Sanjay Ghodawat University

Kolhapur

Established undersection 2(f) of UG Cact1956Sanjay Ghodawat University
Act XL of 2017 of Govt. of Maharashtra

Empowering Lives Globally!

School of Pharmaceutical Sciences

F.Y.D.Pharm.

Curriculum

AcademicYear2022-23

The Education Regulations, 2020forDiploma Coursein Pharmacy (D. Pharm), Pharmacy Council ofIndia.

Rules & Syllabus (framed under Regulation 7, under Appendix-A of TheEducationRegulations,2020)for the Diploma in Pharmacy (F.Y.D.Pharm)Course

Index

SANJAYGHODAWATUNIVERSITYKOLHAPUR

SanjayGhodawatUniversity(SGU) isestablished intheAcademicYear2017-18,asaState Private University under Govt. of Maharashtra Act No. XL of 2017 dated 3rd May 2017, withthe approvalofthe UGCandthe State Government. "Forthetruemeasure ofgiving is giving without measure." Spread across 150 Acres, Sou. Sushila Danchand Ghodawat Charitable Trust's Sanjay Ghodawat University (SGU) is situated in a serene atmosphere amidstidyllichillsandlushgreenmeadowstostudyinharmonywithNature.TheInstitution aspires to run along the lines of best-in-the-world education and become a world-class institutionwheretheteaching-learningprocessgetsafardeepermeaning.SGUalwaysstands as the guiding star of brilliance, quality, and deliverance beyond expectations. InnovativenessandCreativityarethe hallmarksofageniusenterpriseand SGUstandsto be a stage where these qualities would be nurtured, encouraged, andblossomed. The genius is incomplete without the sense of social responsibility and SGU's ultimate goal remains the development of an attitude of gratitude that freely gives back without expectations. The Sanjay Ghodawat University stands as a beacon of light to guidethe younger generation of the day on the right path to fulfillment in career and life. The USP of the University is its research-based curriculum and academically-oriented teaching staff. The world-class ambiance and infrastructure help the students to easily accommodate themselves in an environment that is conducive to the teaching-learning process. Hands-on experience, challenge-based case studies, maximum participation of students in the classroom, use of modern digital technology, smart classrooms, solution-oriented thinking promotion, stress on research and innovation, international tie-ups, choice-based credit system for flexibility in choosing areas of interest, etc. are some ofthe features ofthe University. The university will help students develop as unique individual-to be educated as a whole person, intellectually, emotionally, socially, ethically, and spiritually. The educational program designs are worked out meticulously in line with best in class universities with a special focus on:

- FlexibleChoiceBasedCreditSystem
- OBE-OutcomeBasedEducationSystem
- ExperientialLearning
- Project-BasedLearning
- Case-BasedLearning
- TrainingneedanalysisbasedonPerformanceAppraisalSystem
- ActiveLearningtoolsforeffectivedelivery
- Mentoring/Proctorship
- Onlinelearning/Self-learningplatforms
- FlippedClassroomconcept
- EffectiveStudentFeedbackMechanism

SCHOOLOFPHARMACEUTICALSCIENCES

Vision

To be recognized as the to pharmaceutical education provider in the region by imparting high level of academic and research outcomes which are aligned with better regional and global needs.

Mission

- **M1–Outcomesbasedqualityeducation:**

  To provide outcomes-based quality education to produce competent and ethical pharmacy professionals