08/2023	04	Skill Development
	2	01 Day MSBTE Sponsored State Level Technical Paper Presentation Competition	06/02/2024	02	Skill Development
	3	01 Day APTI Sponsored National E-Conference on Artificial Intelligence in Pharmaceutical Sector Current Scenario and Future Prospect	02/03/2024	01	Skill Development

Skill Development Program conducted for Non-Teaching Staff: (Table 2.5.3)

Table 2.5.3

Sr. No	Year	Date	Title
1	2022-2023	01/08/2022	Workshop on Fire Safety
2	2023-2024	20/07/2023	Work Shop on Fire Safety

CRITERION 3: Course Outcomes and Program Outcomes

CRITERION 3	COURSE OUTCOMES AND PROGRAM OUTCOMES	60

3.1. ESTABLISH THE CORRELATION BETWEEN THE COURSES AND THE PROGRAM OUTCOMES (20)

(NBA defined Program Outcomes as mentioned in Annexure I)

3.1.1. Course Outcomes (05)

SAR should include course outcomes of one course from each year of study, however, should be prepared for all courses.

Note:- Number of Outcomes for a Course is expected to be around 6

(As per I Scheme)

- **Course Outcome Nomenclature: 0812.a**
  - ✓ First Two Digits indicates, Education Regulations 1991.
  - ✓ Next digit indicates, Year of study **(0: DCP I, 1: DCP II)**
  - ✓ Next digit indicates, serial number of course (5 to 10 number indicates First Year Courses and 1 to 6 number indicates Second Year Courses of Study).
  - ✓ The last small alphabet indicates CO sequence in the respective course.
  - ✓ Here, "a" indicates first CO of the given course. Similarly b, c, d, e… indicates second, third, fourth, fifth respectively course outcome as defined by the course teacher.

Course Name: Pharmaceutical Chemistry II Year of Study: - 2021-2022

Table No 3.1.1.1: CO statements of one course from each year of study

Second Year- Course & Course Code: Pharmaceutical Chemistry II (0812)	
CO. No.	**Course Outcome (CO) statement**
812T.a	Illustrate the chemical class structure and chemical name of commonly used drugs and pharmaceutics of organic nature.
812T.b	Explain uses stability storage condition of all chemical substances used as drugs.
812T.c	Define and classification of drugs.
812T.d	Explain the dosage form and brand names of drugs and pharmaceuticals popular in the market place.

(As per J Scheme)

- **Course Outcome Nomenclature: ER 20-12T.a**
  - ✓ First Two Capital Letters Indicates program.
  - ✓ Here ER indicates Education Regulation.

- ✓ Next four digit indicates:- First Two digits as Education Regulation 20, Third digit as Year of Study, Fourth digit as a serial number of that course in the respective Year of Study and followed by capital letter as Theory or Practical Course.
- ✓ The last small alphabet indicates CO sequence in the respective course.
- ✓ Here "a" indicate first CO number of the given course. Similarly b, c, d, e… indicates second, third, fourth, fifth respectively course outcome as defined by the course teacher

Table No 3.1.1.2: Equivalence Table

Sr. No	Name of Course	Course Code As per MSBTE		Course Code As per PCI	
		Theory	Practical	Theory	Practical
1	Pharmaceutics	20111	20051	ER20-11T	ER20-11P
2	Pharmaceutical Chemistry	20112	20052	ER20-12T	ER20-12P
3	Pharmacognosy	20113	20053	ER20-13T	ER20-13P
4	Human Anatomy and Physiology	20114	20054	ER20-14T	ER20-14P
5	Social Pharmacy	20115	20055	ER20-15T	ER20-15P
6	Pharmacology	20221	20056	ER20-21T	ER20-21P
7	Community Pharmacy and Management	20222	20057	ER20-22T	ER20-22P
8	Biochemistry and Clinical Pathology	20223	20058	ER20-23T	ER20-23P
9	Pharmacotherapeutics	20224	20059	ER20-24T	ER20-24P
10	Hospital and Clinical Pharmacy	20225	20060	ER20-25T	ER20-25P
11	Pharmacy Law and Ethics	20226	NA	ER20-26T	NA

Course Wise Sample Course Outcomes- J Scheme Courses

Course Name: Pharmaceutical Chemistry Year of Study: 2021-2022

Table No 3.1.1.3: CO statements from First Year of study

First Year Course & Course Code: Pharmaceutical Chemistry (ER20-12T)	
CO. No.	**Course Outcome (CO) statement**
ER20-12T.a	Describe the chemical class, structure and chemical name of the commonly used drugs and pharmaceuticals of both organic and inorganic nature.
ER20-12T.b	Discuss the pharmacological uses, dosage regimen, stability issues and storage conditions of all such chemical substances commonly used as drugs.
ER20-12T.c	Describe the quantitative and qualitative analysis, impurity testing of the chemical substances given in the official monographs.
ER20-12T.d	Identify the dosage form & the brand names of the drugs and pharmaceuticals popular in the marketplace.

Course Name: Biochemistry and Clinical Pathology Year of Study: 2022-2023

Table No 3.1.1.4: CO statements from Second year of Study

Second Year Course & Course Code: Biochemistry & Clinical Pathology (ER20-23T)	
CO. No.	**Course Outcome (CO) statement**
ER20-23T.a	Describe the functions of biomolecules
ER20-23T.b	Discuss the various functions of enzymes in the human system
ER20-23T.c	Explain the metabolic pathways of biomolecules in both physiological and pathological conditions
ER20-23T.d	Describe the principles of organ function tests and their clinical significances
ER20-23T.e	Determine the biomolecules / metabolites in the given biological samples, both qualitatively and quantitatively
ER20-23T.f	Describe the clinical pathology of blood and urine

3.1.2. CO-PO matrices of courses selected in 3.1.1 (two matrices to be mentioned; one per year from 1st & 2nd Year) (05)

Mapping of Course Outcomes and Program Outcomes of Program Level 2 (D. Pharm second year for ER-91)

Table No 3.1.2.1

CO\PO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9
812T.a	3	3	1	3	2	3	2	3	3
812T.b	3	2	1	3	2	3	2	3	3
812T.c	2	2	1	3	-	1	-	2	3
812T.d	3	2	1	3	1	3	2	3	3
Average Mapping	3	2.25	1	3	1.25	2.5	1.5	2.75	3
Roundup	3	2	1	3	1	3	2	3	3
Mapping in %	100	75.00	33.33	100	41.66	83.33	50.00	91.66	100

CRITERION 3: Course Outcomes and Program Outcomes

Mapping of Course Outcomes and Program Outcomes of Program Level 1 (D. Pharm First Year for ER-20)

Table No 3.1.2.2

CO\PO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9
ER20-12T.a	3	2	-	-	3	3	2	2	3
ER20-12T.b	3	3	2	3	3	3	3	2	3
ER20-12T.c	3	3	1	2	3	2	2	2	3
ER20-12T.d	3	3	2	3	2	3	3	2	3
Average Mapping	3	2.75	1.6	2.6	2.75	2.75	2.5	2	3
Roundup	3	3	2	3	3	3	3	2	3
Mapping in %	100	91.66	53.33	86.66	91.66	91.66	83.33	66.66	100

Mapping of Course Outcomes and Program Outcomes of Program Level 2 (D. Pharm Second Year for ER-20)

Table No 3.1.2.3

CO\PO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9
ER20-23T.a	3	2	2	3	-	3	1	1	2
ER20-23T.b	2	2	2	2	-	2	1	1	2
ER20-23T.c	3	3	2	2	2	3	1	2	3
ER20-23T.d	3	2	2	2	2	2	2	2	3
ER20-23T.e	3	3	2	3	2	3	2	1	3
ER20-23T.f	2	2	2	2	2	3	3	1	2
Average Mapping	2.66	2.33	2	2.33	2	2.66	1.66	1.33	2.5
Roundup	3	2	2	2	1	3	2	1	3
Mapping in %	88.66	77.66	66.66	77.66	66.66	88.66	55.33	44.33	83.33

Note: *Correlation Levels 1, 2 or 3 as defined below:-*

1: Slight (Low) 2: Moderate (Medium) 3: Substantial (High)

If there is no correlation, put '-'

3.1.3. Course-PO matrix of courses for all two years of study (10)

Course-PO matrix of Program Level 2 (D. Pharm Second Year for ER-91)

Table No 3.1.3.1: Course-PO matrix in terms of level

Course	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9
811T	3	1	1	2	2	2	2	2	2
812T	3	2	1	3	2	3	2	3	3
813T	3	2	2	2	3	3	3	-	3
814T	3	2	2	3	3	2	2	1	3
815T	3	1	2	3	3	2	1	-	3
816T	3	3	2	3	3	3	3	3	3
Average	3	1.8	1.6	2.6	2.6	2.5	2.1	2.2	2.8
Round up	**3**	**2**	**2**	**3**	**3**	**2**	**2**	**2**	**3**

Table No 3.1.3.2: Course-PO matrix in terms of percentage

Course	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9
811T	100	43.33	33.33	70.00	53.33	76.66	50.00	70.00	50.00
812T	100	75.00	33.33	100	53.33	83.33	66.66	91.66	100
813T	100	86.66	50.00	75.00	83.33	75.00	100	-	100
814T	100	66.66	50.00	83.33	91.66	66.66	75.00	41.66	100
815T	100	41.66	66.66	83.33	100	58.33	41.66	-	100
816T	100	83.33	66.66	100	100	91.66	91.66	83.33	100
Average%	**100**	**66.10**	**49.99**	**85.27**	**80.27**	**75.27**	**70.83**	**71.66**	**91.66**

Course-PO matrix of Program Level 1 and 2 (D. Pharm First Year and Second Year for ER-20)

Table No 3.1.3.3: Course-PO matrix in terms of level

Course	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9
ER20-11T	3	3	1	2	2	2	2	2	3
ER20-12T	3	3	2	3	3	3	3	2	3
ER20-13T	3	2	2	3	3	2	2	2	3
ER20-14T	3	3	1	2	2	3	3	1	3
ER20-15T	3	2	2	3	2	3	3	1	2
ER20-11P	3	2	1	2	2	1	1	-	2
ER20-12P	3	2	1	2	2	1	1	2	2
ER20-13P	3	2	2	1	2	1	1	2	3
ER20-14P	3	2	1	3	2	1	3	1	3
ER20-15P	3	2	2	2	1	3	3	1	3
ER20-21T	3	2	2	2	3	2	3	-	3
ER20-22T	3	2	2	2	3	3	3	1	3
ER20-23T	3	2	2	2	1	3	2	1	3
ER20-24T	3	2	2	3	2	2	2	1	3
ER20-25T	3	2	3	3	2	3	3	1	3
ER20-26T	3	1	2	3	3	2	1	-	3
ER20-21P	3	3	2	2	2	3	2	2	3
ER20-22P	3	1	2	2	3	3	2	1	2
ER20-23P	3	2	2	2	1	3	3	2	3
ER20-24P	3	3	2	3	3	3	1	-	3
ER20-25P	3	2	2	3	1	3	3	1	3
Average	**3**	**2.14**	**2.14**	**2.38**	**2.14**	**2.38**	**2.24**	**1.14**	**2.81**
Round up	**3**	**2**	**2**	**2**	**2**	**2**	**2**	**1**	**3**

Table No 3.1.3.4: Course-PO matrix in terms of percentage

CRITERION 3: Course Outcomes and Program Outcomes

Course	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9
ER20-11T	100	86.66	43.33	76.66	76.66	53.33	76.66	76.66	100
ER20-12T	100	91.66	53.33	86.66	91.66	91.66	83.33	66.66	100
ER20-13T	100	58.33	50.00	83.33	86.66	75.00	66.66	66.66	100
ER20-14T	100	100	33.33	53.33	76.66	83.33	83.33	43.33	83.33
ER20-15T	100	66.66	58.33	83.33	75.00	100	100	33.33	66.66
ER20-11P	100	66.66	25.00	77.66	66.66	50.00	33.33	-	66.66
ER20-12P	93.33	60.00	46.66	66.66	60.00	46.66	33.33	53.33	66.66
ER20-13P	100	50.00	50.00	50.00	50.00	41.66	33.33	76.66	91.66
ER20-14P	100	66.66	33.33	100	58.33	41.66	91.66	33.33	91.66
ER20-15P	100	53.33	66.66	66.66	46.66	93.33	86.66	41.66	93.33
ER20-21T	100	86.66	50.00	58.33	91.66	75.00	100	-	100
ER20-22T	100	75.00	58.33	66.66	91.66	91.66	83.33	33.33	91.66
ER20-23T	86.66	77.66	66.66	77.66	66.66	88.66	55.33	44.33	83.33
ER20-24T	100	66.66	66.66	83.33	75.00	75.00	66.66	33.33	91.66
ER20-25T	100	66.66	83.33	91.66	50.00	91.66	91.66	33.33	100
ER20-26T	100	41.66	53.33	83.33	100	58.33	41.66	-	100
ER20-21P	100	100	50.00	75.00	75.00	58.33	41.66	41.66	91.66
ER20-22P	100	46.66	66.66	80.00	86.66	86.66	66.66	33.33	80.00
ER20-23P	100	66.66	66.66	66.66	33.33	83.33	100	50.00	100
ER20-24P	100	83.33	66.66	83.33	83.33	100	33.33	-	100
ER20-25P	100	66.66	80.00	86.66	46.66	93.33	93.33	46.66	100
Average %	**99.05**	**70.36**	**55.63**	**76.04**	**70.87**	**74.18**	**68.23**	**38.45**	**90.39**

Note:- *Correlation levels 1, 2 or 3, as defined below*

1: Slight (Low) 2: Moderate (Medium) 3: Substantial (High)

If there is no correlation, put '-'

3.2. ATTAINMENT OF COURSE OUTCOMES (20)

3.2.1. Describe the assessment process used to gather the data upon which the evaluation of Course Outcomes is based (10)

(Examples of data collection processes may include, but are not limited to, specific exam/tutorial questions, assignments, laboratory tests, student portfolios (A portfolio is a collection of artifacts that demonstrate skills, personal characteristics and accomplishments created by the student during study period), internally developed assessment exams, etc. It is expected that each theory subject taught should impart specific knowledge and make a foundation for a set of Basic Concepts related to it. Similarly the laboratory experiments should have some predetermined and predefined skills which can be developed during the study).

The Assessment tools and its weight for course outcome attainment are as mentioned below:

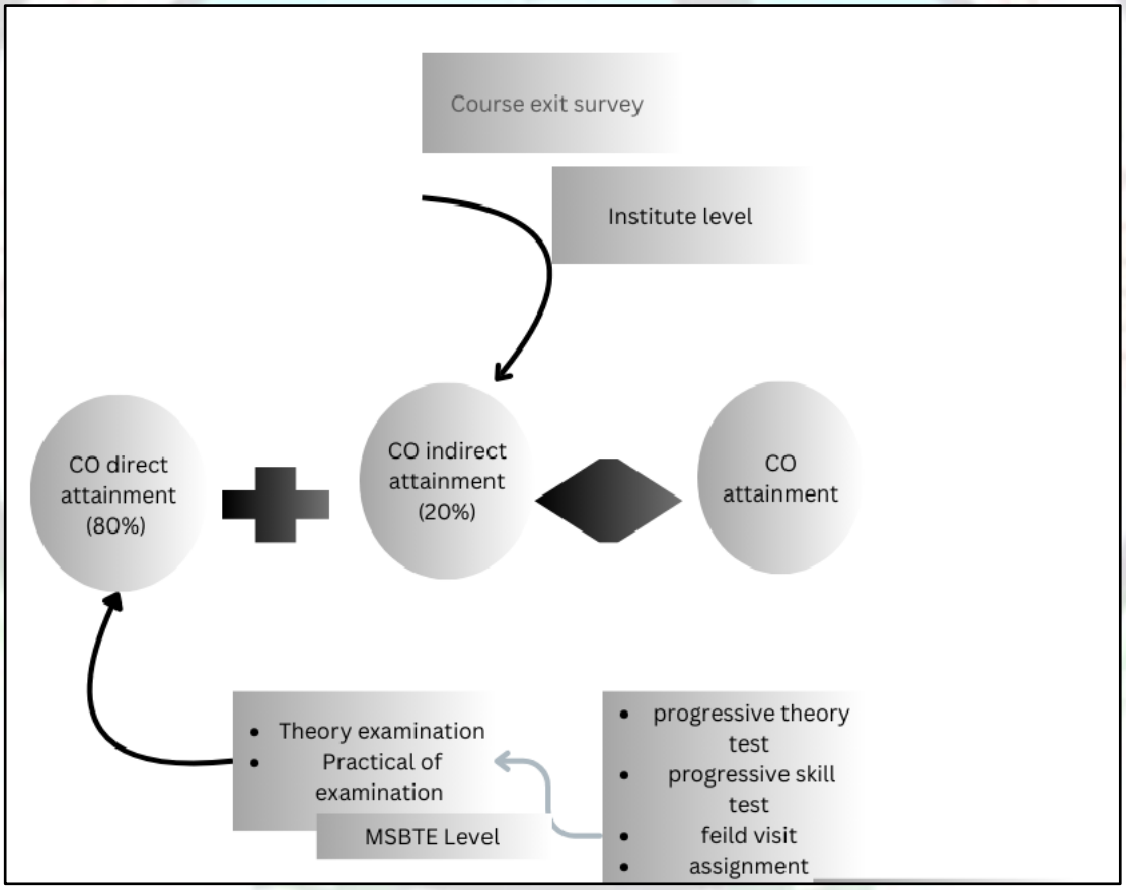


Fig No 3.2.1.1: CO direct attainment process and tools

For calculation of course outcome, 80% weightage is given to direct assessment of course outcome as per the actual performance of students, while 20% weightage is given to the indirect assessment of course outcome through a course exit survey.

CRITERION 3: Course Outcomes and Program Outcomes

Direct Attainment Tools-

Assessment process is divided into two parts

1. Internal Assessment

2. External Assessment

Internal Assessment: MSBTE declares the schedule of Sessional examinations (PST and PTT) before the beginning of the academic year. As per this schedule, we conduct Sessional examinations for assessment of course outcomes at the institute level. The course outcomes are assessed on performance of students in the internal exams.

I-scheme curriculum: Three sessional examinations are conducted based on syllabus of 20 marks for theory and internal assessment shall be marks and 20 marks for practical are considered as are calculated based on the best two averages for 20 marks secured by the students out of the total of 20 shall be reduced to 10 in each sessional, and then the internal assessment shall be calculated based on the best two averages for 10 marks from the sessional and other 10 marks shall be considered from assessment of laboratory manual. The short and long questions asked in the question papers of sessional exams (PTT & PST) are mapped with the COs and their attainment was calculated.

J-scheme curriculum: Three sessional examinations are for theory conducted based on syllabus of 40 marks and the marks secured by the students out of the total 40 shall be reduced to 20 in each sessional, and then the internal assessment shall be calculated based on the best two averages of 20 marks and for practical The marks secured by the students out to 10 in each sessional, and then the internal assessment shall be for of the total of 80 shall be reduced calculated based on the best n averages average for 10 marks from the sessional and other 10 marks shall be considered from assignments and or field visits. (For the courses not having both assignment and field visit, the whole 20 marks shall be calculated from the sessional marks,)

External Assessment: End session Examination (MSBTE Examination is Conducted by Maharashtra State Board of Technical Education (MSBTE) under MSBTE examination Act, at the end of the session based on entire syllabus fort 80 marks, Also, Practical examination for 80 marks comprises of synapsis, conduction experiments, data recording and reporting and viva voce at the end of the session, as per syllables. Evaluation of course outcome is done with tools specific below and the assessment process is followed as per affiliating board Maharashtra State Board of Technical Education (MSBTE) guidelines.

CRITERION 3: Course Outcomes and Program Outcomes

Following table gives the description of different tools used for evaluation of Course Outcomes: (Table No 3.2.1.1)

Table No 3.2.1.1

Assessment	Tools used for Data Collection	Skills/Personal Characteristics demonstrated by the students
1. External	i. Question paper of Session end Theory Examination conducted by MSBTE	➢ Performance in exam indicates depth of students, pharmacy knowledge applied to a particular course and used for betterment of society while working as pharmacist. ➢ Writing skills for communicating for content of course. ➢ Enhanced critical thinking required for professional identity and lifelong learning.
	ii. Question paper of Session end Practical examination conducted by MSBTE.	➢ Application of pharmacy knowledge and method for utilization of modern tools in the various experimental procedures. ➢ Application of Pharmaceutical ethics while performing the experiments considering the impact on society and environment. ➢ Leadership quality of the students and lifelong learning is also assessed during the conduction of viva and practicals
2. Internal	i. Progressive Theory Test (PTT) & Progressive Skill Test (PST). ii. Assignment and Field Visit Reports.	➢ The Students are evaluated on collective domain of their intellectual skills and motor skills.

40 % weightage is given for Internal Assessment and 60 % percent is given for External Assessment. Therefore the 80% is taken of sum of Internal Assessment and External Assessment for Direct Attainment and 20% of Indirect Attainment.

3.2.2. Record the attainment of Course Outcomes of all courses with respect to set attainment levels (10)

Program shall have set Course Outcome attainment levels for all courses.

(The attainment levels shall be set considering average performance levels in the University/Board examination or any higher value set as target for the assessment years. Attainment level is to be measured in terms of student performance in internal assessments with respect to the course outcomes of a course in addition to the performance in the University/Board Examination).

Measuring Course Outcomes attained through Board Examination (External Assessment):

In the departmental meeting the target for session 2021-2022 (For First Year) and Session 2022-2023 (For Second Year) was set and the level for achievement of target by External Assessment for both session is fixed as follows:-

The Syllabus is new so no previous average result data is available. Therefore, the target set is 50%

The target level by external assessment for the session 2021-2022 and 2022-2023 for Pharmaceutical Chemistry and Biochemistry and Clinical Pathology is as follows:-

Attainment Level 1: 50% of students scoring more than 50% marks out of the Final Examination is considered to be attainment of **"Level 1"**.

Attainment Level 2: 60% of students scoring more than 50% marks out of the Final Examination is considered to be attainment of **"Level 2".**

Attainment Level 3: 70% of students scoring more than 50 % marks out of the Final Examination is considered to be attainment of **"Level 3".**

The 60% of actual attainment by direct evaluation of external assessment is considered for evaluating the final attainment of Cos.

Measuring CO attainment through Internal Examination:

As per the MSBTE provision three sessional exams (PTT & PST) are conducted and then mean of best two is forwarded to MSBTE as theory mean and practical mean for 40% weightage. For setting the target levels for evaluation of attainment the average of class score is considered as follows:-

Attainment Level 1: 50 % of students scoring more than 50 % of average marks out of the maximum marks is considered to be attainment of **"Level 1".**

Attainment Level 2: 60 % of students scoring more than 50 % of average marks out of the maximum marks is considered to be attainment of **"Level 2".**

Attainment Level 3: 70 % of students scoring more than 50 % of average marks out of the maximum marks is considered to be attainment of **"Level 3".**

The 40% of actual attainment by direct evaluation of internal assessment is considered for evaluating the final attainment of Cos.

80% of Direct Attainment and 20% of Indirect Attainment is considered for evaluating the Final Attainment of Cos.

Examples related to attainment level vs target are as follows:-

CAYm2 (Session 2021-2022):-

Course Code: ER20-12T **Name of Course:** Pharmaceutical Chemistry

At the starting of the session after preparing the session plan, as there was no previous reference available for the ER-2020, so the target for the upcoming session is fixed by the Course In-charge-

Target set for Internal Assessment:-

Level 1: 50 % of student more than average marks.

Level 2: 60 % of student more than average marks.

Level 3: 70 % of student more than average marks.

The level achieved for Individual Cos: For example course outcome attainment for course code **ER20-12T** in session 2021-2022:

Table No 3.2.2.1

CO No.	Level of CO attainment through internal assessment (Actual attainment)	Tools used for evaluation of CO attainment through Internal Assessment	Level of CO attainment through external assessment (Actual attainment)	Tools used for evaluation of CO attainment through external assessment	40% of CO attainment through internal assessment of actual assessment	60% of CO attainment through external assessment	Final attainment
ER20-12T.a	2.86	PTT, PST, Assignments	1.1	ESE Q.1 to Q.3	1.14	0.66	1.8
ER20-12T.b	2.28	PTT, PST, Assignments	1.1	ESE Q.1 to Q.3	0.91	0.66	1.57
ER20-12T.c	1.90	PTT, PST, Assignments	1.1	ESE Q.1 to Q.3	0.76	0.66	1.42
ER20-12T.d	2.42	PTT, PST, Assignments	1.1	ESE Q.1 to Q.3	0.96	0.66	1.62
Mean of CO attainment							1.60

Therefore,

The Sum of Internal and External Assessment is together considered as 80%.

So, 80% of 1.60 for Direct Assessment and 20% of 3 for Indirect Attainment is evaluated to get the Final Co-attainment.

Therefore, 1.28 + 0.6= 1.88

Since the attainment value for the course ER20-12T is found to be 1.88

Therefore the course outcome attainment level is considered as 2 i.e. Medium.

Similarly the target levels are set and attainment for the set levels are found out for all the courses of both level of the programs.

- **For setting the CO Target the following methodology is followed:-**

1. Attainment of Current Academic Year is calculated and compared with Target set for the same Academic Year.
2. From above comparison and observations CO target setting for next subsequent academic year is as follows:-

   A] **If the target is achieved based on the attainment level:-**

   a] If the level attained is equal or more than 70% i.e. Level 3 then increase the target value by 5 in previous achieved attainment value.

   b] If the level attained is equal or more than 60% i.e. Level 2 then increase the target value by 3 in previous achieved attainment value.

   c] If the level attained is equal of more than 50% i.e. Level 1 then the target is continued for next year.

B] **If the target is not achieved continue the same target for next academic year and take action plan for improving attainment to reach the set target.**

C] **If the target is reached to 95 % then the course Incharge should reform the CO statements and redefine to higher bloom level and set the target again with first time target setting methodology.**

3.3. ATTAINMENT OF PROGRAM OUTCOMES (20)

3.3.1. Describe assessment tools and processes used for assessing the attainment of each PO (10)

(Describe the assessment tools and processes used to gather the data upon which the evaluation of each the Program Outcome is based indicating the frequency with which these processes are carried out. Describe the assessment processes that demonstrate the degree to which the Program Outcomes are attained and document the attainment levels).

The program outcomes attainment is assessed by Direct and Indirect Method. The 80% of PO attainment is calculated by direct method and 20% is calculated by indirect method.

The assessment tools for direct and indirect methods used for evaluating the attainment of POs are mentioned below:-

Direct Methods:-

1. Internal Assessment by Sessional Exam (PST, PTT, Assignment & Field Visit) i.e. Institute Exam.
2. External Assessment by End Session Exam (ESE) i.e. MSBTE Exam.

Indirect Methods:-

1. Program Exit Survey: At the end of the program, Program Exit Survey is conducted to summarize the feedback of students and the questionnaire of feedback are mapped with the program outcomes and rubrics are prepared for analysis and evaluation of program outcomes attainment level.
2. Alumini Survey: Alumini survey is conducted during Alumini meet organized at the Institute once in a year, the feedback of Alumini are mapped with the program outcomes and rubrics are prepared for analysis and evaluation of program outcomes attainment level.

PO evaluation:-

The process used to measure the attainment of POs through direct and indirect attainment is as follows,

Step 1: Course Outcomes for all courses are drafted.

Step 2: Each course outcomes is mapped to POs.

Step 3: Attainment of COs are measured by using external and internal assessments and indirect attainment.

Step 4: By using result of CO attainment corresponding PO attainments are calculated.

Step 5: Also attainments of POs are calculated by using direct and indirect attainment methods.

This process is repeated for all courses in the program to calculate attainment of POs.

3.3.2. Provide results of evaluation of each PO (10)

Program shall set Program Outcome attainment levels are all POs.

(The attainment levels by direct (student performance) and indirect (surveys) are to be presented through Program Level Course-PO matrix as indicated).

PO Attainment: The PO attainment is calculated from the attainment of COs through internal and external attainment and Course Exit Surveys i.e. considered as PO attainment by direct method. The value obtained from the rubrics analysis of various surveys and feedbacks is considered for the PO attainment by Indirect Methods.

The PO attainment for the pass out batch 2023-24 (CAY) is shown in Table 3.3.2.1

Course	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	P09
ER-20-11T	2.1	1.9	0.9	1.7	1.7	1.2	1.7	1.7	2.1
ER-20-12T	1.56	1.42	0.85	1.38	1.42	1.42	1.29	1.02	1.56
ER-20-13T	1.62	0.93	0.8	1.34	1.43	1.2	1.6	1.6	1.62
ER-20-14T	1.9	1.7	0.6	1.1	1.5	1.6	1.6	0.8	1.6
ER-20-15T	1.47	0.48	1.09	1.22	0.7	1.47	1.47	0.48	0.97
ER-20-11P	2.1	1.39	0.69	1.62	1.39	1.04	0.69	0	1.39
ER-20-12P	1.45	0.92	0.71	1.03	0.92	0.71	0.51	0.82	1.03
ER-20-13P	1.62	0.8	0.8	0.71	0.8	0.66	0.53	1.45	1.49
ER-20-14P	1.9	1.25	0.63	1.9	1.1	0.78	1.73	0.63	1.73
ER-20-15P	1.47	0.82	0.97	0.97	0.676	1.46	1.27	0.6	1.17
ER-20-21T	1.74	1.54	0.71	1.15	1.59	1.14	1.74	0	1.74
ER-20-22T	2.43	1.8	1.6	1.6	2.22	2.22	2.01	0.8	2.22
ER-20-23T	1.86	1.62	1.38	1.62	1.38	1.86	1.15	0.92	1.74
ER-20-24T	1.3	0.9	0.9	1.1	1	1	0.9	0.4	1.2
ER-20-25T	1.47	0.8	1.22	1.34	0.72	1.34	1.34	0.48	1.47
ER-20-26T	1.4	0.6	0.8	1.2	1.4	0.8	0.6	0	1.4
ER-20-21P	1.74	1.74	0.85	1.29	1.29	0.99	0.71	0.71	1.59
ER-20-22P	1.5	0.69	0.99	1.19	1.29	1.29	0.99	0.49	1.19
ER-20-23P	2.1	1.39	1.39	1.39	0.69	1.74	2.1	1.04	2.1
ER-20-24P	1.3	1.08	0.86	1.08	1.08	1.3	0.43	0	1.3
ER-20-25P	1.47	0.97	1.17	1.27	0.68	1.37	1.37	0.68	1.47
Direct Attainment	1.69	1.18	0.95	1.30	1.19	1.27	1.23	0.70	1.53
Indirect Attainment	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00
overall attainment	1.95	1.54	1.36	1.64	1.55	1.61	1.58	1.16	1.82

Level of PO attainment:- PO 1, 2, 4,5,6,7,9 are attained with Level 2

PO 3 and 8 are attained with Level 1

The PO attainment for the pass out batch 2022-23 (CAYm1) is shown in Table 3.3.2.2

Course	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	P09
ER-20-11T	1.6	1.4	0.7	1.2	1.3	0.9	1.3	1.3	1.6
ER-20-12T	1.65	1.5	0.9	1.09	1.5	1.5	1.36	1.08	1.65
ER-20-13T	1.68	0.99	0.87	1.44	1.52	1.32	1.2	1.15	1.68
ER-20-14T	1.7	1.7	0.6	1	1.3	1.4	1.4	0.8	1.4
ER-20-15T	2.16	1.42	1.25	1.79	1.6	2.16	2.16	0.71	1.42
ER-20-11P	1.6	1.06	0.53	1.24	1.06	0.79	0.53	0	1.06
ER-20-12P	1.53	0.98	0.76	1.09	0.98	0.76	0.54	0.87	1.09
ER-20-13P	1.68	0.83	0.83	0.73	0.83	0.69	0.55	1.49	1.53
ER-20-14P	1.7	1.12	0.56	1.7	0.9	0.7	1.55	0.56	1.55
ER-20-15P	2.16	1.13	1.42	1.42	0.99	2.01	1.86	0.88	1.71
ER-20-21T	2.52	2.23	1.03	1.67	2.3	1.66	2.52	0	2.52
ER-20-22T	2.43	1.8	1.6	1.6	2.22	2.22	2.08	0.8	2.22
ER-20-23T	2.2	1.76	1.5	1.76	1.5	2.2	1.25	1	1.89
ER-20-24T	1.8	1.2	1.2	1.5	1.4	1.4	1.2	0.6	1.7
ER-20-25T	2.43	1.33	2.1	2.22	1.2	2.22	2.22	0.8	2.43
ER-20-26T	1.5	0.6	0.8	1.3	1.5	0.9	0.6	0	1.5
ER-20-21P	2.43	2.43	1.2	1.8	1.81	1.4	1	1	2.22
ER-20-22P	2.4	1.1	1.58	1.9	2.07	2.07	1.58	0.79	1.9
ER-20-23P	2.28	1.5	1.5	1.5	0.75	1.89	2.28	1.12	2.28
ER-20-24P	1.9	1.57	1.25	1.57	1.57	1.9	0.63	0	1.9
ER-20-25P	2.43	1.6	1.93	2.09	1.12	2.26	2.26	1.12	2.43
Direct Attainment	1.99	1.39	1.15	1.51	1.40	1.54	1.43	0.77	1.79
Indirect Attainment	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00
overall attainment	2.19	1.71	1.52	1.80	1.72	1.83	1.75	1.21	2.04

Level of PO attainment:- PO 1,2,3,4,5,6,7,9 are attained with Level 2

PO 8 is attained with Level 1

The PO attainment for the pass out batch 2021-22 (CAYm2) is shown in Table 3.3.2.3

Course	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	P09
ER-20-11T	1.9	1.7	0.8	1.5	1.5	1.1	1.5	1.5	1.9
ER-20-12T	2	1.82	1.08	1.7	1.82	1.82	1.65	1.3	2
ER-20-13T	1.92	1.26	1.11	1.59	1.42	1.92	1.92	0.63	1.26
ER-20-14T	1.3	1.3	0.4	0.7	1	1.1	1.1	0.6	1.1
ER-20-15T	1.83	1.2	1.05	1.51	1.35	1.83	1.83	0.6	1.2
ER-20-11P	1.9	1.25	0.63	1.46	1.25	0.94	0.63	0	1.25
ER-20-12P	1.87	1.19	0.92	1.33	1.19	0.92	0.66	1.06	1.33
ER-20-13P	1.89	0.93	0.93	0.83	0.77	0.78	0.63	1.67	1.72
ER-20-14P	1.3	0.85	0.42	1.3	0.74	0.52	1.18	0.42	1.18
ER-20-15P	1.56	0.816	1.02	1.02	0.71	1.45	1.34	0.63	1.23
811	1.53	0.67	0.52	1.1	0.6	1.18	0.76	1.09	0.7
812	1.72	1.4	0.62	1.89	1.03	1.57	1.24	1.72	1.89
813	1.77	1.17	0.87	1.32	1.61	1.31	1.77	0	1.77
814	1.74	1.11	0.81	1.41	1.57	1.11	1.24	0.67	1.74
815	1.65	0.67	0.9	1.36	1.65	0.94	0.67	0	1.65
816	0.69	0.51	0.45	0.69	0.69	0.63	0.63	0.63	0.69
811P	1.53	1.53	0.5	1.08	1	1.18	1.53	1.53	0.92
812P	1.89	0	0.62	1.24	0.62	0	0	1.89	0.62
813P	1.77	0	1.16	1.23	0.58	0.66	0	0	0
816P	0.69	0.57	0.4	0.68	0.31	0.22	0.69	0	0.69
Direct Attainment	1.62	1.00	0.76	1.25	1.07	1.06	1.05	0.80	1.24
Indirect Attainment	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00
overall attainment	1.90	1.40	1.21	1.60	1.46	1.45	1.44	1.24	1.59

Level of PO attainment:- PO 1,4,9 are attained with Level 2

PO 2, 3,5,6,7,8 are attained with Level 1

CRITERION 4: Students Performance

CRITERION 4	STUDENTS PERFORMANCE	75

Item	CAY (2023-2024)	CAY*m1* (2022-2023)	CAY*m2* (2021-2022)
Sanctioned Intake of the Program (N)	69 (60+6+3)	69 (60+6+3)	69 (60+6+3)
Total Number of Students admitted in First Year (N1)	**65** (60+2+3)	**66** (60+3+3)	**66** (60+4+2)

Year of Entry	Number of Students Admitted	Number of Students who have successfully graduated	
		I Year	II Year
CAY (2024-2025)	-	-	-
CAY*m1* (2023-2024)	65	**60**	-
CAY*m2* (2022-2023)	66	**65**	**59**
CAY*m3* (2021-2022)	66	**64**	**60**
CAY*m4* (2020-2021)	60	**60**	**57**

Note:-

CAY: Current Academic Year

CAYm1: Current Academic Year minus 1

CAYm2: Current Academic Year minus 2= Last Year Graduate (LYG)

CAYm3: Current Academic Year minus 3= Last Year Graduate minus 1 (LYGm1)

CAYm4: Current Academic Year minus 4= Last Year Graduate minus 2 (LYGm2)

CRITERION 4: Students Performance

4.1. ENROLLMENT RATIO (ADMISSIONS) (20)

Enrollment Ratio= N1/N

Item (Students enrolled at the First Year on average basis during the period of assessment)	Marks
>= 90% students enrolled	20
>= 80% students enrolled	18
>= 70% students enrolled	16
>= 60% students enrolled	12
>= 50% students enrolled	08
< 50% students enrolled	0

4.1.1. Calculation of Enrollment Ratio:-

Item	CAY (2023-2024)	CAY*m1* (2022-2023)	CAY*m2* (2021-2022)
Student Admitted in First Year (N1)	65	66	66
Sanctioned Intake of the Program (N)	60	60	60
Enrollment Ratio= N1/N	1.08	1.1	1.1
Percentage of Students Enrollment	**108**	**110**	**110**

4.2. SUCCESS RATE (STUDENTS GRADUATING IN MINIMUM STIPULATED TIME OF TWO YEARS) (20)

SI= Number of students graduated in minimum stipulated time)/Number of students admitted

Average SI= Mean of success index (SI) for past three batches

*Success rate score= 20*Average SI*

Item	Last Year Graduate (2022-2023)	Last Year Graduate Minus 1 (2021-2022)	Last Year Graduate Minus 2 (2020-2021)
Number of students admitted	65	66	60
Number of students graduated	59	60	57
Success Index (SI)	**0.90**	**0.90**	**0.95**
Average SI	= 0.90+0.90+0.95/3= 2.75/3= **0.91**		
Success Rate	= 20*0.91= **18.2**		

4.3. ACADEMIC PERFORMANCE (PERCENTAGE OF MARKS SCORED) (15)

Academic Performance Score= 1.5* Average API

Academic Performance Index (API) = ((Mean of Final Year Grade Point Average of all successful Students on a 10 point scale) or (Mean of the percentage of marks of all successful students in Final Year/10)) x (successful students/number of students appeared in the examination)

Successful students are those who passed the courses in the stipulated period.

Academic Performance	CAY (2023-2024)	CAY*m*1 (2022-2023)	CAY*m*2 (2021-2022)
Mean of CGPA or Mean Percentage of all successful students (X)	66.90	70.50	66.59
Total no of successful students (Y)	59	60	57
Total no of students appeared in the examination (Z)	64	64	60
API= X/10*(Y/Z)	**6.15** (AP1)	**6.55** (AP2)	**6.31** (AP3)
Average API= (AP1 + AP2 + AP3)/ 3	= (6.15 + 6.55 + 6.31)/ 3= 19.01/ 3= **6.33**		
Academic Performance Score	= **1.5*Average API= 1.5*6.33 = 9.49**		

4.4. PLACEMENT AND HIGHER STUDIES (20)

Assessment Points = 20* (x + y)/ N

Item	Latest Passed Batch (2022-2023)	Latest Passed Batch Minus 1 (2021-2022)	Latest Passed Batch Minus 2 (2020-2021)
Total No of Final Year Students (N)	**64**	**60**	**65**
Number of Students placed in Industries/ Hospitals/ Government sector through on/ off campus recruitment or opted for Entrepreneurship (x)	**52**	**48**	**50**
No of students admitted to higher studies (y)	**12**	**12**	**15**
x + y	**64**	**60**	**65**
Placement Index : (x + y)/ N	**1**	**1**	**1**
T= Average of (x + y)/ N	**(1+1+1)/3= 3/3= 1**		
Assessment = 20* T	**20*1= 20**		

CRITERION 5: Faculty Information and Contributions

CRITERION 5	FACULTY INFORMATION AND CONTRIBUTIONS	75

List of Faculty in the Department (Exclusively for the Program): A.Y. 2024-2025

Name of the Faculty Member	Qualification			Nature of Association (Regular/Contractual)	In case of contractual (Mention Full Time or Part Time)	Designation	Date of Joining the Institution	Date of Leaving the Institution	Currently Associated (Yes/No)	Whether drawing salary as prescribed by the concerned state government in respective cadre (Yes/No in case of contractual faculty)
	Degree (Highest Degree)	University	Year of Graduation							
SANJAY GULABRAO DESAI	M.PHARM	RAJIV GANDHI UNIVERSITY OF HEALTH SCIENCES, KARNATAKA	1987	REGULAR	NA	PRINCIPAL	10/08/1990	-	YES	YES
RUCHI ROHIT BHURAN	M.PHARM	MUMBAI UNIVERSITY	2012	REGULAR	NA	LECTURER	16/01/2013	-	YES	YES
VIRAJ VINAYAK NARAVANE	M.PHARM	SAVITRIBAI PHULE, PUNE UNIVERSITY	2020	REGULAR	NA	LECTURER	12/09/2022	-	YES	YES
DHANASHRI MILIND MAHADIK	B.PHARM	MUMBAI UNIVERSITY	2020	REGULAR	NA	LECTURER	01/08/2023	-	YES	YES
SOHAM VIJAY CHAVAN	B.PHARM	MUMBAI UNIVERSITY	2023	REGULAR	NA	LECTURER	01/08/2023	-	YES	YES
SWATI MAHESH SHINDE	B.PHARM	SHIVAJI UNIVERSITY	2008	REGULAR	NA	LECTURER	08/07/2024	-	YES	YES
AMITA DATTARAM VASAVE	B.PHARM	MUMBAI UNIVERSITY	2021	REGULAR	NA	LECTURER	08/07/2024	-	YES	YES
PRAJAKTA NAVSO DESAI	M.PHARM	MUMBAI UNIVERSITY	2020	REGULAR	NA	LECTURER	01/08/2024	-	YES	YES

CRITERION 5: Faculty Information and Contributions

List of Faculty in the Department (Exclusively for the Program): A.Y. 2023-2024

Name of the Faculty Member	Qualification			Nature of Association (Regular/Contractual)	In case of contractual (Mention Full Time or Part Time)	Designation	Date of Joining the Institution	Date of Leaving the Institution	Currently Associated (Yes/No)	Whether drawing salary as prescribed by the concerned state government in respective cadre (Yes/No in case of contractual faculty)
	Degree (Highest Degree)	University	Year of Graduation							
SANJAY GULABRAO DESAI	M.PHARM	RAJIV GANDHI UNIVERSITY OF HEALTH SCIENCES, KARNATAKA	1987	REGULAR	NA	PRINCIPAL	10/08/1990	-	YES	YES
RUCHI ROHIT BHURAN	M.PHARM	MUMBAI UNIVERSITY	2012	REGULAR	NA	LECTURER	16/01/2013	-	YES	YES
SNEHA SHRIKANT KAVITAKE	M.PHARM	MUMBAI UNIVERSITY	2017	REGULAR	NA	LECTURER	01/08/2017	09/06/2024	YES	YES
VIRAJ VINAYAK NARAVANE	M.PHARM	SAVITRIBAI PHULE, PUNE UNIVERSITY	2020	REGULAR	NA	LECTURER	12/09/2022	-	YES	YES
DHANASHRI MILIND MAHADIK	B.PHARM	MUMBAI UNIVERSITY	2020	REGULAR	NA	LECTURER	01/08/2023	-	YES	YES
MAYUR MANGESH WARE	B.PHARM	MUMBAI UNIVERSITY	2022	REGULAR	NA	LECTURER	01/08/2023	-	YES	YES
SOHAM VIJAY CHAVAN	B.PHARM	MUMBAI UNIVERSITY	2023	REGULAR	NA	LECTURER	01/08/2023	-	YES	YES

CRITERION 5: Faculty Information and Contributions

List of Faculty in the Department (Exclusively for the Program): A.Y. 2022-2023

Name of the Faculty Member	Qualification			Nature of Association (Regular/Contractual)	In case of contractual (Mention Full Time or Part Time)	Designation	Date of Joining the Institution	Date of Leaving the Institution	Currently Associated (Yes/No)	Whether drawing salary as prescribed by the concerned state government in respective cadre (Yes/No in case of contractual faculty)
	Degree (Highest Degree)	University	Year of Graduation							
SANJAY GULABRAO DESAI	M.PHARM	RAJIV GANDHI UNIVERSITY OF HEALTH SCIENCES, KARNATAKA	1987	REGULAR	NA	PRINCIPAL	10/08/1990	-	YES	YES
RUCHI ROHIT BHURAN	M.PHARM	MUMBAI UNIVERSITY	2012	REGULAR	NA	LECTURER	16/01/2013	-	YES	YES
SNEHA SHRIKANT KAVITAKE	M.PHARM	MUMBAI UNIVERSITY	2017	REGULAR	NA	LECTURER	01/08/2017	-	YES	YES
SAYALI DHAKTU BHUWAD	M.PHARM	MUMBAI UNIVERSITY	2016	REGULAR	NA	LECTURER	06/12/2017	13/09/2022	NO	YES
UDAY NARAYN GADGIL	B.PHARM	MUMBAI UNIVERSITY	2015	REGULAR	NA	LECTURER	13/12/2017	10/09/2022	NO	YES

CRITERION 5: Faculty Information and Contributions

ANKITA ARUN MHADGUT	B.PHARM	MUMBAI UNIVERSITY	2018	REGULAR	NA	LECTURER	05/08/2019	30/05/2023	YES	YES
MAIHWISH MIRZAHUSAIN PIRJADE	B.PHARM	MUMBAI UNIVERSITY	2020	REGULAR	NA	LECTURER	01/01/2021	10/09/2022	NO	YES
RUTA SUDESH PRASADE	B.PHARM	MUMBAI UNIVERSITY	2021	REGULAR	NA	LECTURER	10/09/2022	25/05/2023	YES	YES
GANESH PRABHAKAR TULSANKAR	B.PHARM	MUMBAI UNIVERSITY	2021	REGULAR	NA	LECTURER	10/09/2022	03/06/2023	YES	YES
VIRAJ VINAYAK NARAVANE	M.PHARM	SAVITRIBAI PHULE, PUNE UNIVERSITY	2020	REGULAR	NA	LECTURER	12/09/2022	-	YES	YES

CRITERION 5: Faculty Information and Contributions

List of Faculty in the Department (Exclusively for the Program): A.Y. 2021-2022

Name of the Faculty Member	Qualification			Nature of Association (Regular/Contractual)	In case of contractual (Mention Full Time or Part Time)	Designation	Date of Joining the Institution	Date of Leaving the Institution	Currently Associated (Yes/No)	Whether drawing salary as prescribed by the concerned state government in respective cadre (Yes/No in case of contractual faculty)
	Degree (Highest Degree)	University	Year of Graduation							
SANJAY GULABRAO DESAI	M.PHARM	RAJIV GANDHI UNIVERSITY OF HEALTH SCIENCES, KARNATAKA	1987	REGULAR	NA	PRINCIPAL	10/08/1990	-	YES	YES
RUCHI ROHIT BHURAN	M.PHARM	MUMBAI UNIVERSITY	2012	REGULAR	NA	LECTURER	16/01/2013	-	YES	YES
SNEHA SHRIKANT KAVITAKE	M.PHARM	MUMBAI UNIVERSITY	2017	REGULAR	NA	LECTURER	01/08/2017	-	YES	YES
POOJA RATILAL RUDANI	M.PHARM	MUMBAI UNIVERSITY	2016	REGULAR	NA	LECTURER	01/12/2017	31/05/2022	YES	YES
SAYALI DHAKTU BHUWAD	M.PHARM	MUMBAI UNIVERSITY	2016	REGULAR	NA	LECTURER	06/12/2017	13/09/2022	YES	YES
UDAY NARAYN GADGIL	B.PHARM	MUMBAI UNIVERSITY	2015	REGULAR	NA	LECTURER	13/12/2017	10/09/2022	YES	YES
ANKITA ARUN MHADGUT	B.PHARM	MUMBAI UNIVERSITY	2018	REGULAR	NA	LECTURER	05/08/2019	30/05/2023	YES	YES
MAIHWISH MIRZAHUSAIN PIRJADE	B.PHARM	MUMBAI UNIVERSITY	2020	REGULAR	NA	LECTURER	01/01/2021	10/09/2022	YES	YES

CRITERION 5: Faculty Information and Contributions

5.1. STUDENT-FACULTY RATIO (SFR) (15) + AVAILABILITY OF HOD/ PRINCIPAL (5); (20)

Note:- If the institution is running only Diploma Pharmacy Program, calculation of SFR should be as follows:-

N= No. of students = 2* (first year approved intake)

F= Total Number of Regular Faculty Members in the Program

Year	N	F	SFR = N/F
CAY (2023-2024)	120	6	20
CAYm1 (2022-2023)	120	6	20
CAYm2 (2021-2022)	120	7	17.14
Average SFR for three Academic Years			**19.04**

HOD/ Principal is to be over and above 1:20 ratio. 5 marks to be awarded for availability of HOD/ Principal for all the academic years, otherwise 0 marks.

Note:-

Marks to be given proportionally from a maximum of 15 to a minimum of 10 for average SFR between 20:1 to 25:1, and zero for average SFR higher than 25:1. Marks distribution is given below:-

<=20	**-**	**15 Marks**
<=21	**-**	**14 Marks**
<=22	**-**	**13 Marks**
<=23	**-**	**12 Marks**
<=24	**-**	**11 Marks**
<=25	**-**	**10 Marks**
>25.0	**-**	**0 Marks**

5.2. FACULTY QUALIFICATION (20)

FQ = 2* (10x + 7y) where x is no of faculty with M. Pharma and y is no of faculty with B. Pharm with 3 years teaching/ professional experience. F is no of faculty required to comply 1: 20 Faculty Student Ratio (no of faculty and no of students required to be calculated as per 5.1)

x is no of faculty with M. Pharm=

y is no of faculty with B. Pharm with 3 years teaching / professional experience=

F is no of faculty required comply 1:20 Faculty Student Ratio =

Therefore Faculty Qualification = 2* (10x + 7y)/F

Year	X	Y	F	FQ= 2* (10x + 7y)/ F
CAY (2023-2024)	4	1	6	15.66
CAYm1 (2022-2023)	4	1	6	15.66
CAYm2 (2021-2022)	5	2	6	21.33
Average FQ				17.55

CRITERION 5: Faculty Information and Contributions

5.3. FACULTY RETENTION (20)

No of Regular Faculty Members in CAYm3= 7 CAYm2= 8 CAYm1=7 CAY=7

Sr. No	Name of Faculty in the Program				% of Faculty retained during the last three sessions
	CAYm3 (2020-2021)	CAYm2 (2021-2022)	CAYm1 (2022-2023)	CAY (2023-2024)	
1	Mr. Desai S. G.	Mr. Desai S. G.	Mr. Desai S. G.	Mr. Desai S. G.	57%
2	Mrs. Bhuran R. R.	Mrs. Bhuran R. R.	Mrs. Bhuran R. R.	Mrs. Bhuran R. R.	
3	Mrs. Kavitake S. S.	Mrs. Kavitake S. S.	Mrs. Kavitake S. S.	Mrs. Kavitake S. S.	
4	Ms. Rudani P. R.	Ms. Rudani P. R.	Ms. Mhadgut A. A.	Mr. Naravane V. V.	
5	Ms. Bhuwad S. D.	Ms. Bhuwad S. D.	Mr. Naravane V. V.	Ms. Mahadik D. M.	
6	Mr. Gadgil U. N.	Mr. Gadgil U. N.	Ms. Prasade R. S.	Mr. Ware M. M.	
7	Ms. Mhadgut A. A.	Ms. Mhadgut A. A.	Mr. Tulsankar G. P.	Mr. Chavan S. V.	
8		Ms. Pirjade M. M. H			

Item (% of faculty retained during the period of assessment keeping CAYm3 as base year)	Marks
>= 90%	20
>= 75%	16
>= 60%	12
>= 50%	8
< 50%	0

CRITERION 5: Faculty Information and Contributions

5.4. FACULTY AS PARTICIPANTS IN FACULTY DEVELOPMENT/ TRAINING ACTIVITIES (15)

- A Faculty scores maximum of Five Points for participation
- Participant in 2 to 5 days Workshop/Faculty Development Program: 3 points
- Participant > 5 days Workshop/ Faculty Development Program: 5 points

Sr. No	Name of the Faculty	Max 5 per Faculty		
		CAY (2023-2024)	CAY (2022-2023)	CAY (2021-2022)
1	Mr. Sanjay Gulabrao Desai	3	3	5
2	Mrs. Ruchi Rohit Bhuran	3	3	5
3	Mrs. Sneha Shrikant Kavitake	3	5	3
4	Ms. Pooja Ratilal Rudani	-	-	-
5	Ms. Sayali Dhaktu Bhuwad	-	3	5
6	Mr. Uday Narayan Gadgil	-	-	-
7	Ms. Ankita Arun Mhadgut	-	3	5
8	Ms. Maihwish Mirzahusain Pirjade	-	-	-
9	Mr. Viraj Vinayak Naravane	3	3	-
10	Ms. Ruta Sudesh Prasade	-	3	-
11	Mr. Ganesh Prabhakar Tulsankar	-	-	-
12	Ms. Dhanashree Milind Mahadik	-	-	-
13	Mr. Mayur Mangesh Ware	-	-	-
14	Mr. Soham Vijay Chavan	-	-	-
Sum		**12**	**23**	**23**
RF= Number of Faculty required to comply with 20:1 Student Faculty Ratio as per 5.1		**6**	**6**	**6**
Assessment = 3* Sum/ (0.5 RF)		**12**	**23**	**23**
Average Assessment over three years (Marks limited to 15)		**19.33**		

CRITERION 6: Facilities and Technical Support

CRITERION 6	FACILITIES AND TECHNICAL SUPPORT	100

6.1. AVAILABILITY OF ADEQUATE, WELL-EQUIPPED CLASSROOMS TO MEET THE CURRICULUM REQUIREMENTS (5)

(Facilities for conducting theory classes)

The Institute has adequate facilities for conducting theory and practical classes. For Diploma in Pharmacy program, two classrooms are available; each 86 sq. m. with adequate seating capacity along with electrical fittings like tube lights, fans, board and projector facilities. These amenities ensure proper ambience for teaching-learning process. As the strength of intake of program is 60, program is operated in single shift. Classrooms are provided with good ventilation. Theory sessional examinations and session end examinations are conducted in the classrooms.

The tutorial session and the mentoring session is conducted in the classrooms. In addition to this, remedial classes are also conducted for the identified weak students.

An auditorium is provided separately with the seating capacity of 150 is also developed for conduction of guest lectures. State and National level conferences, Quiz Competitions, Poster Presentations etc.

The details of the infrastructure facilities and classrooms utilized for meeting the curriculum requirements for conduction of program are given below: **Table No 6.1.1**

Table No 6.1.1

Name of Room	Room No	Capacity	Area (Sq. M)	Rooms Equipped with
Class Room-I	F-01	70	86	Desks, Benches, Podium, Whiteboard, Projector, Wi-Fi
Class Room-II	F-02	70	86	Desks, Benches, Podium, Whiteboard, Projector, Wi-Fi
Auditorium	S-06	150	300	Podium, Chairs, Desk, LCD Screen, Black Board, Fans, Tube lights

6.2. FACULTY ROOMS (5)

(Conductive Sitting Place)

The faculty room is available with adequate space and each faculty is provided with necessary furniture and electrical fitting along with wi-fi/internet facilities. Separate lockers have been provided with keys for each staff and also a computer along with Internet connection. The faculty room is provided with accurate ventilation, fans and tube lights. The details of the faculty rooms along with the facilities available are given in the table below: **Table No 6.2.1**

Table No 6.2.1

Name of Room	Room No	Used for	Area (Sq. M)	Rooms Equipped with
Principal's Chamber	G-01	Principal	68.64 sq.m	Desk, Computer, Chairs, Locker, Washroom, CCTV Monitor, Air Conditioner, Locker
Faculty Room	G-03	Teaching Staff	57.78 sq.m	Desk, Chair, Tube light, Fan, Computer, Locker, Internet/ Wi-fi

6.3. LABORATORIES INCLUDING PREPARATION ROOM (WHEREVER APPLICABLE), INSTRUMENT/MACHINE ROOM AND COMPUTER LABS ALONG WITH EQUIPMENT AND RELEVANT FACILITIES (50)

(Scientific Experiments Conducting/Computing facilities; availability, adequacy & effectiveness)

Five laboratories for the program are provided which are well equipped with adequate facilities and safety measures and are spacious for comfortable working of 25 students, attached with preparation rooms.

In all laboratories, electrical and plumbing fittings are provided adequately. Laboratories have fire-fighting systems (Fire Extinguishers) installed in all the laboratories. The list of all laboratories used for conduction of program during CAY 2023-2024 with the contents there in are tabulated below:-

Details of Labs used for running the program: (Table No 6.3.1)

Table 6.3.1

Lab Description	Room No	Batch Size	Area (Sq. M)	Availability of Manuals	Quality of Instruments	Safety Measures	Remarks
1. Pharmaceutical Chemistry Lab with preparation room, equipped with fuming chamber & exhaust fans, centralized electric, gas & water supply facility	F-04	25	88.11 sq.m	Available	Excellent	1. Fire Extinguisher 2. Sand buckets 3. Safety guidelines displayed. 4. First Aid	Used for conduction of practical classes of course no C20052
2. Human Anatomy & Physiology and Social Pharmacy and Pharmacology Lab with preparation room, along with electric and water supply and proper display of charts and models.	F-07	25	87.42 sq.m	Available	Excellent	1. Fire Extinguisher 2. Safety guidelines displayed. 3. First Aid.	Used for conduction of practical classes of course no C20054 & C20055 & Spotting and demo of C20056
3. Pharmacognosy Lab with preparation room, along with electric and water supply and proper display of charts and models.	F-05	25	85.76 sq.m	Available	Excellent	1. Fire Extinguisher 2. Sand buckets 3. Safety guidelines displayed. 4. First Aid	Used for conduction of practical classes of course no C20053
4. Pharmacy Practice Lab with exhaust fan,	G-05	25	89.78 sq.m	Available	Excellent	1. Fire Extinguisher	Used for conduction of practical

electric, gas & water supply facility and proper display of charts.						2. Sand buckets 3. Safety guidelines displayed. 4. First Aid	classes of course no C20058 & C20060
5. Pharmaceutics Lab with adequate supply of gas and centralized supply of electricity and water along with a water distillation unit.	G-04	25	89.78 sq.m	Available	Excellent	1. Fire Extinguisher 2. Sand Buckets 3. Safety guidelines displayed. 4. First Aid	Used for conduction of practical classes of course no C20051
6. Computer Room & Language Laboratory, equipped with units with legal software	S-02	20	44.89 sq.m	Available	Excellent	1. Fire Extinguisher 2. Backup Power system	Used for conduction of practical classes of course no C20056

Note: Give a separate table for Instrument Room and Machine Room listing all the instruments/equipment present with their make and model, existence of SOPs and Log Books for Individual Equipment.

The list of equipments available in the Machine room is given below:-

Details of Instrument Room: (Table No 6.3.1.1)

Table 6.3.1.1

Room No	Batch Size	Area (Sq. M)	Availability of SOPs	Quality of Instruments	Safety Measures	Remarks
G-07	25	101.32 sq.m	Available	Good	Fire Extinguisher	All instruments are placed as per the requirement of PCI

LIST OF EQUIPMENTS PLACED IN INSTRUMENT ROOM	
Name of Equipment	**Make**
Capsule Filling Machine	**Make:-** Arvind Scientific
Automated Single Station Tablet Punching Machine	**Make:-** Mahaveer
Tablet Disintegration Test Apparatus IP (Digital Single/ Double Unit)	**Make:-** Mahaveer
Monsanto's Hardness Tester	**Make:-** J. A. Enterprises
Pfizer Type Hardness Tester	**Make:-** J. A. Enterprises
Friability Test Apparatus (Digital Single/Double Unit)	**Make:-** Arvind Scientific
Sieve Shaker with sieve set	**Make:-** Lab House India

Ointment Filling Machine	**Make:-** Lab House India
Bottle Washing Machine	**Make:-** Lab House India
Bottle Sealing Machine	**Make:-** Lab House India
Liquid Filling Machine	**Make:-** Lab House India
Ampoule Washing Machine	**Make:-** Mahaveer
Ampoule Filling and Sealing Machine (Jet Burner)	**Make:-** Mahaveer
Clarity Test Apparatus	**Make:-** Arvind Scientific
Collapsible Tube-Filling and Sealing	**Make:-** Lab House India
Liquid Mixer	**Make:-** Mahaveer

6.4. DRUG MUSEUM (10)

(Type & quality of collection in the museum with proper labelling and display)

The pharmaceutical museum contains the show-casing of products made by the students, solid dosage forms (tablets and capsules), different types of packing (strip/blister), granules, marketed products, injectable formulations, infusion bottles, liquid preparations for humans, aerosols, cosmetic preparations, natural crude extracts and semi-solid ointments. The museum is designed with special care to highlight the displayed products and is located on the ground floor, facing the entrance gate, which becomes visible to everyone while entering. The museum is designed to provide separate sections for various categories of products. Further, electrical points are provided to illuminate the cabinets. The list of products displayed in the drug museum around the various corridors of the college are given in the following table:

Table No 6.4.1

Pharmaceutical Products

Sr. No	Name of Product	Sr. No	Name of Product
1	Powder	11	Gel
2	Tablet	12	Cream
3	Capsule	13	Ointment
4	Nasal Spray	14	Perfume
5	Linctus	15	Vial
6	Elixir	16	Saline Solutions
7	Suspension	17	Injections
8	Syrup	18	Lotion
9	Emulsion	19	Mouthwash
10	Shampoo	20	Ampoules

Table No 6.4.2

Cosmoceutical Products

Sr. No	Name of Cosmoceutical Products	Sr. No	Name of Cosmoceutical Products
1	Shampoo	7	Talcum Powder
2	Dye	8	Compact Powder
3	Hair Care products	9	Lipstick
4	Eye products	10	Nail Polish
5	Soaps	11	Nail Polish Remover
6	Cold Cream	12	Hair Removal Cream

Table No 6.4.3

Pharmacognosy

Sr. No	Name of Drug	Sr. No	Name of Drug
1	Gurmar	19	Shatawari
2	Amla	20	Aloe
3	Ashoka	21	Isapgulla
4	Belladonna	22	Senna
5	Cannabis	23	Coriander
6	Eucalyptus	24	Fennel
7	Ashwagandha	25	Ephedra
8	Opium	26	Cinnamon
9	Digitalis	27	Clove
10	Dhatura	28	Ajwain
11	Black pepper	29	Liquorice
12	Garlic	30	Guargum
13	Onion	31	Tragacanth
14	Neem	32	Black Catechu
15	Rauwolfia	33	Pale Catechu
16	Vinca	34	Cardamom
17	Arjuna	35	Ginger
18	Mentha	36	Nutmeg

6.5. MEDICINAL PLANT GARDEN (10)

(Area, Demarcation, Temporary/Permanent arrangement, planting of plants under the shade in demarcated areas, adequacy of the plants)

Area	:	The area of the medicinal plant garden is 2500 sq. ft in which various medicinal plants are maintained.
Demarcation	:	In the campus, separate medicinal plant garden is demarcated for pharmacy programs.
Arrangement	:	Permanent
Adequacy of the plants	:	Adequate plants have been planted considering the syllabus content of program.

Overall look and maintenance of the medicinal plant garden:-

- Total area of the garden is 2500 Sq. ft.
- The boundary of the garden is properly named and demarcated.
- The medicinal plant garden is permanent and is provided with all-time maintenance facility. A permanent gardener takes care about watering and other requirements for maintenance of medicinal plants.
- The plant density of the medicinal plants is maintained properly with adequate distance required for proper growth of plant and area to study the plant.

Types, varieties and number of plants, available in the garden:-

College of Pharmacy (Poly), Sawarde is maintaining the medicinal plant garden which includes several types of herbs, shrubs and trees. The garden is located separately from the college. The medicinal garden is managed by Faculty along with the Supporting Staff and student representatives from each class. A gardener looks after the water pouring, cleaning and providing the pesticides from time to time. The medicinal plants maintained in the garden are listed in the table below. The plantation has been done in demarcated areas. All the plants provided with the name plates bearing vernacular and botanical names.

Details of Plants in Medicinal Plant Garden: (Table No 6.5.1)

Table No 6.5.1

Sr. No	Biological Name	Family	Common Name
1	Myrista fragrans	Myristicaceae	Nutmeg
2	Murraya koenigii	Rutaceae	Curry Leaves
3	Cinnamomum tamala	Lauraceae	Indian bay leaf
4	Aegle Marmelos	Rutaceae	Bel Fruit
5	Catharanthus roseus	Apocynaceae	Sadaphuli
6	Nyctanthes arbor-tistis	Oleaceae	Night-Blooming Jasmine
7	Elaeophorbia neriifolia	Euphorbiaceae	Nivdung

8	Azadirachta indica	Meliaceae	Neem
9	Garcinia indica	Clusiaceae	Coccum
10	Aloe barbadensis Miller	Liliaceae	Aloevera
11	Coriandrum Sativum	Umbelliferae	Coriander
12	Acacia Catechu	Leguminosae	Kattha
13	Thea sinensis	Theaceae	Tea Leaves
14	Adhatoda vasica	Acanthaceae	Adulsa
15	Curcuma Longa linn	Zingiberaceae	Turmeric
16	Carica papaya	Caricaceae	Papain
17	Ocimum sanctum	Lamiaceae	Tulsi
18	Phyllanthus emblica	Phyllanthaceae	Amla

Apart from the above species of plants, various species of the plants have been planted in campus other than demarcated area.

6.6. PROVISION OF JAN AUSHADHI DRUG STORE (5)

The institute is still in the process of identifying the place and applying for Jan Aushadhi Drug Store.

6.7. ADEQUACY AND UTILIZATION OF MACHINE ROOM (5)

The machine room is maintained to support the condition of laboratory work of Course No. C20051. The utilization records of the machines are maintained in logbook. The details of machine used frequently are given below:-

Details of Machine used frequently are given below: (Table No 6.7.1)

Table No 6.7.1

Sr. No	Name of Equipments	Date of Purchase	Cost in Rs
1	Capsule Filling Machine	12/03/1996	19600/-
2	Automated Single Station Tablet punching machine	07/07/1991 20/09/2006	12800/- 15150/-
3	Tablet Disintegration Apparatus IP (digital, double unit)	20/09/2006	12250/-
4	Monsanto's Hardness Tester	31/10/1994 13/07/1995 05/07/1998	1535/- 1250/- 1377/-
5	Pfizer type Hardness tester	11/04/1992 12/11/1995	8285/- 12375/-
6	Friability Test Apparatus digital/double unit	01/04/1996	4888/-
7	Sieve shaker with sieve set	11/03/2023	4000/-

	Sieve no 10 Sieve no 08	17/10/2022 17/10/2022	3000/- 3000/-
8	Ointment Filling Machine	22/11/1995	3630/-
9	Bottle Washing Machine	11/03/2023	7500/-
10	Bottle Sealing Machine	11/03/2023	13500/-
11	Liquid Filling Machine	11/03/2023	1000/-
12	Ampoules Washing Machine	20/09/2006	2400/-
13	Ampoules Filling and Sealing Machine (Jet Burner)	20/09/2006	8960/-
14	Clarity Test Apparatus	23/12/1996	2250/-
15	Liquid Mixer	31/10/1994 20/09/2006	2575/- 5800/-

6.8. NON-TEACHING SUPPORT (10)

Table No 6.8.1

Sr. No	Name of Technical Staff	Designation	Date of Joining	Qualification		Other technical skills gained	Responsibility
				At Joining	Now		
1	Mr. Rupesh Dattaram Gosavi	Office Superintendent	27/07/2010	B.A. Degree	-	MS-CIT Pass	All Office Work & Online Work
2	Mr. Aniket Ajit Surve	Store Keeper	01/07/2011	Agri. Diploma	-		Store Room
3	Mrs. Neha Nandkumar Chavan	Librarian	15/12/1999	D.Lib & I.Sc	-		Library
4	Ms. Sangita Gunaji Kajare	Accountant	01/08/2000	B.A. Degree	-		Account
5	Mr. Shrikrushna Vishvanath Rajeshirke	Computer Data Operator	15/06/2021	B.A. Degree	-	MS-CIT Pass	Data Operator
6	Ms. Samiksha Kanchan Kadam	Laboratory Technician	01/10/2017	Diploma in Pharmacy	-		Lab Technician
7	Ms. Shraddha Shivram Gosavi	Laboratory Technician	01/01/2021	Diploma in Pharmacy	-		Lab Technician
8	Mr. Vijay Pandurang Bhuwad	Laboratory Assistants or Laboratory Attenders	20/06/2006	B.A. Degree	-		Lab Asst.
9	Mrs. Sneha Suresh Bagave	Laboratory Assistants or Laboratory Attenders	01/10/1999	HSC/ MLT	-		Lab Asst.
10	Mr. Ashok Ramchandra Pawar	Laboratory Assistants or Laboratory Attenders	01/11/2006	B.A. Degree	-		Lab Asst.
11	Mr. Akash Appasaheb Surve	Laboratory Assistants or Laboratory Attenders	01/07/2024	Bsc. Agri			Lab Asst.

12	Mr. Ajit Suryakant Rajeshirke	Peon	27/11/2001	8th Pass			Peon
13	Mr. Yogesh Kashiram Chavan	Peon	01/03/2002	10th			Peon
14	Mr. Vinayak Ganpat Mahadik	Cleaning Personnel	01/07/2002	10th			Cleaning Personnel
15	Mr. Chandrakant Bhikaji Surve	Cleaning Personnel	04/07/2002	7th			Cleaning Personnel
16	Mr. Mangesh Atmaram Gurav	Cleaning Personnel	01/01/2000	7th			Cleaning Personnel
17	Mr. Sagar Parshuram Humane	Cleaning Personnel	01/01/2008	10th			Cleaning Personnel
18	Mr. Ramesh Sakharam Gurav	Gardener	01/11/2007	7th			Gardener

6.8.1. Availability of Adequate and qualified technical supporting staff for Program Specific Laboratories (5)

(Assessment based on the information provided in the preceding table)

For providing the expert assistance for the conduction of practicals as a part of syllabus content delivery, the qualified technical staff with competent skill has been appointed at various areas of laboratory work.

Details of qualified technical supporting staff: (Table No 6.8.1.1)

Table No 6.8.1.1

Sr. No	Name of Technical Supporting Staff	Qualification	Area of Work
1	Ms. Samiksha Kanchan Kadam	Diploma in Pharmacy	Pharmaceutics Lab and Physical Pharmacy
2	Ms. Shraddha Shivram Gosavi	Diploma in Pharmacy	Pharmaceutical Chemistry and Pharmacognosy Lab
3	Mr. Vijay Pandurang Bhuwad	B.A. Degree	Human Anatomy and Physiology Lab
4	Mrs. Sneha Suresh Bagave	HSC/MLT	Pharmaceutical Chemistry Lab
5	Mr. Ashok Ramchandra Pawar	B.A. Degree	Pharmaceutics Lab
6	Mr. Akash Appasaheb Surve	Bsc. Agri	Pharmacognosy Lab

- Apart from above mentioned technical staff, one qualified Librarian and Store Keeper, Adequate Office Staff are appointed for smooth conduction of institutional work and record keeping.
- Cleaning Staff and Security Staff are also available.

6.8.2. Incentives, Skill Upgrade and Professional Advancement (5)

(Assessment based on the information provided in the preceding table)

For skill upgradation and professional advancement of the Non-Teaching staff members, the Institute motivates and deputes them for skill development and Qualification Improvement Program and depending upon their skill and qualification improvement, they have been promoted to the higher designation under Career Advancement Scheme.

To facilitate the skill development of Non-Teaching Staff members, Institute organizes Skill Development Programs and also deputes them to the programs organized by the other institutes also. Some of the Non-Teaching Staff members have been also deputed to the industries under Institute Industry Interaction Program.

Details of the Incentives and Professional Advancement are given below:-

- Mr. Rupesh Dattaram Gosavi was appointed as Computer Data Operator. After qualification improvement of B. A. Degree, he was promoted to the post of Office Superintendent in the session 2021-2022

The details of the Skill Development Programs are given below: (Table 6.8.2.1)

Table No 6.8.2.1

Sr. No	Year	Date	Title
1	2022-2023	01/08/2022	Workshop on Fire Safety
2	2023-2024	20/07/2023	Work Shop on Fire Safety

CRITERION 7: Continuous Improvement

CRITERION 7	CONTINUOUS IMPROVEMENT	30

7.1. IMPROVEMENT IN SUCCESS INDEX OF STUDENTS (10)

Table No 7.1.1

Items	LYG* (2022-2023)	LYGm1 (2021-2022)	LYGm2 (2020-2021)
Success Index (4.2.1)	**0.90**	**0.90**	**0.95**

***Last Year Graduate and m1 & m2 indicate minus one year and minus two years respectively**

SI= (Number of Students who have passed from the program in the stipulated period of course duration) / (Number of students admitted)

Assessment shall be based on improvement trends in success indices. Marks are awarded accordingly

7.2. IMPROVEMENT IN ACADEMIC PERFORMANCE IN FINAL YEAR (10)

Assessment is based on Improvement in:

Table No 7.2.1

Items	LPB (2023-2024)	LPBm1 (2022-2023)	LPBm2 (2021-2022)
Academic Performance Index (from criteria 4.3)	**6.15**	**6.55**	**6.31**

7.3. IMPROVEMENT IN LABORATORIES (10)

New Facility created in the program during the last three years

Table No 7.3.1

Year of Assessment	Improvement in Laboratory Data
CAY 2023-2024	1. Electrical Fitting Maintenance 2. Maintenance of Equipments 3. Installment of Fire Safety Systems 4. Maintenance of Laboratory Tiles of all Laboratories 5. Lab Wise Essential Chemicals were purchased.
CAY 2022-2023	1. Laboratory Equipments were purchased for following laboratories a. Pharmaceutics Laboratory:- Essential Machineries like Digital balance, Autoclave, Sieves sets, Hot Air Oven, Ostwald Viscometer, Stopwatches etc b. Pharmaceutical Chemistry Laboratory: - Hot plates, Digital Balance, Magnetic Stirrer, Digital Colorimeter, Thermostatic Water bath. c. Pharmacognosy Laboratory: - Projection Microscope, Permanent Slide set of Plants and Charts d. Human Anatomy and Physiology Laboratory: - Haemocytometer, Sphygmomanometer, Stethoscope, Models for various organs, Human Skeleton and Bone's, Stop Watch, Surgical Devices and Sutures, Digital Blood Pressure, Adult Weighing Scale, Glucometer etc. e. Pharmacy Practice Laboratory: - Orthopaedical and Surgical Aids, Bandages, Mannequins for CPR, Variety of Needles, Syringes and Catheters, Urine Pot, Colostomy Bag, PPE kits, Contraceptive Devices, Peak Flow meter, Permanent Slides of Microbes, Spirometer etc.
CAY 2021-2022	1. Installment of Fire Safety Systems. 2. Lab Wise Essential Chemicals were purchased. 3. Maintenance of Equipments.

CRITERION 8: Governance, Institutional Support and Financial Resources

CRITERION 8	GOVERNANCE, INSTITUTIONAL SUPPORT AND FINANCIAL RESOURCES	60

8.1. ORGANIZATION, GOVERNANCE AND TRANSPARENCY (25)

8.1.1 Governing Body, Administrative Setup, Functions of various bodies, Service Rules Procedures, Recruitment and promotional policies (10)

List the governing, senate and all other academic and administrative bodies; their memberships, functions and responsibilities; frequency of the meetings; and attendance therein, participation of external members in a tabular form. A few sample minutes of the meetings and action-taken reports should be annexed.
The published rules, policies and procedures; year of publication and its implementation shall be listed. Also state the extent of awareness among the employees/students.

The governance aspects are dealt and recorded by the different administrative bodies listed below which look after the governance of the organization and ensures its transparency to stake holders.

A] Governing Body (GB)

B] Internal Local College Committee (ILCC)

C] Institutional Curriculum Implementation Unit (ICIU)

The transparency of the procedures and code of conduct followed by the Institute are made available through the following:-

D] Organizational Chart

E] Rules and Procedures, Recruitment and Promotional Policies

A] Governing Body: - The governing body is constituted as per AICTE norms. It consists of management representatives, faculty representatives and experts from the field of industry and academia. The body mainly plays the governance part by proper planning and monitoring of utilization of resources. The governing body is constituted for co-ordinated development and efficient functioning of the Institute.

CRITERION 8: Governance, Institutional Support and Financial Resources

The following is the composition of governing body of COPS

Composition of Governing Body: (Table No 8.1.1.1)

Table No 8.1.1.1

Sr.No	Name	Designation
1	Mr. Shekhar Govindrao Nikam Chairman, Sahyadri Shikshan Sanstha	Chairman
2	Director of Technical Education, M.S., Mumbai	Member
3	Secretary, M.S. Board of Technical Education, Mumbai	Member
4	Mr. Shantaram Khanvilkar Director, Sahyadri Shikshan Sanstha	Member
5	Mr. Maruti Ghag Director, Sahyadri Shikshan Sanstha	Member
6	Mr. Chandrakant Surve Director, Sahyadri Shikshan Sanstha	Member
7	Mr. Mansingh Mahadik Director, Sahyadri Shikshan Sanstha	Member
8	Mr. Devavrat Ashok Tambe Shriram Aushadhi Bhandar, Chiplun	Industrial Representative
9	Mr. Sanjay Gulabrao Desai Principal, College of Pharmacy (Poly), Sawarde	Ex. Officio Member Secretary
10	Mrs. Ruchi Rohit Bhuran Lecturer, College of Pharmacy (Poly), Sawarde	Member

CRITERION 8: Governance, Institutional Support and Financial Resources

Functions and Responsibilities of the Governing Body:-

The Governing Body, besides being the supreme administrative authority of the institute, shall have the following functions and responsibilities:-

i] To consider the important communications, policy decisions received from the MSBTE, PCI, Government of Maharashtra and other apex bodies.

ii] To make recommendations on the planning and monitoring the institute working and development.

iii] To monitor the development programs of students and faculty.

iv] Fixation of fee structure and other charges that are payable by the students to the institute based on the recommendations of the Fees Regulating Authority, Government of Maharashtra and other regulatory authorities.

v] To consider and approve the proposals for creation of infrastructure facilities such as building, equipment and learning resources on continuous basis.

vi] To study the annual planned budget of the institute and approve it with required suggestions for allocation.

vii] To analyse the audited account statements and approve the same.

viii] To ensure the operation of the institute as per the general guidelines of various statutory authorities.

ix] To introduce newer programs at the institute as per the need of the hour and to appoint committees essential for smooth functioning and to achieve the vision of the institute.

x] To delegate any of its powers to the Secretary of the Trust and Principal of the Institute for various activities of the institutions.

Frequency of Governing Body Meeting:-

Normally governing body meeting takes place once in an academic year or as per the requirement.

Details of dates of Governing Body Meetings held during last three years: - (Table No 8.1.1.2)

Table No 8.1.1.2

CAY (2023-2024)	CAYm1 (2022-2023)	CAYm2 (2021-2022)
08/09/2023	**20/08/2022**	**23/09/2021**

B] Internal Local College Committee (ILCC):- The **ILCC** comprises of management representatives and representatives of teaching and non-teaching staff which mainly look after planning and executions of the academic activities of the institute.

Composition of Internal Local College Committee (ILCC): (Table No 8.1.1.3)

Table No 8.1.1.3

Sr. No.	Name of Member's	Post
1.	Hon. Mrs. Pooja S. Nikam	Chairman
2.	Hon. Mr. Mahesh M. Mahadik	Sanstha- Representative
3.	Mr. Nandkumar M. Ghag	Pharmacist
4.	Mr. Chandrakant Karekar	Parent Representative
5.	Mr. Sanjay G. Desai	Secretary
6.	Mrs. Ruchi R. Bhuran	Teaching Representative
7.	Mr. Rupesh D. Gosavi	Non-Teaching Representative

Functions and Responsibilities of Internal Local College Committee (ILCC)

i] To monitor the execution of academic and other related activities of the college and to make necessary arrangement for the proper execution of academic activities.

ii] To approve the syllabus content to be taught and to approve the activities to be conducted for bridging the gap of the syllabus content.

iii] To monitor the development program of students and faculty and to motivate them by Institute scholarships, fellowships, medals, prizes and certificates based on the recommendations of the Internal Monitoring Committee.

iv] To plan the annual budget of the institute.

v] To approve the budget estimates-recurring and non-recurring for the financial year in advance demanded by the H.O.D and Principal.

Frequency of ILCC meeting: - Twice in a Session.

C] Institutional Curriculum Implementation Unit (ICIU):- The Institutional Curriculum Implementation Unit comprise of Ex-officio chairman, Additional Ex-Officio Chairman, Secretary (Lecturer), One Lecturer and One Student Representative as a Member for implementation for all the disciplines in the institute and collaborate with industry for quality education and to undertake consultancy and training programmes.

Composition of Institutional Curriculum Implementation Unit (ICIU): (Table No 8.1.1.4)

Table No 8.1.1.4

Sr. No	Name of Member's	Designation
1	Mrs. Pooja Shekhar Nikam	Ex-Officio Chairman
2	Mr. Sanjay Gulabrao Desai	Additional Ex-Officio Chairman
3	Mrs. Ruchi Rohit Bhuran	Secretary
4	Mrs. Sneha Shrikant Kavitake	Member
5	Ms. Rutuja Anant Parte	Member

Functions and Responsibilities of Institutional Curriculum Implementation Unit (ICIU):-

i] Study Curriculum development process and prepare curriculum implementation plan at Institute Level.

ii] To identify the resource gaps at institute level and develop plan to make up the deficiencies.

iii] To prepare plan for Academic Calendar of the Institute taking into consideration the calendar from MSBTE.

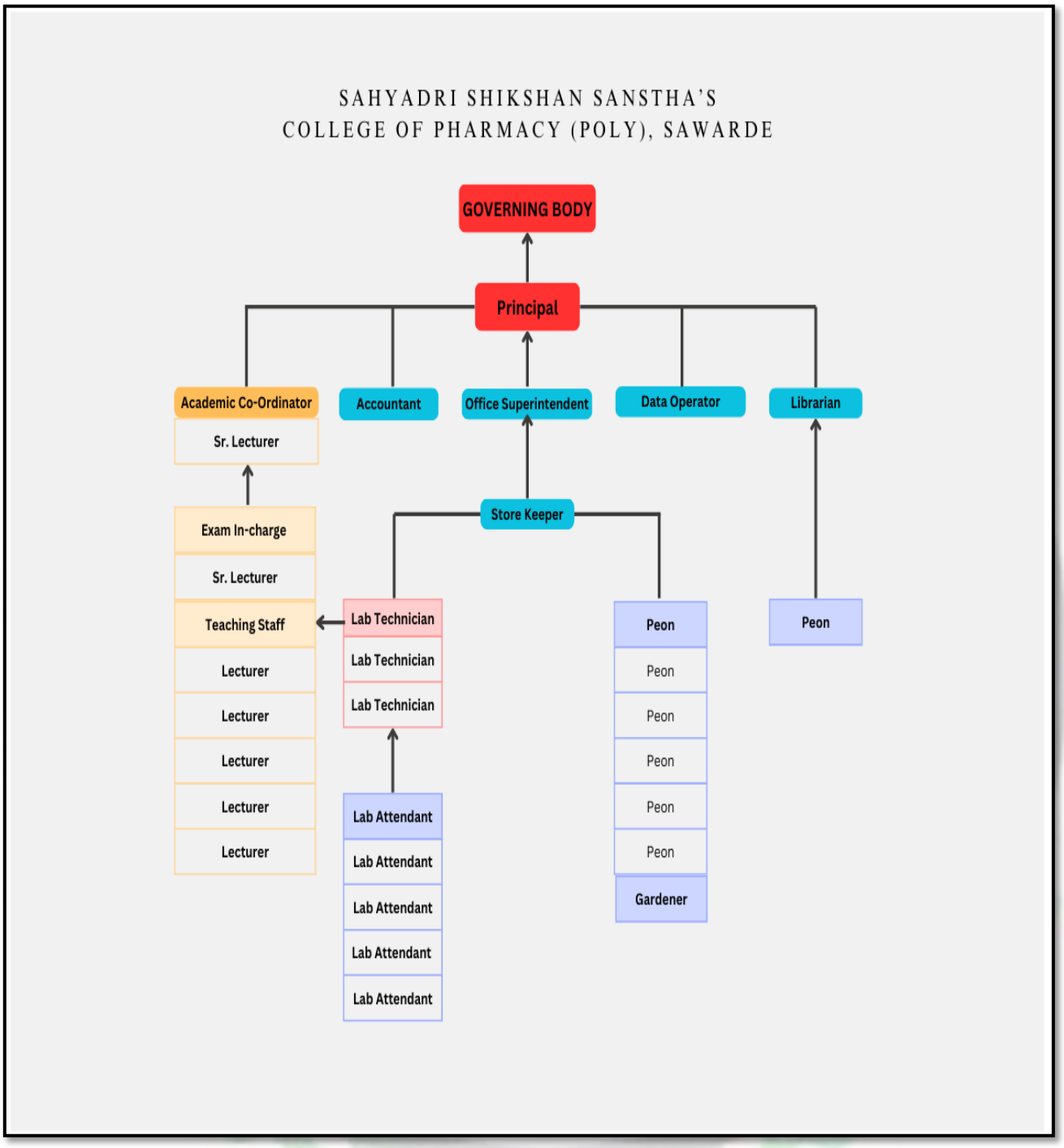
iv] To guide the departments regarding the philosophy of curriculum design and its implementation.

v] To ensure implementation of MSBTE norms for student assessment.

vi] To analyse the reports of Internal and External Monitoring committees and take remedial action.

vii] To maintain the records of all activities in the prescribed proformas

D] Organizational Chart:-



E] Defined Rules, Procedures, Recruitment and Promotional Policies:-

The following acts and rules are adopted as guidelines for procedures, recruitment, promotional polices and directions issued from time to time by the regulatory bodies:-

- Norms of Pharmacy Council of India (PCI)
- Rules for Affiliation and approval by MSBTE, Mumbai.
- All other applicable State/Central Government rules and Maharashtra State Civil Service Regulations.
- Rules and By-laws of Society

Considering the norms of the regulatory bodies the management of **COPS** has drafted a code of conduct which defines all the rules, procedures, recruitment and promotional polices of the organization.

- **Rules of Recruitment for Teaching Staff: -** For the recruitment of teaching staff **COPS** follows PCI regulations and MSBTE guidelines. All the recruitments are done by advertising the vacant post and conducting the interviews of applicants who has applied in response for advertisement. At the time of appointment strictly norms for qualification provided by PCI and MSBTE are followed.

  The staff declaration for the Diploma Program is granted by MSBTE and it consist of following cadre-

  Cadre Structure (Approved by MSBTE):-

  a] Principal

  b] Lecturers/ Senior Lecturers

- **Mode of Selection of Teaching Staff:-**

  Direct recruitment to all cadres is based strictly on merit. Invariably in almost all cases, the following procedure is followed:-

  a] Advertisements are issued in leading newspapers.

  b] Applications are scrutinized within 30 days after the last day for receipt of application.

  c] The list of applications and resumes with relevant details are prepared for selection committee nominated by the Principal of the Institute.

  d] The Deputy Secretary, RBTE, Mumbai appoints the subject experts, MSBTE nominee, representative of reserve category, President and Secretary of Sanstha as a member of staff selection committee and Joint Director R.O. himself or his representative acts as an DTE nominee in the staff selection committee for the selection and approval of candidates for the post of Principal, H.O.D and Lecturers.

  e] Call letters are sent to eligible candidates for attending interviews specifying place, date and time of interview.

  f] Selection Committee interviews and recommends candidates to MSBTE with the merit points.

g] Letters of appointment are issued to selected candidates by the head of the Institute.

h] The selection list along with supporting documents are sent to the Director of MSBTE, Mumbai for the approval.

- **Recruitment Procedure for Supportive Staff:** - The Secretary of **Sahyadri Shikshan Sanstha** gives the advertisement of the vacant post to be filled in the cadre of non-teaching staff and the interviews are conducted by the selection committees consisting of Management representatives and Principal.

a] Staff appointed in Office:-

i] Office Superintendent (Graduate with experience)

ii] Accountant (Graduate)

iii] Data Operator (Graduate)

iv] Store Keeper (Graduate)

v] Peon (Below or equal to SSC)

b] Laboratories (other than computer labs)

i] Lab Technician (Diploma in Pharmacy/DMLT/B.Sc.)

ii] Lab Attendant (HSC)

c] Computer Labs

i] Data Operator/Lab. Technician (Graduate in Science)

d] Qualifications:-

Non-Teaching staff are recruited on the qualifications prescribed by the State Government.

- **Probation Period Policy:-**

1. **Probation:-** Probation means appointment made on trial on specified conditions for a stipulated period to a post for determining one's fitness for the job. All regular employees serve the first two years of employment on probation. The condition of probation is applicable for permanent appointments.
2. **Temporary Appointment:-** It means appointment made purely on temporary basis for the period of 10 months either for a permanent post or in tenure post or against a temporary post. After the completion of tenure appointment, the termination order is issued to such employees and the employee found good in his/her working can be selected for permanent appointment.
3. **Evaluation in Probation Period:-** Principal evaluated the ability, suitability and potential of the employee during his/her work. 15 days prior to the completion of probation period, the Senior Lecturer along with consultation of other lecturers, based on his evaluation, will intimate to

Principal about employees performance/non-performance. Based on the performance appraisal reports of the employees the Management decides to continue/discontinue service of the employee. For termination of service, termination order is issued.

4. **Voluntary Resignation:-** It may be accepted in lieu of termination. Unless notified, all job offers are on a permanent requirement with a probation period. Termination of employment, or other disciplinary action, during the probationary period, is not subject to progressive discipline and the grievance procedure.

- **Salary Policy:-**

Type and Fixation of Initial Salary:- In general, the type and fixation of initial salary is subject to requirements like those of the government pay scales (5^{th} pay scale), as per the pay scale of MSBTE and PCI. Salary fixation is done at the discretion of managing society considering the income and expense statements of the institute.

- **Salary Increments:-**

1. **Time Scale of Pay:-** Time scale of pay means a scale in which the salary rises, subject to the conditions prescribed in the statutes of pay rules by periodical increments, from a minimum to maximum. Every employee is entitled to an annual increment in salary subject to the recommendations of the Head of the Institute considering the performance appraisal report of the employee after the approval of G. B.
2. **Payroll Schedules:-** Employees are paid for all the days of the month. Payment is directly deposited with a designated bank in the individual's account of given in cash for employees who are paid for visits. All the employees are having salary account in the bank located in the 1 km radius of the campus.
3. **Payment mode of salary:-** The salaries of all employees are deposited to the salary account at Ratnagiri District Central Co-operative Bank (RDCC).

- **Payroll Deductions:-** Standard deductions like, Professional Tax and Contribution of Provident funds and other deduction wherever applicable are deducted from the monthly salary statements.

- **Promotion and Transfer Policy:-**

1] A promotion is the shift of an employee from one position to another with more responsible duties or requiring more skills. Promotions are based on merit of skills and qualifications required for the higher position. A pay rise is eminent in case of promotions but the Management reserves the right to do so.

2] A lateral transfer is when an employee moves from one position to another position that is on the same pay scale regardless of the title of the new position.

3] Transfers and promotions during probation period are subject to an administrative approval for the same, by Principal.

4] Employees are encouraged to apply for any position for which they are qualified and should contact the Principal for specific information.

5] When an employee is promoted either on applying for an advertised position or via the reclassification process the employee may receive remuneration based on employee's exceptional experience and / or education and job responsibility.

6] A faculty desiring of promotion to a higher post has to face the Selection Committee appointed by the regularity bodies and only on the recommendations of the Committee he / she is granted promotion.

CRITERION 8: Governance, Institutional Support and Financial Resources

8.1.2. Decentralization in Working and Grievance Redressal Mechanism (5)

(List the name of the faculty members who are administrators/decision makers for various responsibilities. Specify the mechanism and composition of grievance redressal cell)

Working together in an organization is an exercise of collective team work and hence for the smooth conduction of administrative and academic work **COPS** believes in decentralization of work. Hence various committees for administrative and academic working have been formed at the Institute Level at the start of each session with fixed scope and objectives.

Various administrative and academic committees for the program formed for the session: 2023-2024 (CAY): (Table No 8.1.2.1)

Table No 8.1.2.1

Sr. No	Name of Committee	Constitution	Functions
1	Examination Committee	Incharge- Mrs. Bhuran R.R.	1. To upload exam forms for MSBTE. 2. Distribution of Hall Tickets. 3. Preparation and Correction of seating charts. 4. Arrangement of Internal Exams. 5. Conduction of Internal Exams and Annual Practical Exams. 6. Filling and Maintenance of Internal Exam Documents. 7. Uploading of Theory and Practical Exam Mean marks to MSBTE.
2	Student Counselling Committee	Incharge- Mr. Gosavi R.D.	1. Assisting the students for admission process. 2. Verification and Maintenance of Student documents. 3. Merit List verification. 4. Issue of Identity cards, Bonafide Certificates, Training Forms, Diploma Certificates and Marksheets, Leaving Certificate and Fee Structure statements. 5. Assisting the students in other MSBTE and scholarship documentations.
3	Sports	Incharge- Mr. Ware M.M.	1. Procurement of sports facilities at the institute. 2. Collection and submission of data for SKS Pharma sports. 3. Escorting the students for participating in SKS Pharma Sports. 4. Filling and maintaining the records of Sports Department. 5. Taking part in the organization of sports at Sahyadri Krida Sangram Sports.

4	Attendance Committee/Class Co-ordinator	Incharge- DCP-I: Mrs. Kavitake S.S. DCP-II: Mrs. Bhuran R.R.	1. Preparation of Roll No list on the basis of enrolled students. 2. Procurement and distribution of Lab Manuals. 3. Compiling and maintaining monthly attendance statement and reporting to the Principal for necessary action. 4. Distribution of Students to the mentors with consultation from the Principal. 5. Organization of Parents Meet and maintaining the records of same. 6. Arrangement of Backlog and Remedial Classes with the consent of Principal.
5	Medical Facility Committee	Incharge- Mrs. Bhuran R.R. Member- Dr. Mane U.P. Member- Mrs. Kavitake S.S.	1. Maintenance of Sick room and sick room record. 2. Procurement of requirements for the First Aid box. 3. Verification of Medicines in First Aid box. 4. Assistance to the Sick patients. 5. Contacting the RMP in case of emergency. 6. Arrangements of medical facilities at the time of college events.
6	Training & Placement Cell	Incharge- Mrs. Bhuran R.R. (Chairman) Secretary- Mrs. Kavitake S.S. Joint Secretary- Mr. Gosavi R.D. (Member)	1. Organization of Skill Development Programs for students, teaching and non-teaching members. 2. Arranging Industry Visits, Hospital Visits and Educational Tours. 3. Organization of Career Oriented Programs and Industry Expert Lectures. 4. Making MOU with Industry, Institute and Hospitals. 5. Maintaining and communicating the record of training report to the MSBTE for issue of Diploma Certificate.
7	Guest Lecture	Incharge- Mr. Naravane V.V	1. Communication with identified resource persons. 2. Arrangement of conduction of Guest Lectures. 3. Maintaining Records and Reports of conducted events.
8	Extra-Curricular Activities	Incharge- Ms. Mahadik D.M. Member- Mr. Ware M.M.	1. Organization of Cultural Programs, Teachers Day, Women's Day, Pharmacists Day and Pharmacy Week. 2. Arranging Social Awareness, Cleanliness and Tree Plantation Programs.

9	Data Operator	Incharge- Mr. Gosavi R.D.	1. Uploading Data for approval and extension of activities to PCI, DTE and MBSTE. 2. Upgradation of Institute Website and Institute Media Page.
10	Feedback Committee	Incharge- Mr. Naravane V.V.	1. Collection of Faculty and Institutional Feedback from students. 2. Analysis of Feedback and preparation of Feedback report and submit to Principal.
11	Time-Table Committee	Incharge- Mrs. Bhuran R.R. Member- Mrs. Kavitake S.S.	1. Calculation of Workload and distribution of workload to the faculty with consent of Principal. 2. Preparation of Time-Table considering the occupancy of classroom and labs.
12	Alumini Committee	Incharge- Kavitake S.S.	1. Collecting the data of recent status of Alumini and its maintenance. 2. Registration of pass out students as Alumini. 3. Organization of Alumini Meet and Alumini supported programs. 4. Preparation and maintenance of Alumini meeting records.
13	Library Committee	Incharge- Mr. Ware M.M.	1. To review the Library utilization and day to day Library working. 2. Procurement and Development of Learning Resources. 3. Grievance Redressal of grievance reported regarding Library working. 4. Planning and preparing proposals for enhancement of Library facilities.
14	Purchase Committee	Incharge- Mr. Desai. S.G. (Chairman) Member- Mr. Surve A.A (Store Keeper)	1. To prepare indent for consumable and non-consumable requirements. 2. Calling Quotations from suppliers. 3. Preparations of comparatives statements on the basis of received quotations. 4. Finalization of order and procurement of goods received.
15	Entrepreneurship Development Cell (ED Cell)	Incharge- Mrs. Kavitake S.S. Member- Mr. Naravane V.V.	1. Organization of Entrepreneur Development Program in association with Industry, or any Government Organizations. 2. Organizing Visit to the medical stores or other business organizations. 3. Preparation and Maintenance of Record of E.D. activities.
16	Internal Monitoring Committee	Chairman- Mr. Desai S.G. (Principal) Academic Co-ordinator-	1. Execution and implementation of CIAAN Norms. 2. Monitoring the academic activities of the program.

		Mr. Naravane V.V.	3. Conducting the academic audits twice in a session and submitting the report to the Principal. 4. Preparation and maintenance of documents for all the inspections of various apex bodies.
17	Industry Visit Committee	Incharge- Ms. Mahadik D.M. Member- Mr. Ware M.M.	1. To organise the Industry Visits regarding the curriculum. 2. To make the transport arrangements for the Industry Visits. 3. To collect Feedback from the students regarding the Industrial Visits. 4. To compile the data from the feedbacks and submit to the Principal.
18	Practical Training Committee	Chairman- Mr. Desai S.G. Member- Mrs. Bhuran R.R.	1. To guide students regarding the practical training. 2. To give the training manuals for conduction of practical training.

Apart from the above mentioned committees the following institutional committees have been constituted with the adequate representation of department for the Grievance Redressal of the stake holders.

1] Women's Grievance Redressal Cell/ Anti-Harassment Committee/ Gender Sensitization Committee/ Women's Discrimination Committee.

2] Anti-Ragging Committee with Anti-Ragging Squad,

3] Student Grievance Redressal Committee.

4] Faculty Grievance Redressal Committee.

CRITERION 8: Governance, Institutional Support and Financial Resources

1] Women's Grievance Redressal Cell/ Anti-Harassment Committee/ Gender Sensitization Committee/ Women's Discrimination Committee.

Grievances related to women and sexual harassment are addressed by a Women Grievance Redressal Cell.

The Composition of Women Grievance Redressal Cell is as given below: (Table No 8.1.2.2)

Table No 8.1.2.2

Sr. No.	Name of Member's	Designation	Status
1.	Mrs. Bhuran R. R.	Lecturer	Chairman
2.	Ms. Mahadik D. M.	Lecturer	Member-Secretary
3.	Mrs. Shinde S. M.	Lecturer	Member
4.	Ms. Vasave A. D.	Lecturer	Member
5.	Ms. Bagave S. S.	Lab Asst.	Member
6.	Mrs. Chavan N. N.	Librarian	Member
7.	Ms. Kajare S. G.	Clerk	Member
8.	Ms. Bhoir C. D.	Girls Representative	Member

- **Objective:-**
  1. To resolve issue pertaining to girls sexual harassment.
  2. To equip the female student's faculty and staff members with knowledge of their legal rights.
  3. To provide platform for listening to complaints and redressal of grievances.
  4. To deal with cases of discrimination and sexual harassment against women, aiming at ensuring support services to the victimized and termination of harassment.
  5. To study the constitutional provisions to prevent gender injustice, inequality, bias and discrimination.
- **Function:-**
  1. To protect the rights of women and any sorts of violence against them.
  2. To effectively address workplace sexual harassment complaints, assure confidentiality and assure non-retaliation.
  3. To provide a platform for listening to complaints and redressal of grievance.
  4. To examine and investigate each complaint receive from the staff and student by collecting the required information.

2] Anti-Ragging Committee with Anti-Ragging Squad:-

Though ragging is a universal phenomenon, it often takes a malignant form where in the juniors and new students may be subjected to physiological or physical discomfort or harassment. To prevent and deter such incidents in higher educational institutions, the Government of India has taken a serious view on the cases of ragging. The UGC and PCI and statutory bodies implement the provisions. The following members are being appointed to form the Anti-Ragging Committee. Besides looking after general discipline, the committee will supervise all Anti-Ragging measures. Disciplinary matters are dealt with stern approach expeditiously. Any matter communicated verbally, written form or in anonymous format are viewed with due weightage.

The Composition of Anti-Ragging Committee is as given below: (Table No 8.1.2.3)

Table No 8.1.2.3

Sr. No.	Name of the Member	Constitution of committee	Position
1	Mr. Desai S.G	Principal	Chairperson
2	Tahasildar Office, Chiplun	Civil Administration Representative	Member
3	Police Station, Sawarde	Police Administration Representative	Member
4	Mr. Naravane V. V.	Representative of faculty/Lecturer	Member
5	Mr. Chavan S.V	Representative of faculty/Lecturer	Member
6	Mr. Sawardekar S. D	News Reporter/Media	Member
7	Mr. Surve A. A.	Non-Teaching	Member
8	Mr. Bhoir D. S.	Parent	Member
9	Ms. Vadkar V. V	S.Y. Girls representative Senior student	Member
10	Mr. Kulye S. S.	S.Y. Boys representative senior student	Member

- **Roles and Responsibilities:-**

i] To create awareness among the new students.

ii] To explain the senior students regarding the adverse effects of ragging and punishments involved.

iii] To keep a continuous watch over ragging so as to prevent its occurrence and recurrence

iv] Set up a suggestion box and place it in the college to help students to drop complaints of problems they are facing.

v] Action should be taken against students violating the Anti-Ragging Policy.

vi] The Head of the Institution shall be obliged to act immediately in response to the information received from the Anti-Ragging Committee.

vii] To display the Anti-Ragging notices in various location of the campus.

viii] To conduct surprise raid in hostel and other places in the campus.

ix] To prevent the occurrence of ragging by following the provisions of regulations in the institution.

x] To provide punishment to those indulging in ragging as provided for in regulations and the appropriate law in force.

xi] To promote and maintain discipline in the institute by pro-actively assisting the college authorities and principal by involvement and giving suggestions.

3] Student Grievance Redressal Committee:-

Grievances of students related to the academic and infrastructure facilities are addressed by students in Student Grievance Redressal Committee. The complaint box have been displayed by the Institute for the students for reporting their complaints.

The Composition of Student Grievance Redressal Committee is as given below: (Table No 8.1.2.4)

Table No 8.1.2.4

Sr. No	Name of the Faculty	Designation	Position
1	Mr. Desai. S.G.	Principal	Chairman
2	Dr. Mane. U.P.	Member	Physician
3	Mrs. Bhuran R.R.	Lecturer	Member
4	Mr. Naravane V.V.	Lecturer	Member
5	Ms. Mahadik D.M.	Lecturer	Member
6	Ms. Vadkar V.V.	Student	Girls Representative
7	Ms. Bhoir C.D.	Student	Girls Representative

CRITERION 8: Governance, Institutional Support and Financial Resources

- **Objectives:-**

i] To uphold the dignity of the College by ensuring stress free atmosphere in the College through promotion of cordial Student-Student relationship and Student-teacher relationship etc.

ii] To provide responsive, accountable and easily accessible machinery for settlement of grievances and to take measures in the college undertakings to ensure expeditious settlement of grievances of Students in order to maintain a harmonious educational atmosphere in the institute.

iii] Advising Students of the College to respect the right and dignity of one another and show utmost restraint and patience whenever any occasion of rift arises.

iv] Advising all staffs to be affectionate to the students and not behave in a vindictive manner towards any of them for any reason.

v] To support, those students who have been deprived of the services offered by the college, for which he/she is entitled.

vi] To make officials of the college responsive, accountable and courteous in dealing with the students.

vii] To ensure effective solution to the student's grievances with an impartial and fair decision.

- **Functions:-**

i] To look into the complaints lodged by any student and judge its merit and also to look into the matters of harassment.

ii] Anyone with a genuine grievance may approach the department members in person or in consultation with the class In-charge.

iii] In case the person is unwilling to appear in self, grievances may be dropped in writing at the letterbox/suggestion box of the Grievance Cell at Administrative Block.

iv] The cases will be attended promptly on receipt of written grievances from the students. The Grievance Cell will act upon those cases which have been forwarded along with the necessary documents.

v] The Grievance Cell will assure that the grievance has been properly solved in a stipulated time limit provided by the cell.

vi] The cell formally will review all cases and will prepare statistical reports about the number of cases received. The cell will give report to the authority about the cases attended to and the number of pending cases, if any, which require direction and guidance from the higher authorities.

- **Mechanism:-**

i] A complaint box is provided at the ground floor for students.

ii] All grievances referred to the Grievance Redressal Committee shall be entered in a Register by designated member.

iii] All complaints should be resolved within a time frame by looking into its seriousness and by two way approach.

iv] The result of the grievance will be informed to the person complaining within the specified period.

v] Any staff may report directly to the Principal / Director for resolving their grievance if he / she is dissatisfied by the GRC

4] Faculty Grievance Redressal Committee:-

On imparting professional education, it's our foremost care to consider comfort of all Stakeholders especially our Faculty to keep amicable environment in the campus. We take practice of transparency, justice and professional ethics in all happenings so that the stake holders are not grieved. Faculty grievances are to deal with the discontent, dissatisfaction expressed in person or through formal letter complaint.

The Composition of Faculty Grievance Redressal Committee is as given below: (Table No 8.1.2.5)

Table No 8.1.2.5

Sr. No	Name of the Member	Profession	Position
1	Mr. Desai S.G.	Principal/Teaching	Chairperson
2	DTE, Mumbai	Representative	Member
3	MSBTE, Mumbai	Representative	Member
4	Mrs. Bhuran R.R.	Sr. Lecturer/Teaching	Member

- **Objectives:-**

i] To ensure harmonious environment in the campus to all the faculty members.

ii] To provide the equal opportunity and hassle free resort to their grievances.

iii] To maintain supervision on all activities of grievance and redressal mechanism.

- **Functions:-**

i] To make awareness on the grievances among faculty community.

ii] To be a part in imparting the quality environment by addressing issues of employees.

iii] To demand issues/complaints, investigate by committee recommended and document the activities.

iv] To analyse, comply and forward all received complaints to the concerned departments for necessary action.

v] To disclose pending cases and resolve it and notify the parties of their status.

8.1.3. Delegation of Financial Powers (05)

(Explicitly mention financial powers dedicated to the Principal, Heads of Departments and relevant in-charges. Demonstrate the utilization of the financial powers for each year of the assessment years)

Principal:- The principal has the financial powers to spend Rs 25,000/- at a time, keeping in view of the urgency and needs. These are to authorize the purchase of consumables for laboratories (books etc) over and above the general procedure of annual purchase.

- ✓ To permit the reimbursement of travelling (conferences and workshops) and other expenses for official purposes.
- ✓ To take care of guests, parents, alumini and stakeholders.
- ✓ To sponsor faculty/staff for any academic activities as per norms.
- ✓ To authorize any other expenses, he may deem essential.

8.1.4. Transparency and availability of correct/unambiguous information in public domain (05)

- ✓ On arrival, all students joining **COPS** are informed about the rules, regulations and procedures at college during orientation program.
- ✓ Periodic reminders are done through circulars which get inputs.
- ✓ All information relevant or needed by all stakeholders is available in web.
- ✓ Periodic communications are sent to parents/guardians.
- ✓ SMS communications are sent to the parents regarding absence, sessional marks, monthly attendance, examination absence etc.
- ✓ At the time of joining new staff, personal information like qualifications, professional skills and experience are collected and used for strengthening the course and the college.
- ✓ The data of all staff are periodically updated and uploaded on the college website.
- ✓ The administrative rules and regulations covering all cadre of staff employed are mentioned in the manual. The employees are given uniform consideration. Transparency is maintained relating to rules followed which include general administration, service conditions, duties, promotion policies, increments, awards and also disciplinary action.
- ✓ The program syllabus book and academic calendar is available to the stake holders which provides transparency in implementing academic plans and current regulations, courses, marks, attendance, examination through prospectus, notice board etc.

CRITERION 8: Governance, Institutional Support and Financial Resources

- ✓ Recruitment and Interview of all staff is done by issuing advertisements and following the regulations of MSBTE (Maharashtra State Board and Technical Education) and PCI (Pharmacy Council of India). Thus reference points are made clear to the staff.
- ✓ Notices are displayed on the notice boards. Separate notice boards are available for department, office, placement, training, info apex, library etc. In total, the administration and staff are available for open communication with students, employers (for placement) etc.
- ✓ As per the urgent need SMS system and digital notice board facility is made available for stake holders.
- ✓ Time to time meeting with all stake holders i.e., parents, students, staff, alumini and employer are organized at least once in a session to update and share the recent information and amendments.

8.2. BUDGET ALLOCATION, UTLIZATION AND PUBLIC ACCOUNTING AT INSTITUTE / PROGRAM LEVEL (20)

(Summary of current financial year's budget and actual expenditure incurred for the institution exclusively in three previous financial years).

Total Income at Institute/Program Level: For CFY, CFYm1, CFYm2 & CFYm3.

CFY: Current Financial Year, CFYm1: Current Financial Year minus 1, CFYm2: Current Financial Year Minus 2 and CFYm3: Current Financial Year minus 3.

- **For CFY: 2023-2024** (Table No 8.2.1)

Table No 8.2.1

Total Income (Till 31st March 2024)				Actual Expenditure (Till 31st March 2024)			Total No of Students: 131
Fee	Govt.	Grant(s)	Other Sources (Specify)	Recurring including salaries	Non-recurring	Special Projects/Any other specify	Expenditure per student
10720618.00	0.00	0.00	415090.00	10785653.00	141776.00	0.00	82333.00

Note: Similar tables are to be prepared for CFYm1, CFYm2 & CFYm3

- **For CFYm1: 2022-2023** (Table No 8.2.2)

Table No 8.2.2

Total Income (Till 31st March 2023)				Actual Expenditure (Till 31st March 2023)			Total No of Students: 130
Fee	Govt.	Grant(s)	Other Sources (Specify)	Recurring including salaries	Non-recurring	Special Projects/Any other specify	Expenditure per student
10086047.00	0.00	0.00	571688.00	9464236.00	678484.00	0.00	72802.00

- **For CFYm2: 2021-2022** (Table No 8.2.3)

Table No 8.2.3

Total Income (Till 31st March 2022)				Actual Expenditure (Till 31st March 2022)			Total No of Students: 126
Fee	Govt.	Grant(s)	Other Sources (Specify)	Recurring including salaries	Non-recurring	Special Projects/Any other specify	Expenditure per student
8950056.00	0.00	0.00	851936.00	8640766.00	1,21,828.00	0.00	68578.00

- **For CFYm3: 2020-2021** (Table No 8.2.4)

Table No 8.2.4

Total Income (Till 31st March 2021)				Actual Expenditure (Till 31st March 2021)			Total No of Students: 121
Fee	Govt.	Grant(s)	Other Sources (Specify)	Recurring including salaries	Non-recurring	Special Projects/Any other specify	Expenditure per student
6198855.00	0.00	0.00	1300430.00	7492427.00	3,15,916.00	0.00	61921.00

CRITERION 8: Governance, Institutional Support and Financial Resources

Table No 8.2.5

Items	Budgeted in CFY (2023-2024)	Actual Expenses in CFY (2023-2024)	Budgeted in CFYm1 (2022-2023)	Actual Expenses in CFYm1 (2022-2023)	Budgeted in CFYm2 (2021-2022)	Actual Expenses in CFYm2 (2021-2022)	Budgeted in CFYm3 (2020-2021)	Actual Expenses in CFYm3 (2020-2021)
Infrastructure Built-up	1025000.00	1048964.00	160000.00	161312.00	120000.00	126709.00	270000.00	325321.00
Library	35000.00	30076.00	140000.00	142106.00	70000.00	74328.00	0.00	0.00
Laboratory Equipment	0.00	0.00	300000.00	344678.00	0.00	0.00	0.00	0.00
Laboratory Consumables	50000.00	41885.00	120000.00	140097.00	40000.00	37025.00	20000.00	15030.00
Teaching and Non-Teaching Staff Salary	7200000.00	7064568.00	6800000.00	6602380.00	6300000.00	6021951.00	5200000.00	5190610.00
Training and Travel	17500.00	16300.00	12000.00	10100.00	18000.00	17400.00	14000.00	12800.00
Miscellaneous Expenses*	120000.00	138180.00	120000.00	123147.00	80000.00	70442.00	14000.00	12081.00
Others, specify	2638500.00	2587456.00	2795000.00	2618900.00	3200000.00	2414739.00	4544000.00	2252501.00
Total	11086000.00	10927429.00	10447000.00	10142720.00	9828000.00	8762594.00	10062000.00	7808343.00

8.2.1 Adequacy of Budget Allocation (10)

(Justify that the budget allocated over the Last Three years was adequate)

COPS follows the process of distributing the available financial resources in a manner consistent with our institute's vision, mission, long-term goals, which are transparent to stakeholders. The allocation model is updated annually. Keeping in view of the fact that no budgeting process is perfect and that ideally there would be more funds to allocate, the goals of the process are to:-

- ✓ Recognize the importance of staff to long term success.
- ✓ Encourage areas to focus on outputs directly related to the strategic plan.
- ✓ Improve institutional and support facilities to make the learning environment of vibrant development.
- ✓ Development of soft skills of staff and students.

The institute allocates the available resources based on the forecasted requirements, keeping the curricular and beyond curricular activities, staff skill development, library, transport and maintenance in mind. It is the responsibility of Governing Body to ensure that the allocated resources are spent as per their forecasted plans. The emphasis is to increase quality of academic inputs delivered and positively contribute to the institute, in terms of development of new technologies, methods and practices.

The allocation model ideally followed for allocating the funds to proposed budget is as follows- **Table 8.2.1.1**

Table No 8.2.1.1

Sr. No	Head of Expenses	Allocated Percentage (%) of Total Income
1	Salary Expenditure	**65**
2	Laboratory consumable and Laboratory Equipment	**4**
3	Building Construction and Maintenance	**4**
4	Library Expenditure	**2**
5	Students Activity, Establishment, Training, Travel & Miscellaneous Expenditure	**25**

Considering the allocated amount and actual budget utilize. It has been observed that allocated budget and utilization is adequate for smooth conduction of institute.

8.2.2 Utilization of Allocated Funds (10)

(State how the budget was utilized during the last three years).

As per the budget allocation its utilization summary is given in following table with percentage of budget utilize for the expenditure on Diploma in Pharmacy programme. The breakdown of the financial data illustrates how the allocated funds were utilized across different categories and initiatives over the last three years. Every effort is made for providing the best and updated infrastructural and other facilities to students and staff.

Utilization of Allocated Funds for Last Three Years: (Table No 8.2.2.1)

Table No 8.2.2.1

Sr.No	Financial Year	Budgeted in CFY	Actual Expenses in CFY	Percentage
1	CFY 2023-24	11086000.00	10927429.00	98.56%
2	CFY m1 2022-23	10447000.00	10142720.00	97.08%
3	CFY m2 2021-22	9828000.00	8762594.00	89.15%
4	CFY m3 2021-21	10062000.00	7808343.00	77.60%

The respective academic and supportive units are informed on allocation of funds under various heads including the guidelines towards making purchase of laboratory equipment, programs to be conducted, training activities and other miscellaneous. CDC decides the utilization for the financial year's allocated funds in consultation with the concerned experts including Principal. The utilization is made as per the plans and projections. The priorities are identified. Emphasis is made on increasing the quality of academic inputs that positively contribute to the development. Every effort is made for providing the best and updated infrastructural and other facilities to students and staff.

8.3 LIBRARY AND INTERNET (15)

8.3.1. Quality of learning resources (hard/soft) (10)

- ***Relevance of available learning resources including E-resources.***
- ***Accessibility to students.***

COPS make every effort to provide good and quality learning resources to its internal stake holders, for that an spacious library with variety of learning material is developed and the detail of which are given below-

- **Library Space and Utilization:**
  - Carpet Area of Library (in m^2) : 132.00 Sq. mtr.
  - Number of seats in reading space : 42
  - Number of users (Issue Book) per day : Approx 10%
  - Number of users (Reading Space) per day : Approx 30%

- **Timings:**
  - During Working Day : 09.30 AM to 06.00 PM

- **Library Staff and Automation Details:**
  - Full time qualified Librarian : 01
  - Management Computerization for search, Indexing, issue/return records, bar coding used : Pharmacy Library Software
  - Library Services on Internet/Intranet : Yes
  - Library Membership : NDLI
  - Archives : Yes
  - **Titles and Volumes** : Number of Title : **283**; Number of Volumes : **6737**
  - **Book Bank Facility** :
    1. Book Bank sponsored by Social Welfare Department
    2. College Book Bank for All students

- **Digital Library:**

Availability of Digital Library Contents:
  - No. of E-Books/E-Journals : 15
  - No. of Computers : 04
  - Availability over Internet : Yes

CRITERION 8: Governance, Institutional Support and Financial Resources

- **Details of Library Expenditure in Last Three Years:-**

Table No 8.3.1.1

Year	CFY(2023-2024)	CFYm1(2022-2023)	CFYm2(2021-2022)
Expenditure	30076.00	142106.00	74328.00

- **Details of Addition in Library from Last Three Years:-**

Table No 8.3.1.2

Year	No of New Titles added	No of New Volumes
CFY 2023-2024	05	07
CFYm1 2022-2023	27	453
CFYm2 2021-2022	20	371

- **Details of Subject wise titles in Library:-**

Table No 8.3.1.3

Sr. No.	Subject	Total Available Titles
1	Pharmaceutics	29
2	Pharmaceutical Chemistry	47
3	Pharmacognosy	33
4	Biochemistry and Clinical Pathology	29
5	Human Anatomy and Physiology	31
6	Health Education and Community Pharmacy	16
7	Social Pharmacy	06
8	Pharmacotherapeutics	03
9	Pharmacology	19
10	Pharmaceutical Jurisprudence/Pharmacy Law & Ethics	18
11	DSBM/CPM	15
12	Hospital and Clinical Pharmacy	14
13	Reference Books	23
Total		**283**

- **Details of Subscription of Library Journals:-**

Table No 8.3.1.5

Sr. No.	Name of the Journals
1	Indian Journal Of Pharmaceutical Education & Research
2	Indian Journal of Pharmaceutical Sciences
3	Indian Journal of Pharmacology
4	Indian Journal of Hospital Pharmacy
5	Indian Journal of Experimental Biology
6	Current Index of Medical Specialities (CIMS)

8.3.2. Internet (05)

➢ Name of the Internet Provider	:	Global Net Solution (Airtel)
➢ Available Band width	:	100 mbps (Airtel)
➢ Wi-Fi availability	:	Available Jio (Wi-Fi)
➢ Internet access in labs, classrooms, library and other offices	:	Yes, by LAN and Wi-Fi
➢ Security arrangements	:	Yes 1. Limited access is provided to prevent misuse of Internet

PART C:- DECLARATION BY THE INSTITUTE

Sahyadri Shikshan Sanstha's

COLLEGE OF PHARMACY, (POLY) SAWARDE

Tal: - Chiplun Dist: - Ratanagiri, Pin: - 415606, wbesite:-copsawarde.in

(Approved by: A.I.C.T.E. P.C.I.-New Delhi, Govt. Of Maharashtra, D.T.E. M.S.B.T.E Mumbai)

E-mail-pharmacycollegesawarde@yahoo.in Tel-Ph-No (02355)-264106 H.Off 264315/215 Fax (02355)264163

Outward No. COPS/755 / NAB File /24-25 **Date:- 23/08/2024**

Declaration

The head of the institution needs to make a declaration as per the format given below:

I undertake that, the institution is well aware about the provisions in the NBA's accreditation manual concerned for this application, rules, regulations, notifications and NBA expert visit guidelines in force as on date and the institute shall fully abide by them.

It is submitted that information provided in this Self-Assessment Report is factually correct. I understand and agree that an appropriate disciplinary action against the Institute will be initiated by the NBA in case any false statement/information is observed during pre-visit, visit, post-visit and subsequent to grant of accreditation.

Date: 23/08/2024
Place: Sawarde

College of Pharmacy (Poly) Sawarde ★ PH 226

Mr. Sanjay Gulabrao Desai
Principal
College of Pharmacy (Poly.)
Sawarde,Tal. Chiplun, Dist. Ratnagiri

ANNEXURE I: PROGRAM OUTCOMES

PROGRAM OUTCOMES

PO.1 Pharmacy Knowledge: Possess knowledge and comprehension of the core and basic knowledge associated with the profession of pharmacy.

PO.2 Modern Tool Usage: Learn, Select and apply appropriate methods and procedures, resources and modern pharmacy-related computing tools with an understanding of the limitation.

PO.3 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 well-being.

PO.4 Professional Identity: Understand, analyse and communicate the value of their professional roles in society (e.g. health care professionals, promoters of health, educators, managers, employers, employees).

PO.5 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.

PO.6 Communication: Communicate effectively with the pharmacy community and with society, such as being able to comprehend and write effective reports, make effective presentations and documentation and give and receive clear instructions.

PO.7 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.

PO.8 Environment and Sustainability: Understand the Impact of the professional pharmacy solutions in societal and environmental contexts, demonstrate the knowledge of and need for sustainable development.

PO. 9 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 other to identify learning needs and to satisfy these needs on an on-going basis.

ANNEXURE II: SYLLABUS OF THE PROGRAM

ACCORDING TO EDUCATION REGULATIONS 1991 (E.R-91)

The course of study for Diploma in Pharmacy part-I and Diploma in Pharmacy part-II shall include the subjects as given in the tables below. The number of hours devoted to each subject for its teaching is given against columns mentioned in the tables below:-

Table I: Diploma in Pharmacy (Part-I)

Subject	Theory		Practical	
	Hours/Year	Hours/Week	Hours/Year	Hours/Week
Pharmaceutics-I	75	3	100	4
Pharmaceutical Chemistry-I	75	3	75	3
Pharmacognosy	75	3	75	3
Biochemistry & Clinical Pathology	50	2	75	3
Human Anatomy & Physiology	75	3	50	2
Health Education & Community Pharmacy	50	2		
	400	**16**	**375**	**15**

Table II: Diploma in Pharmacy (Part-II)

Subject	Theory		Practical	
	Hours/Year	Hours/Week	Hours/Year	Hours/Week
Pharmaceutics-II	75	3	100	4
Pharmaceutical Chemistry-II	100	4	75	3
Pharmacology & Toxicology	75	3	50	2
Pharmaceutical Jurisprudence	50	2	-	-
Drug Store and Business Management	75	3	-	-
Hospital & Clinical Pharmacy	75	3	50	2
	450	**18**	**275**	**11**

Plan and Scheme of Examination for the Diploma in Pharmacy:- (Based on effective teaching for 180 working days in one academic session)

Table III: Diploma in Pharmacy (Part I) Examination

Subject	Max. Marks in Theory			Max. Marks in Practical		
	Examination	Sessional	Total	Examination	Sessional	Total
Pharmaceutics-I	80	20	100	80	20	100
Pharmaceutical Chemistry-I	80	20	100	80	20	100
Pharmacognosy	80	20	100	80	20	100
Biochem & Clinical Pathology	80	20	100	80	20	100
Human Anatomy & Physiology	80	20	100	80	20	100
Health Education & Community Pharmacy	80	20	100	-	-	-
			600			**500**

ANNEXURE II: SYLLABUS OF THE PROGRAM

Table IV: Diploma in Pharmacy (Part-II)

Subject	Max. Marks in Theory			Max. Marks in Practical		
	Examination	Sessional	Total	Examination	Sessional	Total
Pharmaceutics-II	80	20	100	80	20	100
Pharmaceutical Chemistry-II	80	20	100	80	20	100
Pharmacology & Toxicology	80	20	100	80	20	100
Pharmaceutical Jurisprudence	80	20	100	-	-	-
Drug Store and Business Management	80	20	100	-	-	-
Hospital & Clinical Pharmacy	80	20	100	80	20	100
			600			**400**

SYLLABUS

DIPLOMA IN PHARMACY (PART-I)

1.1 PHARMACEUTICS I

Theory (75 Hours)

Introduction of different dosage forms. Their classification with examples-their relative applications. Familiarization with new drug delivery systems. Introduction to Pharmacopoeias with special reference to the Indian Pharmacopoeia.

Metrology-System of weights and measures. Calculations including conversion from one to another system. Percentage calculations and adjustment of products .Use of alligation method in calculations .Isotonic solutions.

Packaging of pharmaceuticals-Desirable features of a container and types of containers. Study of glass & plastics as materials for containers and rubber as a material for closure-their merits and demerits. Introduction to aerosol packaging.
Size reduction, objectives, and factors affecting size reduction, methods of size reduction- study of Hammer mill, ball mill, Fluid energy mill and Disintegrator.

Size separation-size separation by sifting. Official standards for powders. Sedimentation methods of size separation. Construction and working of Cyclone separator.

Mixing and Homogenization-Liquid mixing and powder mixing, Mixing of semisolids. Study of silverson Mixer-Homogenizer, planetary Mixer; Agitated powder mixer; Triple Roller Mill; Propeller Mixer, colloid Mill and Hand Homogeniser. Double cone mixer.

Clarification and Filtration-Theory of filtration, Filter media; Filter aids and selection of filters. Study of the following filtration equipments-Filter Press, sintered filters, Filter candles, Metafilter.

Extraction and Galenicals-
(a) Study of percolation and maceration and their modification, continuous hot extraction-Application in the preparation of tinctures and extracts.
(b) Introduction to Ayurvedic dosage forms.
Heat process-Evaporation-Definition-Factors affecting evaporation-study of evaporating still and Evaporating pan.

Distillation-Simple distillation and Fractional distillation, steam distillation and vacuum distillation. Study of vacuum still, preparation of purified water I.P. and water for Injection I.P. construction and working of the still used for the same.

Introduction to drying process-Study of Tray Dryers; Fluidized Bed Dryer, Vacuum Dryer and Freeze Dryer.

Sterilization-Concept of sterilization and its differences from disinfection-Thermal resistance of microorganisms. Detailed study of the following sterilization process.
Sterilization with moist heat, Dry heat sterilization, Sterilization by radiation, Sterilization by filtration and Gaseous sterilization.

Aseptic techniques-Applications of sterilization process in hospitals particularly with reference to surgical dressings and intravenous fluids. Precautions for safe and effective handling of sterilization equipment.

ANNEXURE II: SYLLABUS OF THE PROGRAM

Processing of Tablets-Definition; different type of compressed tables and their properties. Processes involved in the production of tablets; Tablets excipients : Defects in tablets; Evaluation of Tablets; Physical standards including Disintegration and Dissolution. Tablet coating-sugar coating; films coating, enteric coating and micro-encapsulation (Tablet coating may be de.. in an elementary manner).

Processing of Capsules-Hard and soft gelatin capsules; different sizes of capsules; filling of capsules; handling and storage of capsules. Special applications of capsules.

Study of immunological products like sera, vaccines, toxoids & their preparations.

PRACTICAL (100 hours)
Preparation (minimum number stated against each of the following categories illustrating different techniques involved.
1. Aromatic waters3
2. Solutions 4
3. Spirits2
4. Tinctures4
5. Extracts2
6. Creams2
7. Cosmetic preparations3
8. Capsules2
9. Tablets2
10. Preparations involving2
11. Opthalmic preparations2
12. Preparations involving aseptic techniques2

Books recommended:(Latest editions)
1.) Remington's Pharmaceutical Sciences.
2.) The Extra Pharmacopoeia-Martindale.

1.2 PHARMACEUTICAL CHEMISTRY-I

THEORY (75 Hours)

General discussion on the following inorganic compounds including important physical and chemical properties, medicinal and pharmaceutical uses, storage conditions and chemical incompatibility.

Acids, bases and buffers-Boric acid, Hydrochloric acid, Strong Ammonium hydroxide, Sodium hydroxide and official buffers.

Antioxidants- Hypophosphorous acid, Sulphur dioxide, Sodium bisulphite, Sodium meta-bisulphite, Sodium thiosulphate, Nitrogen and Sodium nitrite.

Gastrointestinal agents-
Acidifying agents- Dilute Hydrochloric acid.
Antacids- Sodium bicarbonate, Aluminum hydroxide gel, Aluminum phosphate, Calcium carbonate, Magnesium carbonate, Magnesium trisilicate, Magnesium oxide, Combinations of antacid preparations.
Protective and Adsorbents- Bismuth sub carbonate and Kaolin.
Saline cathartics- Sodium potassium tartrate and Magnesium sulphate.

Topical Agents-
Protective- Talc, Zinc Oxide, Calamine, Zinc stearate, Titanium dioxide, silicone polymers.

Iodine, Solutions of Iodine, Povidone-iodine, Boric acid, Borax, Silver nitrate, Mild silver protein, Mercury yellow, Mercuric oxide, Ammoniated mercury.
Sulphur and its compounds- Sublimed sulphur, Percipitated sulphur, Selenium sulphide.
Astringents- Alum and Zinc Sulphate.

Dental Products- Sodium fluoride, Stannous fluoride, Calcium carbonate, Sodium meta phosphate, Di-calcium phosphate ,Strontium chloride, Zinc chloride.
Inhalants- Oxygen, Carbon dioxide, Nitrous oxide.

Respiratory stimulants- Ammonium carbonate.

Expectorants and Emetics-Ammonium chloride*, Potassium iodide, Antimony potassium tartrate.

Antidotes- Sodium nitrite.

Major Intra and Extra cellular electrolytes-
Electrolytes used for replacement therapy- Sodium chloride and its preparations, Potassium chloride and its preparations.
Physiological acid-base balance and electrolytes used- Sodium acetate, Potassium Acetate, Sodium bicarbonate Inj., Sodium citrate, Potassium citrate, Sodium lactate injection, Ammonium chloride and its injection.

Combination of oral electrolyte powders and solutions.

Inorganic official compounds of Iron, Iodine and Calcium, Ferrous Sulphate and Calcium Gluconate.

Radio pharmaceuticals and contrast media- Radio activity-Alpha; Beta and Gamma Radiations. Biological effects of radiations, Measurement of radio activity, G.M. Counter, Radio isotopes-their uses, Storage and precautions with special reference to the official preparations. Radio opaque contrast media-Barium sulfate.

Quality control of Drugs and pharmaceuticals-Importance of quality control, significant errors, methods used for quality control, sources of impurities in pharmaceuticals. Limit tests for Arsenic, Chloride, Sulfate, Iron and Heavy metals.

Identification tests for cations and anions as per Indian Pharmacopoeia.

PRACTICAL (75 hours)
1. Identification tests for inorganic compounds particularly drugs and pharmaceuticals.
2. Limit test for chloride, Sulfate, Arsenic, Iron and Heavy metals.
3. Assay of inorganic pharmaceuticals involving each of the following methods of compounds marked with (*) under theory.
   i. Acid-Base titrations(at least 3)
   ii. Redox titrations (one each of permanganometry and iodimetry).
   iii. Precipitation titrations (at least 2)
   iv. Complexometric titration (Calcium and Magnesium).

Books recommended (Latest editions)
1. Indian pharmacopoeia.

1.3 PHARMACOGNOSY

THEORY (75 Hours)

1. Definition, history and scope of Pharmacogonosy including indigenous system of medicine.
2. Various systems of classification of drugs and natural origin.
3. Adulteration and drug evaluation; significance of pharmacopoeial standards.
4. Brief outline of occurrence, distribution, outline of isolation, identification tests, therapeutic effects and pharmaceutical application of alkaloids, terpenoids, glycosides, volatile oils, tannins and resins.
5. Occurrence, distribution, organoleptic evaluation, chemical constituents including tests wherever applicable and therapeutic efficacy of following categories of drugs.

(a) **Laxatives-** Aloes, Rhubarb, Castor oil, Ispaghula, Senna.
(b) Cardiotonics- Digitalis, Arjuna.
(c) **Carminatives & G.I. regulators-** Umbelliferous fruits, Coriander, Fennel, Ajowan, Cardamom, Ginger, Black pepper , Asafoetida, Nutmeg, Cinnamon, Clove.
(d) Astringents- Catechu.
(e) **Drugs acting on nervous system-** Hyoscyamus, Belladonna, Aconite, Ashwagandha, Ephedra, Opium, Cannabis, Nux -vomica.
(f) Antihypertensive- Rauwolfia.
(g) **Antitussives-** Vasaka, Tolu balsam, Tulsi.
(h) Antirheumatics- Guggal, Colchicum.
(i) Antitumour- Vinca.
(j) Antileprotics- Chaulmoogra oil.
(k) Antidiabetics- Pterocarpus, Gymnema sylvestro.
(l) Diuretics- Gokhru, Punarnava.
(m) Antidysenterics- Ipecacuanha.
(n) Antiseptics and disinfectants- Benzoin, Myrrh, Neem, Curcuma.
(o) **Antimalarials-** Cinchona.
(p) Oxytocics- Ergot.
(q) Vitamins- Shark liver oil and Amla.
(r) Enzymes- Papaya, Diastase, Yeast.
(s) Perfumes and flavoring agents- peppermint oil, Lemon oil, Orange oil, lemon grass oil, sandal wood.

Pharmaceutical aids-Honey, Arachis oil, starch, kaolin, pectin, olive oil. Lanolin, Beeswax, Acacia, Tragacanth, sodium Alginate, Agar, Guar gum, Gelatin.
Miscellaneous- Liquorice, Garlic, picrorhiza, Dirscorea, Linseed, shatavari, shankhpushpi, pyrethrum, Tobacco.
Collection and preparation of crude drugs for the market as exemplified by Ergot, opium, Rauwalfia, Digitalis, senna.
Study of source, preparation and identification of fibers used in sutures and surgical dressings-cotton ,silk, wool and regenerated fibers.
Gross anatomical studies of-senna , Datura, cinnamon, cinchona, fennal, clove, Ginger, Nuxvomica & ipecacuanha.

PRACTICAL (75 hours)
1. Identification of drugs by morphological characters. Physical and chemical tests for evaluation of drugs wherever applicable.
2. Gross anatomical studies(t.s.)of the following drugs :Senna. Datura. cinnamon, cinchona, coriander, fennel , clove, Ginger, Nux-vomica, Ipecacuanha.
3. Identification of fibers and surgical dressing.

1.4 BIOCHEMISTRY AND CLINICAL PATHOLOGY

THEORY (50 Hours)

Introduction to biochemistry. Brief chemistry and role of proteins, polypeptides and amino acids, classification, Qualitative tests. Biological value, Deficiency diseases.
Carbohydrates: Brief chemistry and role of carbohydrates, classification, qualitative tests, Diseases related to carbohydrate metabolism.
Lipids: Brief chemistry and role of lipids, classification and qualitative tests. Diseases related to lipids metabolism.
Vitamins: Brief chemistry and role of vitamins and coenzymes. Role of minerals and water in life processes.
Enzymes: Brief concept of enzymatic action. factors affecting it.
Therapeutics: Introduction to pathology of blood and urine. Lymphocytes and platelets, their role in health and disease. Erythrocytes-Abnormal cells and their significance. Abnormal constituents of urine and their significance in diseases.

PRACTICAL (75 Hours)
1. Detection and identification of proteins. Amino acids, carbohydrates and lipids.
2. Analysis of normal and abnormal constituents of Blood and Urine (Glucose, urea, creatine, creitinine, cholesterol, alkaline phosphatase acid phosphatase, Bilirubin, SGPT, SGOT, calcium, Diastase, Lipase).
3. Examination of sputum and faeces (microscopic & staining).
4. Practice in injecting drugs by intramuscular, subcutaneous and intravenous routes, withdrawal of blood samples.

1.5 HUMAN ANATOMY AND PHYSIOLOGY

THEORY(75 Hours)

Scope of Anatomy and physiology. Definition of various terms used in Anatomy. Structure of cell. function of its components with special reference to mitochondria and microsomes.

Elementary tissues: Elementary tissues of the body, i.e. epithelial tissue, muscular tissue, connective tissue and nervous tissue.

Skeltal System: Structure and function of Skelton .Classification of joints and their function. Joint disorders.

Cardiovascular System: Composition of blood, functions of blood elements. Blood group and coagulation of blood. Brief information regarding disorders of blood. Name and functions of lymph glands. Structure and functions of various parts of the heart .Arterial and venous system with special reference to the names and positions of main arteries and veins. Blood pressure and its recording. Brief information about cardiovascular disorders.

Respiratory system: Various parts of respiratory system and their functions, physiology of respiration.

Urinary System: Various parts of urinary system and their functions, structure and functions of kidney. Physiology of urine formation. Patho-physiology of renal diseases and edema.

Muscular System: Structure of skeletal muscle, physiology of muscle contraction. Names, positions, attachments and functions of various skeletal muscles. physiology of neuromuscular junction.

Central Nervous System: Various parts of central nervous system, brain and its parts. functions and reflex action. Anatomy and physiology of automatic nervous system.

Sensory Organs: Elementary knowledge of structure and functions of the organs of taste, smell, ear, eye and skin. Physiology of pain.

ANNEXURE II: SYLLABUS OF THE PROGRAM

Digestive System: names of various parts of digestive system and their functions. structure and functions of liver, physiology of digestion and absorption.

Endocrine System: Endocrine glands and Hormones. Location of glands, their hormones and functions. pituitary, thyroid. Adrenal and pancreas

Reproductive system: Physiology and Anatomy of Reproductive system.

PRACTICALS (50 hours)

1. Study of the human Skelton.
2. Study with the help of charts and models of the following system and organs:
   Digestive system Respiratory system Ear
   Cardiovascular system Urinary system
   Reproductive system Eye
3. Microscopic examination of epithelial tissue, cardiac muscle, smooth muscle, skeletal muscle. Connective tissue and nervous tissues.
4. Examination of blood films for TLC.DLC and malarial parasite.
5. Determination of RBCs, clotting time of blood, erythrocyte sedimentation rate and Hemoglobin value.
6. Recording of body temperature, pulse, heart-rate, blood pressure and ECG.

1.6 HEALTH EDUCATION AND COMMUNITY PHARMACY

THEORY (50 hours)

Concept of health: Definition of physical health, mental health, social health, spiritual health determinants of health, indicatory of health, concept of disease, natural history of diseases, the disease agents, concept of prevention of diseases.
Nutrition and health: Classification of foods, requirements, diseases induced due to deficiency of proteins, vitamins and minerals-treatment and prevention.
Demography and family planning: Demography cycle, fertility, family planning, contraceptive methods, behavioral methods, natural family planning methods, chemical methods, mechanical methods, hormonal contraceptives, population problem of India.
First aid: Emergency treatment in shock, snake-bite, burns, poisoning, heart disease, fractures and resuscitation methods, Elements of minor surgery and dressings.
Environment and health: Source of water supply, water pollution, purification of water, health and air, noise, light-solid waste disposal and control-medical entomology, arthroped borne diseases and their control. rodents, animals and diseases.
Fundamental principles of microbiology: Classification of microbes. isolation, staining techniques of organisms of common diseases.
Communicable diseases: Causative agents, mode of transmission and prevention. Respiratory infections-chicken pox, measles, influenza, diphtheria, whooping cough and tuberculosis.
Intestinal infection-poliomyclitis. Hepatitis, cholera, Typhoid, food poisoning, Hookworm infection.
Arthroped borne infections-plague, Malaria, filariases.
Surface infection-Rabies, Tranchoma, Tetanus, Leprosy.
Sexually transmitted diseases-Syphilis, Gonorrhoea, AIDS.
Non-communicable diseases: causative agents, prevention, care and control.
Epidemiology: Its scope, methods, uses, dynamics of disease transmission. Immunity and immunization: Immunological products and their dose schedule. Principles of disease control and prevention, hospital acquired infection, prevention and control. Disinfection, types of disinfection procedures, for-faces, urine, sputum, room linen, dead-bodies, instruments.

2.1 PHARMACEUTICS II
(Dispensing Pharmacy)

THEORY (75 Hours)

Prescriptions-Reading and understanding of prescriptions; Latin terms commonly used (Detailed study is not necessary), Modern methods of prescribing, adoption of metric system. Calculations involved in dispensing.
Incompatibilities in prescriptions- study of various types of incompatibilities-physical, chemical and therapeutic.
Posology- Dose and dosage of drugs, factors influencing dose, calculations of doses on the basis of age, sex, surface area and veterinary doses.
Dispensed Medications: (Note: A detailed study of the following dispensed medication is necessary. Methods of preparation with theoretical and practical aspects, use of appropriate containers and closures. special labeling requirements and storage conditions should be high-lighted).
Powders-Type of powders-Advantages and disadvantages of powders, Granules, cachets and tablet triturates. preparation of different types of powders encountered in prescriptions. Weighing methods, possible errors in weighing, minimum weighable amounts and weighing of a material below the minimum weighable amount, geometric dilution and proper usage and care of dispensing balance.

Liquid oral Dosage forms:
Monophasic-Theoretical aspects including commonly used vehicles, essential adjuvant like stabilizers, colorants and flavors, with examples.
Review of the following monophasic liquids with details of formulation and practical methods. Liquids for internal administration Liquids for external administration or used on mucous membranes
Mixtures and concentrates, Gargles

Syrups Mouth washes	Throat-paints	Elixirs
Douches	Ear Drops	Nasal drops
Sprays	Liniments	Lotions.

Biphasic Liquid Dosage Forms:
Suspensions (elementary study)-Suspensions containing diffusible solids and liquids and their preparations. Study of the adjuvant used like thickening agents, wetting agents, their necessity and quantity to be incorporated ,suspensions of precipitate forming liquids like tinctures, their preparations and stability. suspensions produced by chemical reaction. An introduction to flocculated /non-flocculated suspension system.
Emulsions-Types of emulsions, identification of emulsion system, formulation of emulsions, selection of emulsifying agent. Instabilities in emulsions, preservation of emulsions.

Semi-Solid Dosage Forms:
Ointments: Types of ointments, classification and selection of dermatological vehicles. Preparation and stability of ointments by the following processes:

Trituration	fusion
chemical reaction	Emulsification.

Pastes: Differences between ointments and pastes, Bases of pastes. preparation of pastes and their preservation .
Jellies: An introduction to the different types of jellies and their preparation.
An elementary study of poultice.
Suppositories and peassaries-Their relative merits and demerits, types of suppositories, suppository bases , classification, properties. preparation and packing of suppositories. Use of suppositories of drug absorption.
Dental and cosmetic preparations: Introduction to Dentifrices, facial cosmetics, Deodorants. Anti-perspirants, shampoo, Hair dressings and Hair removers.
Sterile Dosage forms:

Parenteral dosage forms-Definition, General requirements for parenteral dosage forms. Types of parenteral formulations, vehicles, adjuvant, processing and personnel. Facilities and quality control. Preparation of Intravenous fluids and admixtures-Total parenteral nutrition, Dialysis fluids.
Sterility testing: particulate matter monitoring- Faculty seal packaging.
Ophthalmic products: study of essential characteristics of different ophthalmic preparations. Formulation: additives, special precautions in handling and storage of ophthalmic products.

PRACTICAL (100 hours)
Dispensing of at least 100 products covering a wide range of preparations such as mixtures, emulsion, solutions, liniments, E.N.T. preparations. Ointments, suppositories, powders, incompatible prescriptions etc.

Books recommended: (Latest editions)
1. Indian Pharmacopoeia.
2. British pharmacopoeia.
3. National formularies(N.F.I..B.N.P)
4. Remington's pharmaceutical sciences.
5. Martindale's Extra pharmacopoeia.

2.2 PHARMACEUTICAL CHEMISTRY II

THEORY (100 hours)
1. Introduction to the nomenclature of organic chemical systems with particular reference to hetero-cyclic system containing up to 3 rings.
2. The chemistry of following pharmaceutical organic compounds covering their nomenclature, chemical structure, uses and the important physical and chemical properties(chemical structure of only those compounds marked with asterisk (*). The stability and storage conditions and the different type of pharmaceutical formulations of these drugs and their popular brand names.

Antiseptics and Disinfectants-Proflavine*, Benzalkonium chloride, Cetrimide, Phenol, chloroxylenol, Formaldehyde solution, Hexachlophene, Nitrofurantoin.
Sulphonamides- Sulphadiazine, Sulphaguanidine, Phthalylsulphathaizole, Succinylsulphathiazole, Sulphadimethoxine, Sulphamethoxypyridazine, Co-trimoxazole, sulfacetamide*
Antileprotic Drugs-Clofazimine , Thiambutosine, Dapsone*, solapsone,
Anti-tubercular Drugs- Isoniazid*, PAS*, Streptomycin, Rifampicin, Ethambutol*, Thiacetazone, Ethionamide, cycloserine, pyrazinamide*.
Antimoebic and Anthelmintic Drugs- Emetine, Metronidazole, Halogenated hydroxyquinolines, Diloxamide furoate, Paromomycin , Piperazine*, Mebendazole
,D.E.C.*
Antibiotics- Benzyl penicillin*, Phenoxy methyl penicillin*, Benzathine penicillin, Ampicillin*, Cloxacillin, Carbenicillin, Gentamicin, Neomycin, Erythromycin, Tetracycline, Cephalexin, Cephaloridine, Cephalothin, Griseofulvin, Chloramphenicol.
Antifungal agents- Udecylenic acid, Tolnaftate, Nystatin, Amphotericin, Hamycin.
Antimalarial Drugs-Chloroquine*,Amodiaquine, Primaquine, Proguanil, Pyrimethamine*, Quinine, Trimethoprim.
Tranquilizers-Chlorpromazine*, Prochlorperazine, Trifluoperazine, Thiothixene, Haloperiodol*, Triperiodol, Oxypertine, Chlordizepoxide, Diazepam*, Lorazepam, Meprobamate.
Hypnotics- Phenobarbitone*, Butobarbitone, Cylobarbitone, Nitrazepam, Glutethimide*, Methyprylon, Paraldehyde, Triclofosodium.
General Anaesthetics-Halothane*, Cyclopropane*, Diethyl ether*, Methohexital sodium, Thiopecal sodium, Trichloroethylene .
Antidepressant Drugs- Amitriptyline, Nortryptyline, Imperamine*, Phepelzine, Tranylcypromine.
Analeptics- Theophylline, Caffeine*, Coramine*, Dexiro-amphetamine.

Adrenergic drugs- Adrenaline*, Noradrenaline, Isoprenaline*, Phenylephrine, Salbutamol, Terbutaline, Ephedrne*, Pseudoephedrine.
Adrenergic antagonist- Tolazoline, Propranolol*, Practolol.
Cholinergic Drugs- Neostigmine*, Pyridostigmine, Pralidoxime, Pilocarpine, Physostigmine*.
Cholinergic Antagonists- Atropine*, Hyoscine, Homatropine, Propantheline*, Benztropine, Tropicamide, Biperiden*.
Diuretic Drugs- Furosemide*, Chlorothiazide, Hydrochlorothiazide*, Benzthiazide, Urea*, Mannitol*, Ethacrynic Acid.
Cardiovascular Drugs- Ethylnitrite*, Glyceryl trinitrate, Alpha methyldopa, Guanethidine, Clofibrate, Quinidine.
Hypoglycemic Agents- Insulin, Chlorpropamide*, Tolbutamide, Glibenclamide, Phenformin*, Metformin.
Coagulants and Anti coagulants- Heparin, Thrombin, Menadione*, Bisphydroxy-coumarin, Warfarin sodium.
Local Anaesthetics- Lignocaine*. Procaine*, Benzocaine,
Histamine and anti Histaminic Agents- Histamine, Diphenhydramine*. Promethazine, Cyproheptadine, Mepyramine*, Pheniramine, Chlorpheniramine*,
Analgesics and Anti-pyretics-Morphine, Pethidine, Codeine, Methadone, Aspirin*, Paracetamol, Analgin, Dextropropoxphene, Pentazocine.
Non-steriodal anti-inflammatory agents- Indomethacin*, Phenylbutazone*, Oxyphenbutazone, Ibuprofen.
Thyroxine and Antithyroids- Thyroxine*, Methimazole, Methyl thiouracil, Propylthiouracil.
Diagnostic Agents- Lopanoic Acid, Propyliodone, Sulfobromophtalein-sodium, Indigotindisulfonate, Indigo Carmine, Evans blue, Congo Red, Fluorescein sodium.
Anticonvulsants, cardiac glycosides, Antiarrhythmic, Antihypertensives & Vitamins.
Steroidal Drugs- Betamethasone, Cortisone, Hydrocortisone, Prednisolone, Progesterone, Testosterone, Oestradiol, Nandrolone.
Anti-Neoplastic Drugs- Actinomycin, Azathioprie, Busulphan, Chloramubucil, Cisplatin, Cyclophosphamide, Daunorubicin Hydrochoride, Fluorouracil, Mercaptopurine, Methotrexate, Mytomycin.

Books Recommended: (Latest editions)
1. Pharmacopoeia of India.
2. British Pharmaceutical codex.
3. Martindale's Extra pharmacopoeia.

PRACTICAL (75 hours)
1. Systematic qualitative testing of organic drugs involving solubility determination, melting point and/or boiling point, detection of elements and functional groups (10 compounds).
2. Official identification tests for certain groups of drugs included in the I.P. like barbiturates, sulfonamides, Phenothiazines, Antibiotics etc.(8 compounds).
3. Preparation of three simple organic preparations.

2.3 PHARMACOLOGY & TOXICOLOGY

THEORY (75 hours)

Introduction to pharmacology, scope of pharmacology.

Routes of administration of drugs, their advantages and disadvantages. Various processes of absorption of drugs and the factors affecting them. Metabolism, distribution and excretion of drugs.

General mechanism of drugs action and their factors which modify drugs action. Pharmacological classification of drugs. The discussion of drugs should emphasize the following aspects:

Drugs acting on the central Nervous system:

ANNEXURE II: SYLLABUS OF THE PROGRAM

General anaesthetics- adjunction to anaesthesia, intravenous anaesthetics.
Analgesic antipyretics and non-steroidal
Anti-inflammatory drugs- Narcotic analgesics.
Antirheumatic and anti-gout remedies.
Sedatives and Hypnotics, psychopharmacological agents, anticonvulsants, analeptics.
Centrally acting muscle relaxants and anti parkinsonism agents.
Local anesthetics.
Drugs acting on autonomic nervous system.
Cholinergic drugs, Anticholinergic drugs, anticholinesterase drugs.
Adrenergic drugs and adrenergic receptor blockers.
Neurone blockers and ganglion blockers.
Neuromuscular blockers, used in myasthenia gravis.
Drugs acting on eye: Mydriatics, drugs used in glaucoma.

Drugs acting on respiratory system
Respiratory stimulants, Bronchodilators, Nasal decongestants, Expectorants and Antitussive agents.

Autocoids: physiological role of histamine and serotonin, Histamine and Antihistamines, prostaglandins.

Cardio vascular drugs
Cardiotonics, Antiarrhythmic agents, Anti-anginal agents, Antihypertensive agents, peripheral Vasodilators and drugs used in atherosclerosis.
Drugs acting on the blood and blood forming organs. Haematinics, coagulants and anticoagulants, Haemostatic , Blood substitutes and plasma expanders.

Drugs affecting renal function- Diuretics and anti-diuretics.

Hormones and hormone antagonists- Hypoglycemic agents, Anti--thyroid drugs, sex hormones and oral contraceptives , corticosteroids.

Drugs acting on digestive system-carminatives, digest ants, Bitters, Antacids and drugs used in peptic ulcer, purgatives ,and laxatives, Antidiarrhoeals, Emetics, Anti-emetics, Antispasmodics.

Chemotherapy of microbial diseases:
Urinary antiseptics, sulphonamides, penicillin, streptomycin, Tetracyclines and other antibiotics, Anti-tubercular agents, Antifungal agents, antiviral drugs, anti-leprotic drugs.
Chemotherapy of protozoal diseases, Anthelmintic drugs.
Chemotherapy of cancer.

Disinfectants and antiseptics.

PHARMACOLOGY

PRACTICAL (50 hours)

1. The first six of the following experiments will be done by the students while
2. the remaining will be demonstrated by the teacher.
3. Effect of potassium and calcium ions, acetylcholine and adrenaline on frog's heart.
4. Effect of acetyl choline on rectus abdomens muscle of frog and guinea pig ileum.
5. Effect of spasmogens and relaxants on rabbits intestine.
6. Effect of local anaesthetics on rabbit cornea.
7. Effect of mydriatics and miotics on rabbit's eye.
8. To study the action of strychnine on frog.
9. Effect of digitalis on frog's heart.
10. Effect of hypnotics in mice.
11. Effect of convulsants and anticonvulsant in mice or rats.
12. Test for pyrogens.
13. Taming and hypnosis potentiating effect of chlorpromazine in mice/rats.
14. Effect of diphenhydramine in experimentally produced asthma in guinea pigs.

2.4 PHARMACEUTICAL JURISPRUDENCE

THEORY (50 hours)

Origin and nature of pharmaceutical legislation in India, its scope and objectives. Evolution of the "Concept of pharmacy" as an integral part of the Health care system.

Principles and significance of professional Ethics. Critical study of the code of pharmaceutical Ethics drafted by pharmacy council of India.

Pharmacy Act,1948-The General study of the pharmacy Act with special reference to Education Regulations ,Working of state and central councils, constitution of these councils and functions, Registration procedures under the Act.

The Drugs and Cosmetics Act,1940-General study of the Drugs and cosmetics Act and the Rules there under. Definitions and salient features related to retail and whole sale distribution of drugs. The powers of Inspectors, the sampling procedures and the procedure and formalities in obtaining licenses under the rule. Facilities to be provided for running a pharmacy effectively. General study of the schedules with special reference to schedules C,C1,F,G,J,H,P and X and salient features of labeling and storage conditions of drugs.

The Drugs and Magic Remedies (objectionable Advertisement)Act, 1954-General study of the Act, objectives , special reference to be laid on Advertisements, magic remedies and objections1 and permitted advertisements -diseases which cannot be claimed to be cured.

Narcotic Drugs and psychotropic substances Act,1985-A brief study of the act with special reference to its objectives, offences and punishment.

Brief introduction to the study of the following acts:
Latest Drugs (price control) order in force.

Poisons Act 1919(as amended to date)

Medicinal and Toilet preparations (excise Duties) Act, 1955 (as amended to date).

Medical Termination of Pregnancy Act, 1971(as amended to date).

Books recommended:(Latest editions)
Bare Acts of the said laws published by Government.

2.5 DRUG STORE AND BUSINESS MANAGEMENT

THEORY (75 hours)

Part I Commerce (50 hours)

Introduction-Trade, Industry and commerce, Functions and subdivision of commerce, Introduction to Elements for Economics and Management, Forms of Business Organizations, Channels of Distribution.

Drug House Management-selection of site, space Lay-out and legal requirements. Importance and objectives of purchasing, selection of suppliers, credit information, tenders, contracts and price determination and legal requirements thereto.Codification, handling of drug stores and other hospital supplies. Inventory Control-objects and importance, modern techniques like ABC,VED analysis, the lead time, inventory carrying cost, safety stock, minimum and maximum stock levels, economic order quantity, scrap and surplus disposal.

Sales promotion, Market Research, Salesmanship, qualities of a salesman, Advertising and Window Display.

Recruitment, training, evaluation and compensation of the pharmacist.

Banking and Finance-Service and functions of bank, Finance planning and sources of finance.

Part II Accountancy (25 hours)

Introduction to the accounting concepts and conventions. Double entry Book Keeping, Different kinds of accounts. Cash Book. General Ledger and Trial Balance. Profit and Loss Account and Balance Sheet. Simple techniques of analyzing financial statements. Introduction to Budgeting.

Books Recommended: (Latest editions)

2.6 HOSPITAL AND CLINICAL PHARMACY

THEORY (75 hours)

Part-I: Hospital Pharmacy:

Hospital-Definition, Function, classifications based on various criteria, organization, Management and health delivery system in India.

Hospital Pharmacy: Definition Functions and objectives of Hospital pharmaceutical services. Location, Layout, Flow chart of materials and men.
Personnel and facilities requirements including equipments based on individual and basic needs. Requirements and abilities required for Hospital pharmacists.
Drug Distribution system in Hospitals. Out-patient service.
In-patient services- types of services detailed discussion of unit Dose system, Floor ward stock system, satellite pharmacy services, central sterile services, Bed side pharmacy.

Manufacturing: Economical considerations, estimation of demand.

Sterile manufacture-Large and small volume parenterals, facilities, requirements, layout production planning , man-power requirements.

Non-sterile manufacture-Liquid orals, externals, Bulk concentrates. Procurement of stores and testing of raw materials.

Nomenclature and uses of surgical instruments and Hospital Equipments and health accessories.
P.T.C.(pharmacy Therapeutic Committee)

Hospital Formulary system and their organization, functioning, composition.

Drug Information service and Drug Information Bulletin.

Surgical dressing like cotton, gauze, bandages and adhesive tapes including their pharmacopoeial tests for quality. Other hospital supply eg. I.V.sets, B.G. sets, Ryals tubes, Catheters, Syringes etc

Application of computers in maintenance of records, inventory control, medication monitoring, drug information and data storage and retrieval in hospital retail pharmacy establishment.

Part II: Clinical Pharmacy:

Introduction to Clinical pharmacy practice- Definition, scope.

Modern dispensing aspects- Pharmacists and patient counseling and advice for the use of common drugs, medication history.

Common daily terminology used in the practice of Medicine.

Disease, manifestation and patho-physiology including salient symptoms to understand the disease like Tuberculosis, Hepatitis, Rheumatoid Arthritis, Cardio-vascular diseases, Epilepsy, Diabetes, Peptic Ulcer, Hypertension.

Physiological parameters with their significance.

Drug Interactions: Definition and introduction. Mechanism of Drug Interaction. Drug-drug interaction with reference to analgesics, diuretics, cardiovascular drugs, Gastro-intestinal agents, Vitamins and Hypoglycemic agents, Drug-food interaction.
Adverse Drug Reaction: Definition and significance. Drug-Induced diseases and Teratogenicity.

Drugs in Clinical Toxicity- Introduction, general treatment of poisoning, systemic antidotes, Treatment of insecticide poisoning, heavy metal poison, Narcotic drugs, Barbiturate, Organo-phosphorus poisons.

Drug dependences, drug abuse, addictive drugs and their treatment, complications.

Bio-availability of drugs, including factors affecting it.

Books Recommended:(Latest editions)
1. Remington's pharmaceutical sciences.
2. Testing of raw materials used in (1).
3. Evaluation of surgical dressings.
4. Sterilization of surgical instruments, glassware and other hospital supplies.
5. Handling and use of data processing equipments.

ANNEXURE II: SYLLABUS OF THE PROGRAM

ACCORDING TO EDUCATION REGULATIONS 2020 (E.R.2020)

PHARMACEUTICS – THEORY

Course Code: ER20-11T **75 Hours (3 Hours/week)**

Scope: This course is designed to impart basic knowledge and skills on the art and science of formulating and dispensing different pharmaceutical dosage forms.

Course Objectives: This course will discuss the following aspects of pharmaceutical dosage forms

1. Basic concepts, types and need
2. Advantages and disadvantages, methods of preparation / formulation
3. Packaging and labelling requirements
4. Basic quality control tests, concepts of quality assurance and good manufacturing practices

Course Outcomes: Upon successful completion of this course, the students will be able to

1. Describe about the different dosage forms and their formulation aspects
2. Explain the advantages, disadvantages, and quality control tests of different dosage forms
3. Discuss the importance of quality assurance and good manufacturing practices

Chapter	Topics	Hours
1	• History of the profession of Pharmacy in India in relation to Pharmacy education, industry, pharmacy practice, and various professional associations. • Pharmacy as a career • Pharmacopoeia: Introduction to IP, BP, USP, NF and Extra Pharmacopoeia. Salient features of Indian Pharmacopoeia	7
2	**Packaging materials:** Types, selection criteria, advantages and disadvantages of glass, plastic, metal, rubber as packaging materials	5
3	**Pharmaceutical aids:** Organoleptic (Colouring, flavouring, and sweetening) agents **Preservatives:** Definition, types with examples and uses	3
4	**Unit operations:** Definition, objectives/applications, principles, construction, and workings of: **Size reduction:** hammer mill and ball mill **Size separation:** Classification of powders according to IP, Cyclone separator, Sieves and standards of sieves	9

	Mixing: Double cone blender, Turbine mixer, Triple roller mill and Silverson mixer homogenizer	
	Filtration: Theory of filtration, membrane filter and sintered glass filter	
	Drying: working of fluidized bed dryer and process of freeze drying	
	Extraction: Definition, Classification, method, and applications	
5	**Tablets** – coated and uncoated, various modified tablets (sustained release, extended-release, fast dissolving, multi-layered, etc.)	8
	Capsules - hard and soft gelatine capsules	4
	Liquid oral preparations - solution, syrup, elixir, emulsion, suspension, dry powder for reconstitution	6
	Topical preparations - ointments, creams, pastes, gels, liniments and lotions, suppositories, and pessaries	8
	Nasal preparations, Ear preparations	2
	Powders and granules - insufflations, dusting powders, effervescent powders, and effervescent granules	3
	Sterile formulations – Injectables, eye drops and eye ointments	6
	Immunological products: Sera, vaccines, toxoids, and their manufacturing methods.	4
6	**Basic structure, layout, sections, and activities of pharmaceutical manufacturing plants** **Quality control and quality assurance**: Definition and concepts of quality control and quality assurance, current good manufacturing practice (cGMP), Introduction to the concept of calibration and validation	5
7	**Novel drug delivery systems:** Introduction, Classification with examples, advantages, and challenges	5

PHARMACEUTICS – PRACTICAL

Course Code: ER20-11P **75 Hours (3 Hours/week)**

Scope: This course is designed to train the students in formulating and dispensing common pharmaceutical dosage forms.

Course Objectives: This course will discuss and train the following aspects of preparing and dispensing various pharmaceutical dosage forms

1. Calculation of working formula from the official master formula

2. Formulation of dosage forms based on working formula
3. Appropriate Packaging and labelling requirements
4. Methods of basic quality control tests

Course Outcomes: Upon successful completion of this course, the students will be able to

1. Calculate the working formula from the given master formula
2. Formulate the dosage form and dispense in an appropriate container
3. Design the label with the necessary product and patient information
4. Perform the basic quality control tests for the common dosage forms

Practicals

1. Handling and referring the official references: Pharmacopoeias, Formularies, etc. for retrieving formulas, procedures, etc.

2. Formulation of the following dosage forms as per monograph standards and dispensing with appropriate packaging and labelling
   - **Liquid Oral:** Simple syrup, Piperazine citrate elixir, Aqueous Iodine solution
   - **Emulsion:** Castor oil emulsion, Cod liver oil emulsion
   - **Suspension:** Calamine lotion, Magnesium hydroxide mixture
   - **Ointment:** Simple ointment base, Sulphur ointment
   - **Cream:** Cetrimide cream
   - **Gel:** Sodium alginate gel
   - **Liniment:** Turpentine liniment, White liniment BPC
   - **Dry powder:** Effervescent powder granules, Dusting powder
   - **Sterile Injection:** Normal Saline, Calcium gluconate Injection
   - **Hard Gelatine Capsule:** Tetracycline capsules
   - **Tablet:** Paracetamol tablets
3. Formulation of at least five commonly used cosmetic preparations – e.g. cold cream, shampoo, lotion, toothpaste etc

4. Demonstration on various stages of tablet manufacturing processes

5. Appropriate methods of usage and storage of all dosage forms including special dosage such as different types of inhalers, spacers, insulin pens
6. Demonstration of quality control tests and evaluation of common dosage forms viz. tablets, capsules, emulsion, sterile injections as per the monographs

Assignments

The students shall be asked to submit written assignments on the following topics (One assignment per student per sessional period. i.e., a minimum of THREE assignments per student)

1. Various systems of measures commonly used in prescribing, compounding and dispensing practices
2. Market preparations (including Fixed Dose Combinations) of each type of dosage forms, their generic name, minimum three brand names and label contents of the dosage forms mentioned in theory/practical
3. Overview of various machines / equipments / instruments involved in the formulation and quality control of various dosage forms / pharmaceutical formulations.
4. Overview of extemporaneous preparations at community / hospital pharmacy vs. manufacturing of dosage forms at industrial level
5. Basic pharmaceutical calculations: ratios, conversion to percentage fraction, alligation, proof spirit, isotonicity

Field Visit

The students shall be taken for an industrial visit to pharmaceutical industries to witness and understand the various processes of manufacturing of any of the common dosage forms viz. tablets, capsules, liquid orals, injectables, etc. Individual reports from each student on their learning experience from the field visit shall be submitted.

ANNEXURE II: SYLLABUS OF THE PROGRAM

PHARMACEUTICAL CHEMISTRY – THEORY

Course Code: ER20-12T **75 Hours (3 Hours/week)**

Scope: This course is designed to impart basic knowledge on the chemical structure, storage conditions and medicinal uses of organic and inorganic chemical substances used as drugs and pharmaceuticals. Also, this course discusses the impurities, quality control aspects of chemical substances used in pharmaceuticals.

Course Objectives: This course will discuss the following aspects of the chemical substances used as drugs and pharmaceuticals for various disease conditions

1. Chemical classification, chemical name, chemical structure
2. Pharmacological uses, doses, stability and storage conditions
3. Different types of formulations / dosage form available and their brand names
4. Impurity testing and basic quality control tests

Course Outcomes: Upon successful completion of this course, the students will be able to

1. Describe the chemical class, structure and chemical name of the commonly used drugs and pharmaceuticals of both organic and inorganic nature
2. Discuss the pharmacological uses, dosage regimen, stability issues and storage conditions of all such chemical substances commonly used as drugs
3. Describe the quantitative and qualitative analysis, impurity testing of the chemical substances given in the official monographs
4. Identify the dosage form & the brand names of the drugs and pharmaceuticals popular in the marketplace

Chapter	Topic	Hours
1	**Introduction to Pharmaceutical chemistry:** Scope and objectives **Sources and types of errors:** Accuracy, precision, significant figures **Impurities in Pharmaceuticals:** Source and effect of impurities in Pharmacopoeial substances, importance of limit test, Principle and procedures of Limit tests for chlorides, sulphates, iron, heavy metals and arsenic.	8
2	**Volumetric analysis:** Fundamentals of volumetric analysis, Acid-base titration, non-aqueous titration, precipitation titration, complexometric titration, redox titration **Gravimetric analysis:** Principle and method.	8

3	**Inorganic Pharmaceuticals:** Pharmaceutical formulations, market preparations, storage conditions and uses of • **Haematinics:** Ferrous sulphate, Ferrous fumarate, Ferric ammonium citrate, Ferrous ascorbate, Carbonyl iron • **Gastro-intestinal Agents:** Antacids :Aluminium hydroxide gel, Magnesium hydroxide, Magaldrate, Sodium bicarbonate, Calcium Carbonate, Acidifying agents, Adsorbents, Protectives, Cathartics • **Topical agents:** Silver Nitrate, Ionic Silver, Chlorhexidine Gluconate, Hydrogen peroxide, Boric acid, Bleaching powder, Potassium permanganate • **Dental products:** Calcium carbonate, Sodium fluoride, Denture cleaners, Denture adhesives, Mouth washes • **Medicinal gases:** Carbon dioxide, nitrous oxide, oxygen	7
4	Introduction to nomenclature of organic chemical systems with particular reference to heterocyclic compounds containing up to Three rings	2
Study of the following category of medicinal compounds with respect to classification, chemical name, chemical structure (compounds marked with*) uses, stability and storage conditions, different types of formulations and their popular brand names		
5	**Drugs Acting on Central Nervous System** • **Anaesthetics:** Thiopental Sodium*, Ketamine Hydrochloride*, Propofol • **Sedatives and Hypnotics:** Diazepam*, Alprazolam*, Nitrazepam, Phenobarbital* • **Antipsychotics:** Chlorpromazine Hydrochloride*, Haloperidol*, Risperidone*, Sulpiride*, Olanzapine, Quetiapine, Lurasidone • **Anticonvulsants:** Phenytoin*, Carbamazepine*, Clonazepam, Valproic Acid*, Gabapentin*, Topiramate, Vigabatrin, Lamotrigine • **Anti-Depressants:** Amitriptyline Hydrochloride*, Imipramine Hydrochloride*, Fluoxetine*, Venlafaxine, Duloxetine, Sertraline, Citalopram, Escitalopram, Fluvoxamine, Paroxetine	9
6	**Drugs Acting on Autonomic Nervous System** • **Sympathomimetic Agents:** ***Direct Acting:*** Nor-Epinephrine*, Epinephrine, Phenylephrine,	9

	Dopamine*, Terbutaline, Salbutamol (Albuterol), Naphazoline*, Tetrahydrozoline. ***Indirect Acting Agents:*** Hydroxy Amphetamine, Pseudoephedrine. Agents With Mixed Mechanism: Ephedrine, Metaraminol • **Adrenergic Antagonists:** Alpha Adrenergic Blockers: Tolazoline, Phentolamine • Phenoxybenzamine, Prazosin. Beta Adrenergic Blockers: Propranolol*, Atenolol*, Carvedilol • **Cholinergic Drugs and Related Agents:** Direct Acting Agents: Acetylcholine*, Carbachol, And Pilocarpine. Cholinesterase Inhibitors: Neostigmine*, Edrophonium Chloride, Tacrine Hydrochloride, Pralidoxime Chloride, Echothiopate Iodide • **Cholinergic Blocking Agents:** Atropine Sulphate*, Ipratropium Bromide ***Synthetic Cholinergic Blocking Agents:*** Tropicamide, Cyclopentolate Hydrochloride, Clidinium Bromide, Dicyclomine Hydrochloride*	
7	**Drugs Acting on Cardiovascular System** • **Anti-Arrhythmic Drugs:** Quinidine Sulphate, Procainamide Hydrochloride, Verapamil. Phenytoin Sodium*, Lidocaine Hydrochloride, Lorcainide Hydrochloride, Amiodarone and Sotalol • **Anti-Hypertensive Agents:** Propranolol*, Captopril*, Ramipril, Methyldopate Hydrochloride, Clonidine Hydrochloride, Hydralazine Hydrochloride, Nifedipine, • **Antianginal Agents:** Isosorbide Dinitrate	5
8	**Diuretics:** Acetazolamide, Frusemide*, Bumetanide, Chlorthalidone, Benzthiazide, Metolazone, Xipamide, Spironolactone	2
9	**Hypoglycemic Agents:** Insulin and Its Preparations, Metformin*, Glibenclamide*, Glimepiride, Pioglitazone, Repaglinide, Gliflozins, Gliptins	3
10	**Analgesic And Anti-Inflammatory Agents:** Morphine Analogues, Narcotic Antagonists: ***Nonsteroidal Anti-inflammatory Agents (NSAIDs)*** - Aspirin*, Diclofenac, Ibuprofen*, Piroxicam, Celecoxib, Mefenamic Acid, Paracetamol*, Aceclofenac	3
11	**Anti-Infective Agents** • **Antifungal Agents:** Amphotericin-B, Griseofulvin, Miconazole, Ketoconazole*, Itraconazole, Fluconazole*, Naftifine Hydrochloride	8

	• **Urinary Tract Anti-Infective Agents:** Norfloxacin, Ciprofloxacin, Ofloxacin*, Moxifloxacin, • **Anti-Tubercular Agents:** INH*, Ethambutol, Para Amino Salicylic Acid, Pyrazinamide, Rifampicin, Bedaquiline, Delamanid, Pretomanid* • **Antiviral Agents:** Amantadine Hydrochloride, Idoxuridine, Acyclovir*, Foscarnet, Zidovudine, Ribavirin, Remdesivir, Favipiravir • **Antimalarials:** Quinine Sulphate, Chloroquine Phosphate*, Primaquine Phosphate, Mefloquine*, Cycloguanil, Pyrimethamine, Artemisinin • **Sulfonamides:** Sulfanilamide, Sulfadiazine, Sulfamethoxazole, Sulfacetamide*, Mafenide Acetate, Cotrimoxazole, Dapsone*	
12	**Antibiotics:** Penicillin G, Amoxicillin*, Cloxacillin, Streptomycin, ***Tetracyclines:*** Doxycycline, Minocycline, ***Macrolides:*** Erythromycin, Azithromycin, ***Miscellaneous:*** Chloramphenicol* Clindamycin	8
13	**Anti-Neoplastic Agents:** Cyclophosphamide*, Busulfan, Mercaptopurine, Fluorouracil*, Methotrexate, Dactinomycin, Doxorubicin Hydrochloride, Vinblastine Sulphate, Cisplatin*, Dromostanolone Propionate	3

PHARMACEUTICAL CHEMISTRY – PRACTICAL

Course Code: ER20-12P **75 Hours (3 Hours/week)**

Scope: This course is designed to impart basic training and hands-on experiences to synthesis chemical substances used as drugs and pharmaceuticals. Also, to perform the quality control tests, impurity testing, test for purity and systematic qualitative analysis of chemical substances used as drugs and pharmaceuticals.

Course Objectives: This course will provide the hands-on experience on the following aspects of chemical substances used as drugs and pharmaceuticals

1. Limit tests and assays of selected chemical substances as per the monograph
2. Volumetric analysis of the chemical substances
3. Basics of preparatory chemistry and their analysis
4. Systematic qualitative analysis for the identification of the chemical drugs

ANNEXURE II: SYLLABUS OF THE PROGRAM

Course Outcomes: Upon successful completion of this course, the students will be able to

1. Perform the limit tests for various inorganic elements and report
2. Prepare standard solutions using the principles of volumetric analysis
3. Test the purity of the selected inorganic and organic compounds against the monograph standards
4. Synthesize the selected chemical substances as per the standard synthetic scheme
5. Perform qualitative tests to systematically identify the unknown chemical substances

Practicals

S. No.	Experiment
1	**Limit test for** • Chlorides; sulphate; Iron; heavy metals
2	Identification tests for Anions and Cations as per Indian Pharmacopoeia
3	**Fundamentals of Volumetric analysis** Preparation of standard solution and standardization of Sodium Hydroxide, Potassium Permanganate
4	**Assay of the following compounds** • Ferrous sulphate- by redox titration • Calcium gluconate-by complexometric • Sodium chloride-by Modified Volhard's method • Ascorbic acid by iodometry • Ibuprofen by alkalimetry
5	**Fundamentals of preparative organic chemistry** Determination of Melting point and boiling point of organic compounds
6	**Preparation of organic compounds** • Benzoic acid from Benzamide • Picric acid from Phenol
7	**Identification and test for purity of pharmaceuticals** Aspirin, Caffeine, Paracetamol, Sulfanilamide
8	Systematic Qualitative analysis experiments (4 substances)

Assignments

The students shall be asked to submit the written assignments on the following topics (One assignment per student per sessional period, i.e., a minimum of THREE assignments per student)

1. Different monographs and formularies available and their major contents
2. Significance of quality control and quality assurance in pharmaceutical industries
3. Overview on Green Chemistry
4. Various software programs available for computer aided drug discovery
5. Various instrumentations used for characterization and quantification of drug

PHARMACOGNOSY – THEORY

Course Code: ER20-13T **75 Hours (3 Hours/week)**

Scope: This course is designed to impart knowledge on the medicinal uses of various drugs of natural origin. Also, the course emphasizes the fundamental concepts in the evaluation of crude drugs, alternative systems of medicine, nutraceuticals, and herbal cosmetics.

Course Objectives: This course will discuss the following aspects of drug substances derived from natural resources.

1. Occurrence, distribution, isolation, identification tests of common phytoconstituents
2. Therapeutic activity and pharmaceutical applications of various natural drug substances and phytoconstituents
3. Biological source, chemical constituents of selected crude drugs and their therapeutic efficacy in common diseases and ailments
4. Basic concepts in quality control of crude drugs and various system of medicines
5. Applications of herbs in health foods and cosmetics

Course Outcomes: Upon successful completion of this course, the students will be able to

1. Identify the important/common crude drugs of natural origin
2. Describe the uses of herbs in nutraceuticals and cosmeceuticals
3. Discuss the principles of alternative system of medicines
4. Describe the importance of quality control of drugs of natural origin

Chapter	Topic	Hours
1	Definition, history, present status and scope of Pharmacognosy	2
2	**Classification of drugs:** • Alphabetical • Taxonomical • Morphological • Pharmacological • Chemical • Chemo-taxonomical	4
3	**Quality control of crude drugs:** • Different methods of adulteration of crude drugs • Evaluation of crude drugs	6

4	Brief outline of occurrence, distribution, isolation, identification tests, therapeutic activity and pharmaceutical applications of alkaloids, terpenoids, glycosides, volatile oils, tannins and resins.	6
5	Biological source, chemical constituents and therapeutic efficacy of the following categories of crude drugs.	30
	Laxatives — Aloe, Castor oil, Ispaghula, Senna	
	Cardiotonic — Digitalis, Arjuna	
	Carminatives and G.I. regulators — Coriander, Fennel, Cardamom, Ginger, Clove, Black Pepper, Asafoetida, Nutmeg, Cinnamon	
	Astringents — Myrobalan, Black Catechu, Pale Catechu	
	Drugs acting on nervous system — Hyoscyamus, Belladonna, Ephedra, Opium, Tea leaves, Coffee seeds, Coca	
	Anti-hypertensive — Rauwolfia	
	Anti-tussive — Vasaka, Tolu Balsam	
	Anti-rheumatics — Colchicum seed	
	Anti-tumour — Vinca, Podophyllum	
	Antidiabetics — Pterocarpus, Gymnema	
	Diuretics — Gokhru, Punarnava	
	Anti-dysenteric — Ipecacuanha	
	Antiseptics and disinfectants — Benzoin, Myrrh, Neem, Turmeric	
	Antimalarials — Cinchona, Artemisia	
	Oxytocic — Ergot	
	Vitamins — Cod liver oil, Shark liver oil	
	Enzymes — Papaya, Diastase, Pancreatin, Yeast	
	Pharmaceutical Aids — Kaolin, Lanolin, Beeswax, Acacia, Tragacanth, Sodium alginate, Agar, Guar gum, Gelatine	
	Miscellaneous — Squill, Galls, Ashwagandha, Tulsi, Guggul	
6	**Plant fibres used as surgical dressings:** Cotton, silk, wool and regenerated fibres Sutures – Surgical Catgut and Ligatures	3
7	• **Basic principles involved in the traditional systems of medicine like:** Ayurveda, Siddha, Unani and Homeopathy • **Method of preparation of Ayurvedic formulations like:** Arista, Asava, Gutika, Taila, Churna, Lehya and Bhasma	8

ANNEXURE II: SYLLABUS OF THE PROGRAM

8	Role of medicinal and aromatic plants in national economy and their export potential	2
9	**Herbs as health food:** Brief introduction and therapeutic applications of: Nutraceuticals, Antioxidants, Pro-biotics, Pre-biotics, Dietary fibres, Omega-3-fatty acids, Spirulina, Carotenoids, Soya and Garlic	4
10	Introduction to herbal formulations	4
11	**Herbal cosmetics:** Sources, chemical constituents, commercial preparations, therapeutic and cosmetic uses of: Aloe vera gel, Almond oil, Lavender oil, Olive oil, Rosemary oil, Sandal Wood oil	4
12	Phytochemical investigation of drugs	2

PHARMACOGNOSY – PRACTICAL

Course Code: ER20-13P **75 Hours (3 Hours/week)**

Scope: This course is designed to train the students in physical identification, morphological characterization, physical and chemical characterization, and evaluation of commonly used herbal drugs.

Course Objectives: This course will provide hands-on experiences to the students in

1. Identification of the crude drugs based on their morphological characteristics
2. Various characteristic anatomical characteristics of the herbal drugs studied through transverse section
3. Physical and chemical tests to evaluate the crude drugs

Course Outcomes: Upon successful completion of this course, the students will be able to

1. Identify the given crude drugs based on the morphological characteristics
2. Take a transverse section of the given crude drugs
3. Describe the anatomical characteristics of the given crude drug under microscopical conditions
4. Carry out the physical and chemical tests to evaluate the given crude drugs

Practicals

1. Morphological Identification of the following drugs:
Ispaghula, Senna, Coriander, Fennel, Cardamom, Ginger, Nutmeg, Black Pepper, Cinnamon, Clove, Ephedra, Rauwolfia, Gokhru, Punarnava, Cinchona, Agar.

2. Gross anatomical studies (Transverse Section) of the following drugs:
Ajwain, Datura, Cinnamon, Cinchona, Coriander, Ashwagandha, Liquorice, Clove, Curcuma, Nux vomica, Vasaka

3. Physical and chemical tests for evaluation of any FIVE of the following drugs:
Asafoetida, Benzoin, Pale catechu, Black catechu, Castor oil, Acacia, Tragacanth, Agar, Guar gum, Gelatine.

Assignments

The students shall be asked to submit the written assignments on the following topics (One assignment per student per sessional period. i.e., a minimum of THREE assignments per student)

1. Market preparations of various dosage forms of Ayurvedic, Unani, Siddha, Homeopathic (Classical and Proprietary), indications, and their labelling requirements
2. Market preparations of various herbal formulations and herbal cosmetics, indications, and their labelling requirements
3. Herb-Drug interactions documented in the literature and their clinical significances

Field Visit

The students shall be taken in groups to a medicinal garden to witness and understand the nature of various medicinal plants discussed in theory and practical courses. Additionally, they shall be taken in groups to the pharmacies of traditional systems of medicines to understand the availability of various dosage forms and their labelling requirements. Individual reports from each student on their learning experience from the field visit shall be submitted.

HUMAN ANATOMY AND PHYSIOLOGY – THEORY

Course Code: ER20-14T **75 Hours (3 Hours/week)**

Scope: This course is designed to impart basic knowledge on the structure and functions of the human body. It helps in understanding both homeostasis mechanisms and homeostatic imbalances of various systems of the human body.

Course Objectives: This course will discuss the following;

1. Structure and functions of the various organ systems and organs of the human body
2. Homeostatic mechanisms and their imbalances in the human body
3. Various vital physiological parameters of the human body and their significances

Course Outcomes: Upon successful completion of this course, the students will be able to

1. Describe the various organ systems of the human body
2. Discuss the anatomical features of the important human organs and tissues
3. Explain the homeostatic mechanisms regulating the normal physiology in the human system
4. Discuss the significance of various vital physiological paramcters of the human body

Chapter	Topic	Hours
1	Scope of Anatomy and Physiology Definition of various terminologies	2
2	**Structure of Cell:** Components and its functions	2
3	**Tissues of the human body:** Epithelial, Connective, Muscular and Nervous tissues – their sub-types and characteristics.	4
4	**Osseous system:** structure and functions of bones of axial and appendicular skeleton Classification, types and movements of joints, disorders of joints	3 3
5	**Haemopoietic system** • Composition and functions of blood • Process of Hemopoiesis • Characteristics and functions of RBCs, WBCs, and platelets • Mechanism of Blood Clotting • Importance of Blood groups	8

6	**Lymphatic system** • Lymph and lymphatic system, composition, function and its formation. • Structure and functions of spleen and lymph node.	3
7	**Cardiovascular system** • Anatomy and Physiology of heart • Blood vessels and circulation (Pulmonary, coronary and systemic circulation) • Cardiac cycle and Heart sounds, Basics of ECG • Blood pressure and its regulation	8
8	**Respiratory system** • Anatomy of respiratory organs and their functions. • Regulation, and Mechanism of respiration. • Respiratory volumes and capacities – definitions	4
9	**Digestive system** • Anatomy and Physiology of the GIT • Anatomy and functions of accessory glands • Physiology of digestion and absorption	8
10	**Skeletal muscles** • Histology • Physiology of muscle contraction • Disorder of skeletal muscles	2
11	**Nervous system** • Classification of nervous system • Anatomy and physiology of cerebrum, cerebellum, mid brain • Function of hypothalamus, medulla oblongata and basal ganglia • Spinal cord-structure and reflexes • Names and functions of cranial nerves. • Anatomy and physiology of sympathetic and parasympathetic nervous system (ANS)	8
12	**Sense organs - Anatomy and physiology of** • Eye • Ear • Skin • Tongue • Nose	6
13	**Urinary system** • Anatomy and physiology of urinary system • Physiology of urine formation • Renin - angiotensin system • Clearance tests and micturition	4

ANNEXURE II: SYLLABUS OF THE PROGRAM

14	**Endocrine system (Hormones and their functions)** • Pituitary gland • Adrenal gland • Thyroid and parathyroid gland • Pancreas and gonads	6
15	**Reproductive system** • Anatomy of male and female reproductive system • Physiology of menstruation • Spermatogenesis and Oogenesis • Pregnancy and parturition	4

HUMAN ANATOMY AND PHYSIOLOGY – PRACTICAL

Course Code: ER20-14P **75 Hours (3 Hours/week)**

Scope: This course is designed to train the students and instil the skills for carrying out basic physiological monitoring of various systems and functions.

Course Objectives: This course will provide hands-on experience in the following:
1. General blood collection techniques and carrying out various haematological assessments and interpreting the results
2. Recording and monitoring the vital physiological parameters in human subjects and the basic interpretations of the results
3. Microscopic examinations of the various tissues permanently mounted in glass slides
4. Discuss the anatomical and physiological characteristics of various organ systems of the body using models, charts, and other teaching aids

Course Outcomes: Upon successful completion of this course, the students will be able to
1. Perform the haematological tests in human subjects and interpret the results
2. Record, monitor and document the vital physiological parameters of human subjects and interpret the results
3. Describe the anatomical features of the important human tissues under the microscopical conditions
4. Discuss the significance of various anatomical and physiological characteristics of the human body

Practicals

1. Study of compound microscope
2. General techniques for the collection of blood
3. Microscopic examination of Epithelial tissue, Cardiac muscle, Smooth muscle, Skeletal muscle, Connective tissue, and Nervous tissue of ready / pre-prepared slides.
4. Study of Human Skeleton-Axial skeleton and appendicular skeleton
5. Determination of
   a. Blood group
   b. ESR
   c. Haemoglobin content of blood
   d. Bleeding time and Clotting time
6. Determination of WBC count of blood
7. Determination of RBC count of blood
8. Determination of Differential count of blood
9. Recording of Blood Pressure in various postures, different arms, before and after exertion and interpreting the results
10. Recording of Body temperature (using mercury, digital and IR thermometers at various locations), Pulse rate/ Heart rate (at various locations in the body, before and after exertion), Respiratory Rate
11. Recording Pulse Oxygen (before and after exertion)
12. Recording force of air expelled using Peak Flow Meter
13. Measurement of height, weight, and BMI
14. Study of various systems and organs with the help of chart, models, and specimens
    a) Cardiovascular system
    b) Respiratory system
    c) Digestive system
    d) Urinary system
    e) Endocrine system
    f) Reproductive system
    g) Nervous system
    h) Eye
    i) Ear
    j) Skin

SOCIAL PHARMACY – THEORY

Course Code: ER20-15T **75 Hours (3 Hours/week)**

Scope: This course is designed to impart basic knowledge on public health, epidemiology, preventive care, and other social health related concepts. Also, to emphasize the roles of pharmacists in the public health programs.

Course Objectives: This course will discuss about basic concepts of
1. Public health and national health programs
2. Preventive healthcare
3. Food and nutrition related health issues
4. Health education and health promotion
5. General roles and responsibilities of pharmacists in public health

Course Outcomes: Upon successful completion of this course, the students will be able to
1. Discuss about roles of pharmacists in the various national health programs
2. Describe various sources of health hazards and disease preventive measures
3. Discuss the healthcare issues associated with food and nutritional substances
4. Describe the general roles and responsibilities of pharmacists in public health

Chapter	Topic	Hours
1	**Introduction to Social Pharmacy** • Definition and Scope. Social Pharmacy as a discipline and its scope in improving the public health. Role of Pharmacists in Public Health. (2) • Concept of Health -WHO Definition, various dimensions, determinants, and health indicators. (3) • National Health Policy – Indian perspective (1) • Public and Private Health System in India, National Health Mission (2) • Introduction to Millennium Development Goals, Sustainable Development Goals, FIP Development Goals (1)	9
2	**Preventive healthcare – Role of Pharmacists in the following** • Demography and Family Planning (3) • Mother and child health, importance of breastfeeding, ill effects of infant milk substitutes and bottle feeding (2) • Overview of Vaccines, types of immunity and immunization (4)	18

	• Effect of Environment on Health – Water pollution, importance of safe drinking water, waterborne diseases, air pollution, noise pollution, sewage and solid waste disposal, occupational illnesses, Environmental pollution due to pharmaceuticals (7) • Psychosocial Pharmacy: Drugs of misuse and abuse – psychotropics, narcotics, alcohol, tobacco products. Social Impact of these habits on social health and productivity and suicidal behaviours (2)	
3	**Nutrition and Health** ▪ Basics of nutrition – Macronutrients and Micronutrients (3) • Importance of water and fibres in diet (1) • Balanced diet, Malnutrition, nutrition deficiency diseases, ill effects of junk foods, calorific and nutritive values of various foods, fortification of food (3) • Introduction to food safety, adulteration of foods, effects of artificial ripening, use of pesticides, genetically modified foods (1) ▪ Dietary supplements, nutraceuticals, food supplements – indications, benefits, Drug-Food Interactions (2)	10
4	Introduction to Microbiology and common microorganisms (3) **Epidemiology:** Introduction to epidemiology, and its applications. Understanding of terms such as epidemic, pandemic, endemic, mode of transmission, outbreak, quarantine, isolation, incubation period, contact tracing, morbidity, mortality, . (2) Causative agents, epidemiology and clinical presentations and Role of Pharmacists in educating the public in prevention of the following communicable diseases: • Respiratory infections – chickenpox, measles, rubella, mumps, influenza (including Avian-Flu, H1N1, SARS, MERS, COVID-19), diphtheria, whooping cough, meningococcal meningitis, acute respiratory infections, tuberculosis, Ebola (7) • Intestinal infections – poliomyelitis, viral hepatitis, cholera, acute diarrheal diseases, typhoid, amebiasis, worm infestations, food poisoning (7)	28

ANNEXURE II: SYLLABUS OF THE PROGRAM

	• Arthropod-borne infections - dengue, malaria, filariasis and, chikungunya (4) • Surface infections – trachoma, tetanus, leprosy (2) • STDs, HIV/AIDS (3)	
5	Introduction to health systems and **all ongoing National Health programs** in India, their objectives, functioning, outcome, and the role of pharmacists.	8
6	**Pharmacoeconomics** – Introduction, basic terminologies, importance of pharmacoeconomics	2

SOCIAL PHARMACY – PRACTICAL

Course Code: ER20-15P **75 Hours (3 Hours/week)**

Scope: This course is designed to provide simulated experience in various public health and social pharmacy activities.

Course Objectives: This course will train the students on various roles of pharmacists in public health and social pharmacy activities in the following areas:

1. National immunization programs
2. Reproductive and child health programs
3. Food and nutrition related health programs
4. Health education and promotion
5. General roles and responsibilities of the pharmacists in public health
6. First Aid for various emergency conditions including basic life support and cardiopulmonary resuscitation

Course Outcomes: Upon successful completion of this course, the students will be able to

1. Describe the roles and responsibilities of pharmacists in various National health programs
2. Design promotional materials for public health awareness
3. Describe various health hazards including microbial sources
4. Advice on preventive measures for various diseases
5. Provide first aid for various emergency conditions

Note: Demonstration / Hands-on experience / preparation of charts / models / promotional materials / role plays / enacting / e-brochures / e-flyers / podcasts / video podcasts / any other innovative activities to understand the concept of various elements of social pharmacy listed here. (At least one activity to be carried out for each one of the following):

Practicals

1. National immunization schedule for children, adult vaccine schedule, Vaccines which are not included in the National Immunization Program.
2. RCH – reproductive and child health – nutritional aspects, relevant national health programmes.
3. Family planning devices
4. Microscopical observation of different microbes (readymade slides)
5. Oral Health and Hygiene
6. Personal hygiene and etiquettes – hand washing techniques, Cough and sneeze etiquettes.
7. Various types of masks, PPE gear, wearing/using them, and disposal.
8. Menstrual hygiene, products used
9. First Aid – Theory, basics, demonstration, hands on training, audio-visuals, and practice. BSL (Basic Life Support) Systems [SCA - Sudden Cardiac Arrest, FBAO - Foreign Body Airway Obstruction, CPR, Defibrillation (using AED) (Includes CPR techniques, First Responder).
10. Emergency treatment for all medical emergency cases viz. snake bite, dog bite, insecticide poisoning, fractures, burns, epilepsy etc.
11. Role of Pharmacist in Disaster Management.
12. Marketed preparations of disinfectants, antiseptics, fumigating agents, antilarval agents, mosquito repellents, etc.
13. Health Communication: Audio / Video podcasts, Images, Power Point Slides, Short Films, etc. in regional language(s) for mass communication / education / Awareness on 5 different communicable diseases, their signs and symptoms, and prevention.
14. Water purification techniques, use of water testing kit, calculation of Content/percentage of $KMnO_4$, bleaching powder to be used for wells/tanks
15. Counselling children on junk foods, balanced diets – using Information, Education and Communication (IEC), counselling, etc. (Simulation Experiments).
16. Preparation of various charts on nutrition, sources of various nutrients from Locally available foods, calculation of caloric needs of different groups (e.g. child, mother, sedentary lifestyle, etc.). Chart of glycemic index of foods.
17. Tobacco cessation, counselling, identifying various tobacco containing products through charts/pictures

Assignment

The students shall be asked to submit the written assignments on the following topics (One assignment per student per sessional period. i.e., a minimum of THREE assignments per student)

1. An overview of Women's Health Issues
2. Study the labels of various packed foods to understand their nutritional contents
3. Breastfeeding counselling, guidance – using Information, Education and Communication (IEC)
4. Information about the organizations working on de-addiction services in the region (city / district, etc.)
5. Role of a pharmacist in disaster management – A case study
6. Overview on the National Tuberculosis Elimination Programme (NTEP)
7. Drug disposal systems in the country, at industry level and citizen level
8. Various Prebiotics or Probiotics (dietary and market products)
9. Emergency preparedness: Study of local Government structure with respect to Fire, Police departments, health department
10. Prepare poster/presentation for general public on any one of the Health Days. e.g. Day, AIDS Day, Handwashing Day, ORS day, World Diabetes Day, World Heart Day, etc.
11. List of home medicines, their storage, safe handling, and disposal of unused medicines
12. Responsible Use of Medicines: From Purchase to Disposal
13. Collection of newspaper clips (minimum 5) relevant to any one topic and its submission in an organized form with collective summary based on the news items
14. Read a minimum of one article relevant to any theory topic, from Pharma /Science/ or other Periodicals and prepare summary of it for submission
15. Potential roles of pharmacists in rural India

Field Visits

The students shall be taken in groups to visit any THREE of the following facilities to witness and understand the activities of such centres/facilities from the perspectives of the topics discussed in theory and/or practical courses. Individual reports from each student on their learning experience from the field visits shall be submitted.

1. Garbage Treatment Plant
2. Sewage Treatment Plant
3. Bio-medical Waste Treatment Plant
4. Effluent Treatment Plant
5. Water purification plant
6. Orphanage / Elderly-Care-Home / School and or Hostel/Home for persons with disabilities
7. Primary health care centre

ANNEXURE II: SYLLABUS OF THE PROGRAM

PHARMACOLOGY – THEORY

Course Code: ER20-21T **75 Hours (3 Hours/week)**

Scope: This course provides basic knowledge about different classes of drugs available for the pharmacotherapy of common diseases. The indications for use, dosage regimen, routes of administration, pharmacokinetics, pharmacodynamics, and contraindications of the drugs discussed in this course are vital for successful professional practice.

Course Objectives: This course will discuss the following:

1. General concepts of pharmacology including pharmacokinetics, pharmacodynamics, routes of administration, etc.
2. Pharmacological classification and indications of drugs
3. Dosage regimen, mechanisms of action, contraindications of drugs
4. Common adverse effects of drugs

Course Outcomes: Upon successful completion of this course, the students will be able to

1. Describe the basic concepts of pharmacokinetics and pharmacodynamics2. Enlist the various classes and drugs of choices for any given disease condition
3. Advice the dosage regimen, route of administration and contraindications for a given drug
4. Describe the common adverse drug reactions

Chapter	Topic	Hours
1	**General Pharmacology** • Introduction and scope of Pharmacology • Various routes of drug administration - advantages and disadvantages • Drug absorption - definition, types, factors affecting drug absorption • Bioavailability and the factors affecting bioavailability • Drug distribution - definition, factors affecting drug distribution • Biotransformation of drugs - Definition, types of biotransformation reactions, factors influencing drug metabolisms • Excretion of drugs - Definition, routes of drug excretion • General mechanisms of drug action and factors modifying drug action	10

2	**Drugs Acting on the Peripheral Nervous System** • Steps involved in neurohumoral transmission • Definition, classification, pharmacological actions, dose, indications, and contraindications of a) Cholinergic drugs b) Anti-Cholinergic drugs c) Adrenergic drugs d) Anti-adrenergic drugs e) Neuromuscular blocking agents f) Drugs used in Myasthenia gravis g) Local anaesthetic agents h) Non-Steroidal Anti-Inflammatory drugs (NSAIDs)	11
3	**Drugs Acting on the Eye** Definition, classification, pharmacological actions, dose, indications and contraindications of • Miotics • Mydriatics • Drugs used in Glaucoma	2
4	**Drugs Acting on the Central Nervous System** Definition, classification, pharmacological actions, dose, indications, and contraindications of • General anaesthetics • Hypnotics and sedatives • Anti-Convulsant drugs • Anti-anxiety drugs • Anti-depressant drugs • Anti-psychotics • Nootropic agents • Centrally acting muscle relaxants • Opioid analgesics	8
5	**Drugs Acting on the Cardiovascular System** Definition, classification, pharmacological actions, dose, indications, and contraindications of • Anti-hypertensive drugs • Anti-anginal drugs • Anti-arrhythmic drugs • Drugs used in atherosclerosis and • Congestive heart failure • Drug therapy for shock	6

6	**Drugs Acting on Blood and Blood Forming Organs** Definition, classification, pharmacological actions, dose, indications, and contraindications of • Hematinic agents • Anti-coagulants • Anti-platelet agents • Thrombolytic drugs	4
7	Definition, classification, pharmacological actions, dose, indications, and contraindications of • Bronchodilators • Expectorants • Anti-tussive agents • Mucolytic agents	2
8	**Drugs Acting on the Gastro Intestinal Tract** Definition, classification, pharmacological actions, dose, indications, and contraindications of • Anti-ulcer drugs • Anti-emetics • Laxatives and purgatives • Anti-diarrheal drugs	5
9	**Drugs Acting on the Kidney** Definition, classification, pharmacological actions, dose, indications, and contraindications of • Diuretics • Anti-Diuretics	2
10	**Hormones and Hormone Antagonists** Physiological and pathological role and clinical uses of • Thyroid hormones • Anti-thyroid drugs • Parathormone • Calcitonin • Vitamin D • Insulin • Oral hypoglycemic agents • Estrogen • Progesterone • Oxytocin • Corticosteroids	8

11	**Autocoids** • Physiological role of Histamine, 5 HT and Prostaglandins • Classification, clinical uses, and adverse effects of antihistamines and 5 HT antagonists	3
12	**Chemotherapeutic Agents:** Introduction, basic principles of chemotherapy of infections, infestations and neoplastic diseases, Classification, dose, indication and contraindications of drugs belonging to following classes: • Penicillins • Cephalosporins • Aminoglycosides • Fluoroquinolones • Macrolides • Tetracyclines • Sulphonamides • Anti-tubercular drugs • Anti-fungal drugs • Anti-viral drugs • Anti-amoebic agents • Anthelmintics • Anti-malarial agents • Anti-neoplastic agents	12
13	**Biologicals** Definition, types, and indications of biological agents with examples	2

PHARMACOLOGY – PRACTICAL

Course Code: ER20-21P **50 Hours (2 Hours/week)**

Scope: This course provides the basic understanding about the uses, mechanisms of actions, dose dependent responses of drugs in simulated virtual animal models and experimental conditions.

Course Objectives: This course will demonstrate / provide hands-on experience in the virtual platform using appropriate software on the following

1. Study of pharmacological effects of drugs like local anaesthetics, mydriatic and mitotic on rabbit eye
2. Screening the effects of various drugs acting in the central nervous system
3. Study of drug effects on isolated organs / tissues
4. Study of pyrogen testing on rabbit

ANNEXURE II: SYLLABUS OF THE PROGRAM

Course Outcomes: Upon successful completion of this course, the students will be able to

1. Study and report the local anaesthetic, mydriatic and mitotic effects of the given drug on the rabbit eye
2. Choose appropriate animal experiment model to study the effects of the given drugs acting on the central nervous system and submit the report
3. Perform the effects of given tissues (simulated) on isolated organs / tissues and interpret the results
4. Interpret the dose dependent responses of drugs in various animal experiment models

Practicals

Introduction to the following topics pertaining to the experimental pharmacology have to be discussed and documented in the practical manuals.

1. Introduction to experimental pharmacology
2. Study of laboratory animals
   (a) Mice; (b) Rats; (c) Guinea pigs; (d) Rabbits
3. Commonly used instruments in experimental pharmacology
4. Different routes of administration of drugs in animals
5. Types of pre-clinical experiments: In-Vivo, In-Vitro, Ex-Vivo, etc.
6. Techniques of blood collection from animals

Experiments

Note: Animals shall not be used for doing / demonstrating any of the experiments given. The given experiments shall be carried- out / demonstrated as the case may be, ONLY with the use of software program(s) such as 'Ex Pharm' or any other suitable software

1. Study of local anaesthetics on rabbit eye
2. Study of Mydriatic effect on rabbit eye
3. Study of Miotic effect on rabbit eye
4. Effect of analgesics using Analgesiometer
5. Study of analgesic activity by writhing test
6. Screening of anti-convulsant using Electro Convulsiometer
7. Screening of Muscle relaxants using Rota-Rod apparatus
8. Screening of CNS stimulants and depressants using Actophotometer
9. Study of anxiolytic activity using elevated plus maze method
10. Study of effect of drugs (any 2) on isolated heart
11. Effect of drugs on ciliary motility on frog's buccal cavity
12. Pyrogen testing by rabbit method

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Assignments

The students shall be asked to submit written assignments on the following topics (One assignment per student per sessional period. i.e., a minimum of THREE assignments per student)

1. Introduction to Allergy Testing
2. Introduction to Toxicity Studies
3. Drug Facts Labels of US FDA
4. Pre-clinical studies in new drug development
5. Medicines and meals: Before or After food
6. Pre-clinical studies in new drug development
7. Drugs available as paediatric formulations
8. Drug information apps

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COMMUNITY PHARMACY AND MANAGEMENT – THEORY

Course Code: ER20-22T **75 Hours (3 Hours/week)**

Scope: The course is designed to impart basic knowledge and skills to provide various pharmaceutical care services to patients and general practitioners in the community setup.

Course Objectives: This course will discuss the following;

1. Establishing and running a community pharmacy and its legal requirements
2. Professional aspects of handling and filling prescriptions
3. Patient counselling on diseases, prescription and or non-prescription medicines
4. Scope for performing basic health screening in community pharmacy settings

Course Outcomes: Upon successful completion of this course, the students will be able to

1. Describe the establishment, legal requirements, and effective administration of a community pharmacy
2. Professionally handle prescriptions and dispense medications
3. Counsel patients about the disease, prescription and or non-prescription medicines
4. Perform basic health screening on patients and interpret the reports in the community pharmacy settings

Chapter	Topic	Hours
1	**Community Pharmacy Practice** – Definition, history and development of community pharmacy - International and Indian scenarios	2
2	Professional responsibilities of community pharmacists Introduction to the concept of Good Pharmacy Practice and SOPs.	3
3	**Prescription and prescription handling** • Definition, parts of prescriptions, legality of prescriptions, prescription handling, labelling of dispensed medications (Main label, ancillary label, pictograms), brief instructions on medication usage • Dispensing process, Good Dispensing Practices, dispensing errors and strategies to minimize them	7

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4	**Communication skills** • Definition, types of communication skills • Interactions with professionals and patients • Verbal communication skills (one-to-one, over the telephone) • Written communication skills • Body language • Patient interview techniques	6
5	**Patient counselling** • Definition and benefits of patient counselling • **Stages of patient counselling** - Introduction, counselling content, counselling process, and closing the counselling session • **Barriers to effective counseling** - Types and strategies to overcome the barriers • **Patient counselling points for chronic diseases/disorders** - Hypertension, Diabetes, Asthma, Tuberculosis, Chronic obstructive pulmonary disease, and AIDS • **Patient Package Inserts** - Definition, importance and benefits, Scenarios of PPI use in India and other countries • **Patient Information leaflets** - Definition and uses	10
6	**Medication Adherence** Definition, factors influencing non- adherence, strategies to overcome non-adherence	2
7	**Health Screening Services in Community Pharmacy** Introduction, scope, and importance of various health screening services - for routine monitoring of patients, early detection, and referral of undiagnosed cases	5
9	**Over The Counter (OTC) Medications** • Definition, need and role of Pharmacists in OTC medication dispensing • OTC medications in India, counseling for OTC products • Self-medication and role of pharmacists in promoting the safe practices during self-medication • Responding to symptoms, minor ailments, and advice for self-care in conditions such as - Pain management, Cough, Cold, Diarrhea, Constipation, Vomiting, Fever, Sore throat, Skin disorders, Oral health (mouth ulcers, dental pain, gum swelling)	15

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10	**Community Pharmacy Management** • Legal requirements to set up a community pharmacy • Site selection requirements • Pharmacy designs and interiors • Vendor selection and ordering • Procurement, inventory control methods, and inventory management • Financial planning and management • Accountancy in community pharmacy – Day book, Cash book • Introduction to pharmacy operation softwares – usefulness and availability • Customer Relation Management (CRM) • Audits in Pharmacies • SOP of Pharmacy Management • Introduction to Digital Health, mHealth and Online pharmacies	25

COMMUNITY PHARMACY AND MANAGEMENT – PRACTICAL

Course Code: ER20-22P **75 Hours (3 Hours/week)**

Scope: The course is designed to train the students and improve professional skills to provide various pharmaceuticalcare services in community pharmacy.

Course Objectives: This course will train the students in the following

1. Professional handling and filling prescriptions
2. Patient counselling on diseases and minor ailments
3. Patient counselling on prescription and / or non-prescription medicines
4. Preparation of counselling materials such as patient information leaflets
5. Performing basic health screening tests

Course Outcomes: Upon successful completion of this course, the students will be able to

1. Handle and fill prescriptions in a professional manner
2. Counsel patients on various diseases and minor ailments
3. Counsel patients on prescription and or non-prescription medicines
4. Design and prepare patient information leaflets
5. Perform basic health screening tests

Practicals

Note: The following practicals shall be carried out in the model community pharmacy with appropriate simulated scenarios and materials. Students shall be trained through role plays wherever necessary. The activities of the students shall be assessed / evaluated using a structured objective assessment form.

1. Handling of prescriptions with professional standards, reviewing prescriptions, checking for legal compliance and completeness (minimum 5)
2. Identification of drug-drug interactions in the prescription and follow-up actions (minimum 2)
3. Preparation of dispensing labels and auxiliary labels for the prescribed medications (minimum 5)
4. Providing the following health screening services for monitoring patients / detecting new patients (one experiment for each activity)
   Blood Pressure Recording, Capillary Blood Glucose Monitoring, Lung function assessment using Peak Flow Meter and incentive spirometer, recording capillary oxygen level using Pulse Oximeter, BMI measurement
5. Providing counselling to simulated patients for the following chronic diseases / disorders including education on the use of devices such as insulin pen, inhalers, spacers, nebulizers, etc. where appropriate (one experiment for each disease)
   Type 2 Diabetes Mellitus, Primary Hypertension, Asthma, Hyperlipidaemia, Rheumatoid Arthritis
6. Providing counselling to simulated patients for the following minor ailments (any three)
   Headache, GI disturbances (Nausea, Vomiting, Dyspepsia, diarrhoea, constipation), Worm infestations, Pyrexia, Upper Respiratory Tract infections, Skin infections, Oral and dental disorders.
7. Appropriate handling of dummy dosage forms with correct administration techniques - oral liquids with measuring cup/cap/dropper, Eye Drops, Inhalers, Nasal drops, Insulin pen, nebulizers, different types of tablets, patches, enemas, suppositories
8. Use of Community Pharmacy Software and digital health tools

Assignments

The students shall be asked to submit written assignments on the following topics (One assignment per student per sessional period. i.e., a minimum of THREE assignments per student)

1. SOPs for various activities in Community Pharmacy (as discussed in Theory and Practical)

2. List out the various abbreviations, short forms used in prescriptions and their interpretation
3. Patient Information Leaflet for a given chronic disease / disorder
4. Patient Information Leaflet for prescription / non-prescription medicines
5. Preparation of window / shelf display materials for the model community pharmacy
6. Overview of Software available for retail pharmacy management including billing, inventory, etc.
7. Dosage / Medication Reminder Aids
8. Overview on the operations and marketing strategies of various online pharmacies
9. Overview on the common fixed dose combinations
10. Overview on the medications requiring special storage conditions
11. Role of Community Pharmacists in preventing Antimicrobial Resistance
12. Jan Aushadhi and other Generic Medicine initiatives in India
13. Global Overview of Online Pharmacies
14. Community Pharmacy Practice Standards: Global Vs. Indian Scenario
15. Overview of pharmacy associations in India

Field Visit

The students shall be taken in groups to visit community pharmacies and medicine distributors to understand and witness the professional activities of the community pharmacists, and supply chain logistics. Individual reports from each student on their learning experience from the field visit shall be submitted.

BIOCHEMISTRY & CLINICAL PATHOLOGY – THEORY

Course Code: ER20-23T **75 Hours (3 Hours/week)**

Scope: This course is designed to impart basic knowledge on the study of structure and functions of biomolecules and the chemical processes associated with living cells in normal and abnormal states. The course also emphasizes on the clinical pathology of blood and urine.

Course Objectives: This course will discuss the following at the fundamental level

1. Structure and functions of biomolecules
2. Catalytic activity, diagnostic and therapeutic importance of enzymes
3. Metabolic pathways of biomolecules in health and illness (metabolic disorders)
4. Biochemical principles of organ function tests and their clinical significance
5. Qualitative and quantitative determination of biomolecules / metabolites in the biological sample
6. Clinical pathology of blood and urine

Course Outcomes: Upon successful completion of this course, the students will be able to

1. Describe the functions of biomolecules
2. Discuss the various functions of enzymes in the human system
3. Explain the metabolic pathways of biomolecules in both physiological and pathological conditions
4. Describe the principles of organ function tests and their clinical significances
5. Determine the biomolecules / metabolites in the given biological samples, both qualitatively and quantitatively
6. Describe the clinical pathology of blood and urine

Chapter	Topic	Hours
1	**Introduction to biochemistry**: Scope of biochemistry in pharmacy; Cell and its biochemical organization.	2
2	**Carbohydrates** • Definition, classification with examples, chemical properties • Monosaccharides - Structure of glucose, fructose, and galactose • Disaccharides - structure of maltose, lactose, and sucrose • Polysaccharides - chemical nature of starch and glycogen • Qualitative tests and biological role of carbohydrates	5

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3	**Proteins** • Definition, classification of proteins based on composition and solubility with examples • Definition, classification of amino acids based on chemical nature and nutritional requirements with examples • Structure of proteins (four levels of organization of protein structure) • Qualitative tests and biological role of proteins and amino acids • Diseases related to malnutrition of proteins	5
4	**Lipids** • Definition, classification with examples • Structure and properties of triglycerides (oils and fats) • Fatty acid classification - Based on chemical and nutritional requirements with examples • Structure and functions of cholesterol in the body • Lipoproteins - types, composition and functions in the body • Qualitative tests and functions of lipids	5
5	**Nucleic acids** • Definition, purine and pyrimidine bases • Components of nucleosides and nucleotides with examples • Structure of DNA (Watson and Crick model), RNA and their functions	4
6	**Enzymes** • Definition, properties and IUB and MB classification • Factors affecting enzyme activity • Mechanism of action of enzymes. Enzyme inhibitors • Therapeutic and pharmaceutical importance of enzymes	5
7	**Vitamins** • Definition and classification with examples • Sources, chemical nature, functions, coenzyme form, recommended dietary requirements, deficiency diseases of fat-and water-soluble vitamins	6
8	**Metabolism** (Study of cycle/pathways without chemical structures) • Metabolism of Carbohydrates: Glycolysis, TCA cycle and glycogen metabolism, regulation of blood glucose	20

	level. Diseases related to abnormal metabolism of Carbohydrates • Metabolism of lipids: Lipolysis, β-oxidation of Fatty acid (Palmitic acid) ketogenesis and ketolysis. Diseases related to abnormal metabolism of lipids such as Ketoacidosis, Fatty liver, Hypercholesterolemia • Metabolism of Amino acids (Proteins): General reactions of amino acids and its significance– Transamination, deamination, Urea cycle and decarboxylation. Diseases related to abnormal metabolism of amino acids, Disorders of ammonia metabolism, phenylketonuria, alkaptonuria and Jaundice. • Biological oxidation: Electron transport chain and Oxidative phosphorylation	
9	**Minerals**: Types, Functions, Deficiency diseases, recommended dietary requirements	05
10	**Water and Electrolytes** • Distribution, functions of water in the body • Water turnover and balance • Electrolyte composition of the body fluids. Dietary intake of electrolyte and Electrolyte balance • Dehydration, causes of dehydration and oral rehydration therapy	05
11	Introduction to Biotechnology	01
12	**Organ function tests** • Functions of kidney and routinely performed tests to assess the functions of kidney and their clinical significances • Functions of liver and routinely performed tests to assess the functions of liver and their clinical significances • Lipid profile tests and its clinical significances	06
13	**Introduction to Pathology of Blood and Urine** • Lymphocytes and Platelets, their role in health and disease • Erythrocytes - Abnormal cells and their significance • Normal and Abnormal constituents of Urine and their significance	06

BIOCHEMISTRY & CLINICAL PATHOLOGY – PRACTICAL

Course Code: ER20-23P **50 Hours (2 Hours/week)**

Scope: This course is designed to train the students in the qualitative testing of various biomolecules and testing of biological samples for determination of normal and abnormal constituents

Course Objectives: This course will train and provide hands-on experiences on the following

1. Qualitative determination of biomolecules / metabolites in simulated biological samples
2. Determination of normal and abnormal constituents of simulated blood and urine samples

Course Outcomes: Upon successful completion of this course, the students will be able to

1. Qualitatively determine the biomolecules / metabolites in the given biological samples
2. Determine the normal and abnormal constituents in blood and urine samples and interpret the results of such testing

Practicals

1. Qualitative analysis of carbohydrates (4 experiments)
2. Qualitative analysis of Proteins and amino acids (4 experiments)
3. Qualitative analysis of lipids (2 experiments)
4. Qualitative analysis of urine for normal and abnormal constituents (4 experiments)
5. Determination of constituents of urine (glucose, creatinine, chlorides) (2 experiments)
6. Determination of constituents of blood/serum (simulated) (Creatine, glucose, cholesterol, Calcium, Urea, SGOT/SGPT) (5 experiments)
7. Study the hydrolysis of starch from acid and salivary amylase enzyme (1 experiment)

Assignments

The students shall be asked to submit written assignments on Various Pathology Lab Reports (One assignment per student per sessional period. i.e., a minimum of THREE assignments per student)

PHARMACOTHERAPEUTICS - THEORY

Course Code: ER20-24T **75 Hours (3 Hours/week)**

Scope: This course is designed to impart basic knowledge on etiopathogenesis of common diseases and their management along with quality use of medicines.

Course Objectives: This course will discuss about

1. Etiopathogenesis of selected common diseases and evidence-based medicine therapy
2. Importance of individualized therapeutic plans based on diagnosis
3. Basic methods for assessing the clinical outcomes of drug therapy

Course Outcomes: Upon successful completion of this course, the students will be able to

1. Help assessing the subjective and objective parameters of patients in common disease conditions
2. Assist other healthcare providers to analyse drug related problems and provide therapeutic interventions
3. Participate in planning the rational medicine therapy for common diseases
4. Design and deliver discharge counselling for patients

Chapter	Topic	Hours
1	Pharmacotherapeutics – Introduction, scope, and objectives. Rational use of Medicines, Evidence Based Medicine, Essential Medicines List, Standard Treatment Guidelines (STGs)	8
2	**Definition, etiopathogenesis, clinical manifestations, non-pharmacological and pharmacological management of the diseases associated with**	
	(a) Cardiovascular System • Hypertension • Angina and Myocardial infarction • Hyperlipidaemia • Congestive Heart Failure	8
	(b) Respiratory System • Asthma • COPD	4
	(c) Endocrine System • Diabetes • Thyroid disorders - Hypo and Hyperthyroidism	5
	(d) Central Nervous System • Epilepsy	8

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	• Parkinson's disease • Alzheimer's disease • Stroke • Migraine	
	(e) Gastro Intestinal Disorders • Gastro oesophageal reflux disease • Peptic Ulcer Disease • Alcoholic liver disease • Inflammatory Bowel Diseases (Crohn's Disease and Ulcerative Colitis)	8
	(f) Haematological disorders • Iron deficiency anaemia • Megaloblastic anaemia	4
	(g) Infectious diseases • Tuberculosis • Pneumonia • Urinary tract infections • Hepatitis • Gonorrhoea and Syphilis • Malaria • HIV and Opportunistic infections • Viral Infections (SARS, CoV2)	12
	(h) Musculoskeletal disorders • Rheumatoid arthritis • Osteoarthritis	3
	(i) Dermatology • Psoriasis • Scabies • Eczema	3
	(j) Psychiatric Disorders • Depression • Anxiety • Psychosis	4
	(k) Ophthalmology • Conjunctivitis (bacterial and viral) • Glaucoma	2
	(l) Anti-microbial Resistance	2
	(m) Women's Health • Polycystic Ovary Syndrome • Dysmenorrhea • Premenstrual Syndrome	4

PHARMACOTHERAPEUTICS – PRACTICAL

Course Code: ER20-24P **25 Hours (1 Hour/week)**

Scope: This course is designed to train the students in the basic skills required to support the pharmaceutical care services for selected common disease conditions.

Course Objectives: This course will train the students on
1. How to prepare a SOAP (Subjective, Objective, Assessment and Plan) note for clinical cases of selected common diseases
2. Patient counselling techniques/methods for common disease conditions

Course Outcomes: Upon successful completion of this course, the students will be able to
1. Write SOAP (Subjective, Objective, Assessment and Plan) notes for the given clinical cases of selected common diseases
2. Counsel the patients about the disease conditions, uses of drugs, methods of handling and administration of drugs, life-style modifications, and monitoring parameters.

Practicals

I. Preparation and discussion of SOAP (Subjective, Objective, Assessment and Plan) notes for at least SIX clinical cases (real / hypothetical) of the following disease conditions.
1. Hypertension
2. Angina Pectoris
3. Myocardial Infarction
4. Hyperlipidaemia
5. Rheumatoid arthritis
6. Asthma
7. COPD
8. Diabetes
9. Epilepsy
10. Stroke
11. Depression
12. Tuberculosis
13. Anaemia (any one type as covered in theory)
14. Viral infection (any one type as covered in theory)
15. Dermatological conditions (any one condition as covered in theory)

II. Patient counselling exercises using role plays based on the real / hypothetical clinical case scenarios. The students are expected to provide counselling on disease condition, medications, life-style modifications, monitoring parameters, etc. and the same shall be documented. (Minimum 5 cases)

III. Simulated cases to enable dose calculation of selected drugs in paediatrics, and geriatrics under various pathological conditions. (Minimum 4 cases)

HOSPITAL AND CLINICAL PHARMACY – THEORY

Course Code: ER20-25T **75 Hours (3 Hours/week)**

Scope: This course is designed to impart fundamental knowledge and professional skills required for facilitating various hospital and clinical pharmacy services.

Course Objectives: This course will discuss and train the students in the following
1. Hospital and Hospital Pharmacy organization and set-ups
2. Basics of hospital pharmacy services including the procurement, supply chain, storage of medicines and medical supplies
3. Basics of clinical pharmacy including introduction to comprehensive pharmaceutical care services
4. Basic interpretations of common laboratory results used in clinical diagnosis towards optimizing the drug therapy

Course Outcomes: Upon successful completion of this course, the students will be able to
1. Explain about the basic concepts of hospital pharmacy administration
2. Manage the supply chain and distribution of medicines within the hospital settings
3. Assist the other healthcare providers in monitoring drug therapy and address drug related problems
4. Interpret common lab investigation reports for optimizing drug therapy

S. No.	Topic	Hours
1	**Hospital Pharmacy** • Definition, scope, national and international scenario • Organisational structure • Professional responsibilities, Qualification and experience requirements, job specifications, work-load requirements and inter professional relationships • Good Pharmacy Practice (GPP) in hospital • Hospital Pharmacy Standards (FIP Basel Statements, AHSP) • Introduction to NAQS guidelines and NABH Accreditation and Role of Pharmacists	6
2	**Different Committees in the Hospital** • Pharmacy and Therapeutics Committee - Objectives, Composition, and functions • Hospital Formulary - Definition, procedure for development and use of hospital formulary	4

ANNEXURE II: SYLLABUS OF THE PROGRAM

	• Infection Control Committee – Role of Pharmacist in preventing Antimicrobial Resistance	
4	**Supply Chain and Inventory Control** • Preparation of Drug lists - High Risk drugs, Emergency drugs, Schedule H1 drugs, NDPS drugs, reserved antibiotics • Procedures of Drug Purchases – Drug selection, short term, long term, and tender/e-tender process, quotations, etc. • Inventory control techniques: Economic Order Quantity, Reorder Quantity Level, Inventory Turnover etc. • Inventory Management of Central Drug Store – Storage conditions, Methods of storage, Distribution, Maintaining Cold Chain, Devices used for cold storage (Refrigerator, ILR, Walk-in-Cold rooms) • FEFO, FIFO methods • Expiry drug removal and handling, and disposal. Disposal of Narcotics, cytotoxic drugs • Documentation - purchase and inventory	14
5	**Drug distribution** • Drug distribution (in- patients and out - patients) – Definition, advantages and disadvantages of individual prescription order method, Floor Stock Method, Unit Dose Drug Distribution Method, Drug Basket Method. • Distribution of drugs to ICCU/ICU/NICU/Emergency wards. • Automated drug dispensing systems and devices • Distribution of Narcotic and Psychotropic substances and their storage	7
6	Compounding in Hospitals. Bulk compounding, IV admixture services and incompatibilities. Total parenteral nutrition	4
7	**Radio Pharmaceuticals** - Storage, dispensing and disposal of radiopharmaceuticals	2
8	Application of computers in Hospital Pharmacy Practice, Electronic health records, Softwares used in hospital pharmacy	2
9	**Clinical Pharmacy:** Definition, scope, and development - in India and other countries Technical definitions, common terminologies used in clinical settings and their significance such as Paediatrics, Geriatric, Anti-natal Care, Post-natal Care, etc.	12

	Daily activities of clinical pharmacists: Definition, goal, and procedure of • Ward round participation • Treatment Chart Review • Adverse drug reaction monitoring • Drug information and poisons information • Medication history • Patient counselling • Interprofessional collaboration **Pharmaceutical care**: Definition, classification of drug related problems. Principles and procedure to provide pharmaceutical care **Medication Therapy Management, Home Medication Review**	
10	**Clinical laboratory tests used in the evaluation of disease states - significance and interpretation of test results** • Haematological, Liver function, Renal function, thyroid function tests • Tests associated with cardiac disorders • Fluid and electrolyte balance • Pulmonary Function Tests	10
11	**Poisoning**: Types of poisoning: Clinical manifestations and Antidotes **Drugs and Poison Information Centre and their services** – Definition, Requirements, Information resources with examples, and their advantages and disadvantages	6
12	**Pharmacovigilance** • Definition, aim and scope • Overview of Pharmacovigilance	2
13	**Medication errors**: Definition, types, consequences, and strategies to minimize medication errors, LASA drugs and Tallman lettering as per ISMP **Drug Interactions:** Definition, types, clinical significance of drug interactions	6

HOSPITAL AND CLINICAL PHARMACY – PRACTICAL

Course Code: ER20-25P **25 Hours (1 Hour / Week)**

Scope: This course is designed to train the students to assist other healthcare providers in the basic services of hospital and clinical pharmacy.

Course Objectives: This course will train the students with hands-on experiences, simulated clinical case studies in the following;

1. Methods to systematically approach and respond to drug information queries
2. How to interpret common laboratory reports to understand the need for optimizing dosage regimens
3. How to report suspected adverse drug reactions to the concerned authorities
4. Uses and methods of handling various medical/surgical aids and devices
5. How to interpret drug-drug interactions in the treatment of common diseases.

Course Outcomes: Upon completion of the course, the students will be able to

1. Professionally handle and answer the drug information queries
2. Interpret the common laboratory reports
3. Report suspected adverse drug reactions using standard procedures
4. Understand the uses and methods of handling various medical/surgical aids and devices
5. Interpret and report the drug-drug interactions in common diseases for optimizing the drug therapy

Note: Few of the experiments of Hospital and Clinical Pharmacy practical course listed here require adequate numbers of desktop computers with internet connectivity, adequate drug information resources including reference books, different types of surgical dressings and other medical devices and accessories. Various charts, models, exhibits pertaining to the experiments shall also be displayed in the laboratory.

Practicals

1. Systematic approach to drug information queries using primary / secondary / tertiary resources of information (2 cases)
2. Interpretation of laboratory reports to optimize the drug therapy in a given clinical case (2 cases)
3. Filling up IPC's ADR Reporting Form and perform causality assessments using various scales (2 cases)
4. Demonstration / simulated / hands-on experience on the identification, types, use / application /administration of
   - Orthopaedic and Surgical Aids such as knee cap, LS belts, abdominal belt, walker, walking sticks, etc.

   - Different types of bandages such as sterile gauze, cotton, crepe bandages, etc.
   - Needles, syringes, catheters, IV set, urine bag, RYLE's tube, urine pots, colostomy bags, oxygen masks, etc.
5. Case studies on drug-drug interactions (any 2 cases)
6. Wound dressing (simulated cases and role play –minimum 2 cases)
7. Vaccination and injection techniques (IV, IM, SC) using mannequins (5 activities)
8. Use of Hospital Pharmacy Software and various digital health tools

Assignments

The students shall be asked to submit written assignments on the following topics (One assignment per student per sessional period. i.e., a minimum of THREE assignments per student)

1. Typical profile of a drug to be included in the hospital formulary
2. Brief layout and various services of the Central Sterile Supplies Department (CSSD)
3. Various types of sterilizers and sterilization techniques used in hospitals
4. Fumigation and pesticide control in hospitals
5. Role of Pharmacists in Transition of Care: Discharge cards, post hospitalization care, medicine reconciliation activities in developed countries
6. Total parenteral nutrition and IV admixtures and their compatibility issues
7. Concept of electronic health records
8. Invasive and Non-invasive diagnostic tests - HRCT, MRI, Sonography, 2D ECHO, X-rays, Mammography, ECG, EMG, EEG
9. Home Diagnostic Kits - Pregnancy Test, COVID testing etc
10. Measures to be taken in hospitals to minimize Antimicrobial Resistance
11. Role and responsibilities of a pharmacist in public hospital in rural parts of the country
12. Safe waste disposal of hospital waste

Field Visit

The students shall be taken in groups to visit a Government / private healthcare facility to understand and witness the various hospital and clinical pharmacy services provided. Individual reports from each student on their learning experience from the field visit shall be submitted.

ANNEXURE II: SYLLABUS OF THE PROGRAM

PHARMACY LAW AND ETHICS – THEORY

Course Code: ER20-26T **75 Hours (3 Hours/week)**

Scope: This course is designed to impart basic knowledge on several important legislations related to the profession of pharmacy in India

Course Objectives: This course will discuss the following

1. General perspectives, history, evolution of pharmacy law in India
2. Act and Rules regulating the profession and practice of pharmacy in India
3. Important code of ethical guidelines pertaining to various practice standards
4. Brief introduction to the patent laws and their applications in pharmacy

Course Outcomes: Upon successful completion of this course, the students will be able to

1. Describe the history and evolution of pharmacy law in India
2. Interpret the act and rules regulating the profession and practice of pharmacy in India
3. Discuss the various codes of ethics related to practice standards in pharmacy
4. Interpret the fundamentals of patent laws from the perspectives of pharmacy

Chapter	Topics	Hours
1	General Principles of Law, History and various Acts related to Drugs and Pharmacy profession	2
2	**Pharmacy Act-1948 and Rules:** Objectives, Definitions, Pharmacy Council of India; its constitution and functions, Education Regulations. State and Joint state pharmacy councils, Registration of Pharmacists, Offences and Penalties. **Pharmacy Practice Regulations 2015**	5
3	**Drugs and Cosmetics Act 1940 and Rules 1945 and New Amendments** Objectives, Definitions. Legal definitions of schedules to the Act and Rules **Import of drugs** – Classes of drugs and cosmetics prohibited from import, Import under license or permit.	23

	Manufacture of drugs – Prohibition of manufacture and sale of certain drugs, Conditions for grant of license and conditions of license for manufacture of drugs, Manufacture of drugs for test, examination and analysis, manufacture of new drug, loan license and repacking license. Study of schedule C and C1, G, H, H1, K, P, M, N, and X. ***Sale of Drugs*** – Wholesale, Retail sale and Restricted license, Records to be kept in a pharmacy Drugs Prohibited for manufacture and sale in India ***Administration of the Act and Rules*** – Drugs Technical Advisory Board, Central Drugs Laboratory, Drugs Consultative Committee, Government analysts, licensing authorities, controlling authorities, Drug Inspectors.	
4	**Narcotic Drugs and Psychotropic Substances Act 1985 and Rules** Objectives, Definitions, Authorities and Officers, Prohibition, Control and Regulation, Offences and Penalties.	2
5	**Drugs and Magic Remedies (Objectionable Advertisements) Act 1954** Objectives, Definitions, Prohibition of certain advertisements, Classes of Exempted advertisements, Offences and Penalties.	2
6	**Prevention of Cruelty to Animals Act-1960**: Objectives, Definitions, CPCSEA - brief overview, Institutional Animal Ethics Committee, Breeding and Stocking of Animals, Performance of Experiments, Transfer and Acquisition of animals for experiment, Records, Power to suspend or revoke registration, Offences and Penalties.	2
7	**Poisons Act-1919**: Introduction, objective, definition, possession, possession for sales and sale of any poison, import of poisons	2
8	**FSSAI (Food Safety and Standards Authority of India) Act and Rules**: brief overview and aspects related to manufacture, storage, sale, and labelling of Food Supplements	2

9	**National Pharmaceutical Pricing Authority**: Drugs Price Control Order (DPCO) - 2013. Objectives, Definitions, Sale prices of bulk drugs, Retail price of formulations, Retail price and ceiling price of scheduled formulations, Pharmaceutical Policy 2002, National List of Essential Medicines (NLEM)	5
10	**Code of Pharmaceutical Ethics**: Definition, ethical principles, ethical problem solving, registration, code of ethics for Pharmacist in relation to his job, trade, medical profession and his profession, Pharmacist's oath.	5
11	Medical Termination of Pregnancy Act and Rules – basic understanding, salient features, and Amendments	2
12	Role of all the government pharma regulator bodies – Central Drugs Standards Control Organization (CDSCO), Indian Pharmacopoeia Commission (IPC)	1
13	Good Regulatory practices (documentation, licenses, renewals, e-governance) in Community Pharmacy, Hospital pharmacy, Pharma Manufacturing, Wholesale business, inspections, import, export of drugs and medical devices	3
14	Introduction to BCS system of classification, Basic concepts of Clinical Trials, ANDA, NDA. New Drug development, New Drugs and Clinical Trials Rules, 2019. Brand v/s Generic, Trade name concept, Introduction to Patent Law and Intellectual Property Rights, Emergency Use Authorization	7
15	Blood bank – basic requirements and functions	2
16	Clinical Establishment Act and Rules – Aspects related to Pharmacy	2
17	Biomedical Waste Management Rules 2016 – Basic aspects, and aspects related to pharma manufacture to disposal of pharma / medical waste at homes, pharmacies, and hospitals	2
18	Bioethics - Basic concepts, history and principles. Brief overview of ICMR's National Ethical Guidelines for Biomedical and Health Research involving human participants	2
19	Introduction to the Consumer Protection Act	1
20	Introduction to the Disaster Management Act	1
21	Medical Devices – Categorization, basic aspects related to manufacture and sale	2

Assignments

The students shall be asked to submit written assignments on the following topics (One assignment per student per sessional period, i.e., a minimum of THREE assignments per student)

1. Requirements for Ayurvedic, Homeopathic manufacturing, sale, and licensing requirements
2. Layout and contents of official websites of various agencies regulating the profession of pharmacy in India: e.g., CDSCO, SUGAM portal, PCI, etc.
3. Licenses required, application processes (online/offline), drug regulatory office website of the respective state
4. Case studies – actions taken on violation of any act / rule related to pharmacy
5. Schedule H1 drugs and its implementation in India
6. Counterfeit / Spurious medicines
7. Drug Testing Labs in India
8. Overview of Pharma marketing practices
9. Generic Medicines

Sahyadri Shikshan Sanstha's

College of Pharmacy, (Poly) Sawarde, Tal-Chiplun, Dist-Ratnagiri

DCP :- Second Year - 2023-2024 (Effective from 01/08/2023)

Time	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday	
10.00-11.00	BCP (R.R.B)	PT (S.S.K)	PLE (V.V.N)	P'COLOGY (S.V.C.)	PLE (V.V.N)	09.00-10.00	HCP (M.M.W.)
11.00-12.00	HCP (M.M.W)	BCP (R.R.B)	PT (S.S.K)	CPM (D.M.M.)	P'COLOGY (S.V.C.)	10.00-11.00	BCP (R.R.B)
12.00-01.00	PT (S.S.K)	HCP (M.M.W.)	CPM (D.M.M.)	PLE (V.V.N)	CPM (D.M.M.)	11.00-12.00	P'COLOGY (S.V.C.)
						12.00-01.00	PLE(VVN)
01.00pm to 01.30pm RECESS							
01.30-03.30 Practical & Tutioral		PT (C) (S.S.K.)	HCP (C) (M.M.W.)	PT (A) (S.S.K.)	HCP (A) M.M.W		
01.30-04.30 Practical & Tutioral	BCP (B) (R.R.B.) / P'COLOGY(C) (S.V.C.)	P'COLOGY(A) (S.V.C.)	P'COLOGY (B) (S.V.C.) / BCP (A) (S.G.D.)	BCP (C) (R.R.B)	HCP (B) M.M.W 3.30 to 5.30		
01.30 -05.30 Practical & Tutioral	CPM (A) (D.M.M.)	CPM (B) (V.V.N)		PT (B) (S.S.K.) 3.30 to 5.30	CPM (C) (D.M.M.)		

College of Pharmacy (Poly) Sawarde PH 226

ANNEXURE III: SAMPLE OF TIME-TABLE

ANNEXURE IV: FORMAT OF FEEDBACK FROM STUDENTS

Sahyadri Shikshan Sanstha's
COLLEGE OF PHARMACY, (POLY) SAWARDE
Tal: - Chiplun Dist: - Ratnagiri, Pin: - 415606
(Approved by: A.I.C.T.E. P.C.I.-New Delhi, Govt. Of Maharashtra, D.T.E. M.S.B.T.E Mumbai)
E-mail-pharmacycollegesawarde@yahoo.in Tel-Ph-No (02355)-264106 H.Off 264315/215 Fax (02355)264163

Feedback form for Guest Lecture

Name of Student: - ----------

Roll No. :- ----------

Topic :-

Name of Speaker:-

Sr. No.	Particular	Excellent	Very Good	Good	Poor
1	How was the overall organization of the lecture				
2	Are you satisfied with the time and venue ?				
3	How much interesting this session was for you ?				
4	What is your opinion about the speaker?				
5	Overall effectiveness of the lecture ?				

Mention Any Suggestion: ----------

Students Signature

ANNEXURE IV: FORMAT OF FEEDBACK FROM STUDENTS

Sahyadri Shikshan Sanstha's

COLLEGE OF PHARMACY, (POLY) SAWARDE

Tal: - Chiplun Dist: - Ratnagiri, Pin: - 415606

(Approved by: A.I.C.T.E. P.C.I.-New Delhi, Govt. Of Maharashtra, D.T.E. M.S.B.T.E Mumbai)

E-mail-pharmacycollegesawarde@yahoo.in Tel-Ph-No (02355)-264106 H.Off 264315/215 Fax (02355)264163

Feedback Form (Industrial Visit)

Name of Student: - ----------

Year :- ---------- **Date of Visit :-** ----------

Name & Address of Company Visited: - ----------

Criteria	Average	Good	Very Good	Excellent
The visit was pharmacy oriented				
The visit was applicable to my future needs				
The program was well placed within the allotted time				
The resource or industry person was good communicator				
I would be interested in attending such visits in future				

Any suggestions for improvement

Students Signature

ANNEXURE V: SAMPLE QUESTION PAPER FOR INTERNAL EXAM

College of Pharmacy (Poly), Sawarde
First Sessional Exam 2023-2024

Sub:- Pharmacy Law & Ethics **Sub Code:-20226** **Marks:- 40**

Q	Questions	Marks	CO
1	**Attempt any Three**	**15 M**	
	1. Write a note on various acts on Drugs and Pharmacy Profession?	5 M	**CO 1**
	2. Explain in detail about Schedule N as per D&C Act?	5 M	**CO 2**
	3. What are the qualifications and powers of Drug Inspector?	5 M	**CO 2**
	4. Write a note on Central Drugs Laboratory	5 M	**CO 2**
2	**Attempt any Five**	**15 M**	
	1. Define Pharmaceutical Legislation and give its history in India?	3 M	**CO 1**
	2. Write a note on Chopra Committee?	3 M	**CO 1**
	3. Define:- a] Adulterated drug b] Misbranded drug c] Spurious drug	3 M	**CO 2**
	4. What do the following schedule prescribes: a] Schedule C, b] Schedule G, c] Schedule F, d] Schedule M, e] Schedule X, f] Schedule J	3 M	**CO 2**
	5. Define Import License and Registration Certificate as per D & C Act and enlist the types of drugs and cosmetics prohibited from Import, Manufacture and Sale**.**	3 M	**CO 2**
	6. Define Drugs and Cosmetics as per D & C Act and give the objectives of the D & C Act 1940.	3 M	**CO 2**
3	**Multiple Choice Questions**	**10 M**	
	1. Government appointed a 'Drug Enquiry Committee' under the chairmanship of _____ in 1931. a. Acharya Prafulla Chandra Roy b. Lt. Col. R. N. Chopra c. Prof. T. K. Gajjar d. Dr Mashelkar	1 M	**CO 1**
	2. For the first time in India, a chemist shop was opened in about 1811 by_____ a. Mr Bathgate, b. R. N. Chopra, c. Mr Gajjar, d. Dr Ghosh	1 M	**CO 1**
	3. Bengal Chemical and Pharmaceutical Works was started in Calcutta in 1901 by _____. a. Acharya Prafulla Chandra Roy b. Mr Ghosh c. Dr Banerji d. Mr Chakrawarti	1 M	**CO 1**
	4. Poisons Act was passed in_____. a. 1919, b. 1926, c. 1939, d. 1949	1 M	**CO 2**
	5. Pack size of drug is covered under _____. a. Schedule P, b. Schedule P1, c. Schedule R, d. Schedule O	1 M	**CO 2**
	6. As per D & C Act "Schedule FF" is related with_____. a. Parenteral Preparation b. Ointment Formulation c. Skin cosmetic preparation d. Ophthalmic Formulation	1 M	**CO 2**
	7. Grant of license to manufacture a drug requires_____. a. Form 24, b. Form 25, c. Form 26, d. Form 27.	1 M	**CO 2**
	8. Schedule C is related to_____. a. List of Biological and Immunological Product b. List of Homeopathy product c. List of Ayurvedic product. d. List of Allopathic product.	1 M	**CO 2**
	9. Standards for Mechanical Contraceptives comes under_____. a. Schedule R, b. Schedule R1, c. Schedule S, d. Schedule O	1 M	**CO 2**
	10. Schedule O prescribes _____. a. Standards for Disinfectant fluids. b. Standards for Cosmetics c. Standards for Life Period of Drugs. d. Standards for Ayurvedic products	1 M	**CO 2**

ANNEXURE VI: SAMPLE MODEL ANSWER PAPER FOR INTERNAL EXAM

MODEL ANSWER PAPER

PHARMACEUTICAL LAW & ETHICS (20226)

First Sessional Exam 2022-23 (40 Marks)

Q.1] Attempt any Three (15 M)

1. Write a note on various acts on Drugs and Pharmacy Profession?

Ans: The various acts related to Drugs and Pharmacy profession are as follows:-

- **1937:-** The 'Import of Drugs Bill' was introduced by the Indian Government, but it was later withdrawn.
- **1940:-** In British India, the government introduced the 'Pharmaceuticals Bill' in 1940 to regulate the import, manufacture, sale and distribution of drugs. The bill was finally passed as the Drugs Act 1940.
- **1941:-** The first 'Drugs Technical Advisory Board' (DTAB) was constituted under this act in 1941. Calcutta established the Central Drugs Laboratory.
- **1945:-** The 'Drugs Rule under 1940 Drugs Act' was established. The Drugs Act has also been updated time to time and now it covers cosmetics and also Ayurvedic, Unani and Homeopathic medicines in some areas.
- **1946:-** Under the leadership of Late. Col.R.N.Chopra, the Indian Pharmacopoeia list was produced. It is a list of medications that were used in India at the time yet were not included in the British Pharmacopoeia.
- **1948:-** Pharmacy Act 1948 was established and the late Dr.B.N.Ghosh served as the chairman of the Indian Pharmacopoeia Committee.
- **1949:-** The Pharmacy Council of India (PCI) was created as a result of Pharmacy Act 1948.
- **1954:-** To prevent deceptive ads, the Drugs and Magic Remedies (Objectionable Advertisements) Act of 1954 was passed.
- **1955:-** Medicinal and Toilet Preparations (Excise Duties) Act 1955 was enacted to impose a standard levy on alcohol products across all states. The first edition of Indian Pharmacopoeia was published.
- **1985:-** To safeguard the people from the hazards of addictive drugs, the Narcotic and Psychotropic Substances Act was enacted.

2. Explain in detail about Schedule N as per D & C Act?

Ans:

- Schedule N prescribes the list of minimum equipments required for the efficient running of pharmacy
  1. **Entrance:-** The front of a pharmacy shall bear an inscription "Pharmacy" in front.
  2. **Premises:-** The premises should be as follows:
     a. The premises of a pharmacy shall be separate.
     b. The premises shall be well built, dry, well lit and ventilated and of sufficient dimensions to allow the goods in stock, especially medicaments and poisons to be kept in a clearly visible and appropriate manner.
     c. Dispensing Area: Not less than 6 sq.m for single pharmacist and 2 sq.m for each additional pharmacist.
     d. Height: It shall be at least 2.5 metres.
     e. Floor: The floor shall be smooth and washable.

f. Walls: Plastered or tiled or oil painted with smooth, durable and washable surface, devoid of holes, cracks and crevices.
g. The dispensing area shall be provided with the ample supply of good quality of water and it should be separated by a barrier to prevent the admission of the public.

3. Furniture and Apparatus:-

a. The furniture and apparatus of pharmacy shall be adapted for the uses for which they are intended.
b. Drugs, chemicals and medicaments shall be kept in a room appropriate to their properties in such special containers which will prevent any contamination or deterioration of the contents or the contents of containers kept near them.
c. Drawers, glasses and other containers used for sleeping medicaments shall be of suitable size and capable of being-closed tightly to prevent the entry of dust.
d. Every container shall bear a label of appropriate size, easily readable with names of medicaments as given in the Pharmacopoeias.
e. A pharmacy shall be provided with a dispensing bench, the top of which shall be covered with washable and impervious material like stainless steel, laminated or plastic, etc.
f. Poisons shall be stored in separate cupboard with lock and key and shall be marked with words "Poison" in red letters on white background. The containers of all concentrated solution shall bear the special label or marked with the words "To be diluted".

Apparatus:-

- ✓ Balance, Dispensing, Sensitivity 30mg.
- ✓ Balance, Counter, Capacity 3kg, sensitivity 1gm.
- ✓ Beakers
- ✓ Bottles and prescription
- ✓ Corks of assorted sizes and extractor.
- ✓ Evaporating dishes, Porcelain.
- ✓ Filter papers.
- ✓ Glass Funnels.
- ✓ Litmus Paper (Blue and Red).
- ✓ Measuring cylinder of 10ml, 25 ml, 50ml, 100ml and 500ml.
- ✓ Mortars and pestles of glass and Wedgwood.
- ✓ Ointment pots with Bakelite
- ✓ Ointment Slab, porcelain.
- ✓ Pipettes, graduated, 2ml, 5ml and 10ml.
- ✓ Rubber stamps and pad.
- ✓ Scissors.
- ✓ Spatulas of stainless steel.
- ✓ Spirit Lamp.
- ✓ Glass stirring rods.
- ✓ Thermometer, 0ºC to 200ºC.
- ✓ Tripod stand.
- ✓ Watch glasses.
- ✓ Water bath, Wire Gauze and Suppository Mould.

Books:-

- ✓ The Indian Pharmacopoeia (Current Edition).
- ✓ National Formulary of India (Current Edition).
- ✓ The Drugs and Cosmetics Act, 1940.
- ✓ The Drugs and Cosmetic Rules, 1945.
- ✓ The Pharmacy Act, 1948.
- ✓ The Dangerous Drugs Act, 1930.

4. **General Provisions:-**
   a. A pharmacy shall be conducted under the conditions personal supervision of a Registered Pharmacist whose name shall be displayed conspicuously in the premises.
   b. The Pharmacist shall always put on clean white overalls.
   c. The premises and fittings of the pharmacy shall be properly kept and everything shall be in good order and clean.
   d. All records and registers shall be maintained in accordance with the laws in force.
   e. Any container taken from the poison cupboard shall be replaced there in immediately after use and the cupboard locked. The keys of the poison cupboard shall be kept in the personal custody of the responsible person.

3. What are the qualifications and powers of Drug Inspector?

Ans:

- **Qualifications:-**

✓ A Degree in Pharmacy or Pharmaceutical Sciences or Medicine with specialization in Clinical Pharmacology or Microbiology, from recognized Indian University.

✓ For the process to be appointed as Drugs Inspector for inspection of manufacture of "Schedule C drugs" following experience is essential:

   a. Minimum 18 months experience in manufacture of Schedule C drugs; or
   b. Minimum 18 months experience of testing Schedule C drugs in laboratory; or
   c. Minimum 03 years' experience in inspecting manufacture of Schedule C drugs in capacity of Drugs Inspector.

✓ Pharmaceutical Chemists Diploma granted by the Pharmaceutical Society of Great Britain.

- **Powers of Drug Inspectors:-**

Powers of Drug Inspectors are restricted to the local limits of area, for which he is appointed. Subject to the provisions, limitations and restrictions prescribed under the Act and Rules, Drug Inspectors has following powers:-

1) **<u>To Inspect:-</u>**
   - Any premises where in, drug or cosmetic is being manufactured and means of standardization and testing of drugs or cosmetics.
   - Any premises where in, any drug or cosmetic is being sold or stocked or exhibited or offered for sale is distributed.

2) **<u>Take any samples of drug or cosmetic:-</u>**
   - Which is being manufactured or being sold or it is stocked or offered for sale or exhibited or is being distributed.
   - From any person conveying, delivering or preparing to deliver such drug or cosmetic to a purchaser or consignee.

3) **<u>To search at all reasonable times:-</u>** Any person or any place or premises in which he has reason to believe that an offence is being committed or has been committed.

4) **<u>Stop and Search:-</u>** Any vehicle or other conveyance which he has reason to believe, use for carrying any drug or cosmetic in respect of which offence has been committed.

5) **<u>Order of Non-Disposal:-</u>** "To pass an order" in writing for, non-disposal of any stock of such drug or cosmetic, in respect of which offence has been or is being committed. The period of non-disposal, not exceeding 20 days is specified in the order.

6) **<u>To seize:-</u>** If necessary, may seize stock of such drug or cosmetic and any substance or article, connected with commission of offence or which may be employed for commission of such offence.

7) **<u>To examine:-</u>** To examine any record, register, documents or any other material object, found while exercising powers and to seize the same, if necessary.

8) **<u>Other power:-</u>** To exercise such other powers as may be necessary for carrying out purposes of Chapter IV of the Act and any Rules made there under.

4. Write a note on Central Drugs Laboratory?

Ans:

Central Drugs Laboratory:-

Under the provisions of Section 6 of Drugs and Cosmetics Act 1940, the Central Drugs Laboratory is established by the Central Government at Kolkata. It is National Statutory laboratory of the Government of India, for quality control of drugs and cosmetics. It operates under the control of the Director appointed by the Central Government.

Functions:

- To analyse the test samples of drugs sent to it, by the Courts or Commissioner, or Customs or the Government officer authorised by the Central Government.
- To carry out such other duties entrusted to it, by the Central Government or the State Government with permission of Central Government after consultation with the Board.

Functions of CDL in respect of following drugs or classes of drugs are carried out by other institutes, as shown in the table given below and the functions of the Director CDL are exercised by the Director of respective institutes:

Types of Samples to be tested	Testing Laboratory/Institutes
Sera, Solution of Serum protein for injection, vaccines, toxins, antigen, antitoxin, sterilized surgical ligature and sterilized surgical suture, bacteriophages	Central Research Institute, Kasauli
Oral Polio Vaccines	Pasteur Institute of India-Coonoor, Enterovirus Research Centre (ICMR), Haffkin Institute Compound-Parel Bombay, National Institute of Biological-Noida
Antisera, Vaccines, Toxoids, Diagnostic antigens for veterinary use	Indian Veterinary Research Institute- Izatnagar or Mukteshwar
Condoms	Central Drugs Testing Laboratory, Chennai
VDRL antigens	Laboratory of Serologist and chemical examiner, Government of India, Kolkata
Intra-Uterine Device and Falope Rings	Central Drugs Testing Laboratory, Thane, Maharashtra
Human Blood and Human Blood products including components, test for freedom of HIV antibodies	National Institute of Communicable Disease, Department of Microbiology- Delhi, National Institute of Virology- Pune, Centre of Advanced Research in Virology, Christian Medical College- Vellore
Homeopathic Medicines	Homeopathy Pharmacopoeia Laboratory, Ghaziabad
Diagnostic Kits including blood grouping reagents, HIV, Hepatitis-B and Hepatitis C virus, Blood Products, Recombinant products, biochemical kits	National Institute of Biologicals-Noida

Q.2] Attempt any Five (15 M)

1. Define Pharmaceutical Legislation and give its history in India?

Ans:

- **Pharmaceutical Legislation:-** Pharmaceutical Legislation are the laws related to pharmacists, pharmacy profession, drugs, medicines, cosmetics, practices and substances affecting health of the human beings and animals.

- **History of Pharmacy Legislation in India:-**
  - In ancient years, the Ayurveda system of medicines was popular in India. Indians were depending on the Indigenous source of medicines. The Allopathic system of medicine was introduced to India due to the invasion of the British.
  - In Calcutta, the first chemist shop was introduced by Mr. Bathgate in 1811. It took about 100 years for this firm to develop the first tinctures and spirits. Later on, Smith Stanistreet and Co. opened a new shop in 1821, and the manufacturing procedure was adopted by this company in 1918.
  - During the year 1901, Acharya Prafulla Chandra Roy established the Bengal Chemical and Pharmaceutical Works in Calcutta. In 1903, the initiative was taken by Prof. T.K.Gajjar, who established the Alembic Chemical Works Ltd at Baroda.
  - Inspite of all these establishments the need of the Indian population was not fulfilled and the medicines were imported in India. As a result of competition between foreign firm pharmaceuticals and indigenous drugs, many dirty practices emerged, leading to the production of inferior misbranded and cheaper quality drugs.
  - Acts such as the Opium Act 1878, the Poison Act 1919 and the Dangerous Drugs Act 1930 were established as a result. These acts were insufficient to ensure the safety of the rising population and due to this the Drug Enquiry Committee was formed.
  - On August 11th 1930, the Government of India constituted a Committee under the Chairmanship of Late.Col.R.N.Chopra known as Drug Enquiry Committee (DEC) formerly known as Chopra Committee to investigate the research of pharmacy in India and make recommendations for action. The report of this committee was submitted in 1931.
  - Later on Prof.M.L.Schroff (Prof. Mahadev Lal Schroff) began pharmaceutical teaching at the university level at the Banaras Hindu University (BHU) shortly after the report was released.

2. Write a note on Chopra Committee?

Ans:-

Chopra Committee (Drug Enquiry Committee):-

The Drug Enquiry Committee (DEC) under the chairmanship of Late. Col.R.N.Chopra also known as the Chopra Committee was formed to explore the scope of the problem and to make recommendations regarding the measures. Some of the recommendations of the Chopra Committee are as follows:-

i. This Committee developed the Central and State Pharmacy Councils whose function was to look after the training and education of pharmacy professionals and also maintain the register containing the name and the address of the registered pharmacists.

ii. The drug control machinery departments were established at the centre in all states due to the recommendation of this committee.

iii. The committee also proposed the need of a well-equipped Central Drug Laboratory (CDL) with well qualified staff and experts.

iv. The committee suggested appointing on Advisory board to advise the government in making rules and regulations.

v. Framing the academic curriculum for educating pharmacy students and also providing training for them to become registered pharmacists.
vi. Inclusion of drug products used in indigenous systems and crude drugs of plant and animal-origin. Pharmaceutical industry development plans in India.
vii. The committee also suggested the compiling of Indian Pharmacopoeia.

➢ **Actions taken by the Government on the Chopra Committee Recommendations:-**

i. Passing Drugs Act 1940 for regulating the import, manufacture, distribution and sale of drugs.
ii. In 1948, Pharmacy Act framed regulations for prescribing minimum educational qualifications for the profession and practice of pharmacy.
iii. Government drug testing laboratories were set up both at the State and Central Level.
iv. Establishment of the Government Advisory Boards such as the Drugs Technical Advisory Boards (DTAB) and Drugs Consultative Committee (DCC).
v. Registration of all the drugs and formulations that are sold in India.
vi. Official Indian Pharmacopoeia was developed.
vii. The Drugs and Magic Remedies Act 1954, Medicinal and Toilet Preparations Act 1955 and Narcotic Drugs and Psychotropic Substances (NDPS) Act 1985 were implemented.

3. Define:- a] Adulterated Drug b] Misbranded drug c] Spurious drug

Ans:-

a] Adulterated Drug:-

a) If it consists in whole or in part or any filthy or decomposed substance or,
b) If it has been prepared, packed or stored under insanitary condition, whereby it may have been contaminated with filth or whereby it may have been rendered injurious to health,
c) If its container is composed in whole or in part of any poisonous substance, which may render the contents injurious to health or,
d) If it bears or contains, for purposes of colouring only a colour other than one, which is prescribed or,
e) It contains any harmful or toxic substance which may render it injurious to health or,
f) If any substance has been mixed therewith, so as to reduce its quality or strength.

b] Misbranded Drug:-

a) If it is so coloured, coated, powdered or polished that damage is concealed or it is made to appear of better or greater therapeutic value than it really is or,
b) If it is not labelled in the prescribed manner or,
c) If its label or container or anything accompanying the drug bears any statement, design or device which makes any false claim for the drug or which is false or misleading in any particular.

c] Spurious Drug:-

a) If it is imported or manufactured under a name, which belongs to another drug;
b) If it is an imitation of or is a substitute for another drug or resembles another drug in a manned likely to deceive or bears upon it or upon its label or container the name of another drug, unless it is plainly and conspicuously marked, so as to reveal its true character and its lack of identity with such other drug or;
c) If the label or container bears the name of an individual or company purporting to be the manufacturer of the drug, which individual or company is fictious or does not exists;
d) It has been substituted wholly or in part by another drug or substance or;

e) If it purports to be the product of the manufacturer, of whom it is not truly a product.

4. What do the following Schedule prescribes?

Ans:

a. Schedule C:- List of Biological and Special products.
b. Schedule G:- List of substances that must be used under medical supervision
c. Schedule F:- Requirements for the functioning and operation of a blood bank or for the preparation of blood components.
d. Schedule M:- Good manufacturing practices and requirements of premises, plant and equipment for pharmaceutical products
e. Schedule X:- List of Narcotic Drugs and Psychotropic Substances
f. Schedule J:- Diseases and ailments (by whatever name described) which a drug may not purport to prevent or cure or make claims to prevent or cure

5. Define Import License and Registration Certificate as per D & C Act and enlist the types of drugs and cosmetics prohibited from Import, Manufacture and Sale?

Ans:

a) Import License:- It means the license in Form 10 and Form 10 A, to import drugs other than Schedule X drugs and to import Schedule X drugs.

b) Registration Certificate:- Registration Certificate means certificate issued under Rule 27 A by the Licensing Authority in Form 41, for registration of premises and drugs manufactured by the manufacturer meant for import into and use in India.

c) Prohibition of Import, Manufacture and Sale of Drugs and Cosmetics:-

- Any drug or cosmetic which is not of standard quality.
- Any misbranded drug or cosmetic.
- Any adulterated drug or cosmetic.
- Any spurious drug or cosmetic.
- Any drug or cosmetic for import of which license is required, otherwise imported under such license.
- Any patent or proprietary medicine, on the label or container of which true formula or list of active ingredients along with their quantities, is not displayed in the prescribed manner.
- Any drug which claims, to prevent, cure or mitigate any such disease or ailment specified in the Schedule J.
- Any cosmetic containing any ingredient which may render it unsafe or harmful for use.
- Any drug or cosmetic contravening any provisions of the Act and Rules made thereunder.

6. Define Drugs and Cosmetics as per D & C Act and give the objectives of the D & C Act 1940?

Ans:-

1. **Drug:** It includes all medicines for internal or external use of the human beings or animals and all substances intended to be used in the diagnosis, treatment, mitigation or prevention of any disease or disorder in human beings or animals and all other formulations applied on the human body for purpose of prevention e.g., Mosquito Repellents.

2. **Cosmetics:** It means any article intended to be rubbed, poured, sprinkled or sprayed or introduced into or otherwise applied to the human body or any part of human body for cleansing effect, beautifying, promoting attractiveness or altering the appearance.

♦ **OBJECTIVES:**

The Drugs and Cosmetics Act 1940 is enacted to regulate and control import, manufacture, distribution and sale of drugs and cosmetics in India. The other objectives of the act are as follows:-

1. To prevent and control illegal import, manufacture, distribution and sale of spurious, misbranded, adulterated and substandard drugs.
2. To ensure standard and quality of drugs for medical treatment in human beings and animals.
3. To maintain standard of substances, which are necessary aids in treatment, surgery or other cases.
4. To ensure manufacturing, distribution and sale of drugs by qualified persons only.
5. To control manufacture and sale of Ayurvedic, Siddha and Unani and Homeopathic Drugs.
6. To establish the administrative bodies like "Drug Technical Advisory Board (DTAB)", "Central Drugs Laboratory (CDL)" and "Drugs Consultative Committee (DCC)".

Q.3] Multiple Choice Questions (10 M):-

1) Government appointed a "Drug Enquiry Committee" under the Chairmanship of _____ in 1931.
   a. Acharya Prafulla Chandra Roy
   b. Lt. Col. R. N. Chopra
   c. Prof. T. K. Gajjar
   d. Dr Mashelkar
2) For the first time in India, a chemist shop was opened in about 1811 by _____
   a. Mr Bathgate, b. R. N. Chopra, c. Mr Gajjar, d. Dr Ghosh
3) Bengal Chemical and Pharmaceutical Works was started in Calcutta in 1901 by _____
   a. Acharya Prafulla Chandra Roy
   b. Mr Ghosh
   c. Dr Banerji
   d. Mr Chakrawarti
4) Poisons Act was passed in _____
   a. 1919, b. 1926, c. 1939, d. 1949
5) Pack size of drug is covered under _____
   a. Schedule P, b. Schedule P1, c. Schedule R, d. Schedule O
6) As per D & C Act "Schedule FF" is related with _____
   a. Parenteral Preparation
   b. Ointment Formulation
   c. Skin cosmetic preparation
   d. Ophthalmic Formulation
7) Grant of license to manufacture a drug requires _____
   a. Form 24, b. Form 25, c. Form 26, d. Form 27.
8) Schedule C is related to _____
   a. List of Biological and Immunological Product
   b. List of Homeopathy product
   c. List of Ayurvedic product.
   d. List of Allopathic product.
9) Standard for Mechanical Contraceptives comes under _____
   a. Schedule R, b. Schedule R1, c. Schedule S, d. Schedule O
10) Schedule O prescribes _____
   a. Standards for Disinfectant fluids.
   b. Standards for Cosmetics

c. Standards for Life Period of Drugs.
d. Standards for Ayurvedic product.

Answers:

a) Lt. Col. R. N. Chopra
b) Mr Bathgate
c) Acharya Prafulla Chandra Roy
d) 1919
e) Schedule P1
f) Ophthalmic Preparations
g) Form 25
h) List of Biological and Immunological Products
i) Schedule R
j) Standards for Disinfectant fluids.

ANNEXURE VII: SAMPLE OF COLLEGE MEETING

Sahyadri Shikshan Sanstha's
COLLEGE OF PHARMACY, (POLY) SAWARDE
Tal: - Chiplun Dist: - Ratnagiri, Pin: - 415606
(Approved by: A.I.C.T.E. P.C.I.-New Delhi, Govt. Of Maharashtra, D.T.E. M.S.B.T.E Mumbai)
E-mail-pharmacycollegesawarde@yahoo.in Tel-Ph. No (02355)-264106 H.Off 264315/215 Fax (02355)264163

Date:- 06/08/2023

MINUTES OF MEETING

The 1st meeting regarding the re-framing of **Program Assessment & Quality Improvement Committee (PAQIC)** of Academic Year **2023-2024** was conducted in the **Principal's Cabin** on **05/08/2023** at **11.30 am.**

1. **AGENDA NO. 01:-** Welcome of all the **Program Assessment & Quality Improvement Committee (PAQIC)** members and discussion of the points discussed in the previous meeting.
   Mr. Desai S. G., welcomed all the members of **Program Assessment & Quality Improvement Committee (PAQIC)** and discussed all the points related to the previous meeting.
   Proposed by:- Mr. Desai. S. G.
   Accepted by:- All the Committee members.

2. **AGENDA NO. 02:-** Discussion of removal of members from the committee and addition of new members in **Program Assessment & Quality Improvement Committee (PAQIC).**
   Mrs. Bhuran R. R. proposed the addition of new members in the **Program Assessment & Quality Improvement Committee (PAQIC).**
   All the members seconded her proposal. **Mrs. Bhuran R. R.** drafted the name of new members in the committee and directed to give the appointment order to the new members.
   Proposed by:- Mrs. Bhuran R. R.
   Accepted by:- All the Committee members.

3. **AGENDA NO. 03:-** Welcome of the new members and addressing the role of new member in **Program Assessment & Quality Improvement Committee (PAQIC).**
   Mr. Desai S. G. welcomed the new members in the committee and addressed the new member their roles and responsibilities in the **Program Assessment & Quality Improvement Committee (PAQIC)**
   Proposed by:- Mr. Desai S. G.
   Accepted by:- The Appointed Members.

4. **AGENDA NO. 04:-** Vote of thanks.
   Mr. Desai S. G. proposed the vote of thanks to all the members present in the meeting.

Sahyadri Shikshan Sanstha's
COLLEGE OF PHARMACY, (POLY) SAWARDE
Tal: - Chiplun Dist: - Ratnagiri, Pin: - 415606
(Approved by: A.I.C.T.E. P.C.I.-New Delhi, Govt. Of Maharashtra, D.T.E. M.S.B.T.E Mumbai)
E-mail-pharmacycollegesawarde@yahoo.in Tel-Ph. No (02355)-264106 H.Off 264315/215 Fax (02355)264163

5. CONCULSION:-

- The removal of members from the committee and addition of new members was done and the committee was reframed.
- The new members was made aware of his roles and responsibilities.

Following members were present for meeting:-

1. Mr. Desai. S.G:-
2. Mrs. Bhuran R.R:-
3. Mrs. Kavitake S.S:-
4. Mr. Naravane V.V:-
5. Ms. Mahadik D.M:-
6. Mr. Ware M.M:-
7. Mr. Chavan S.V:-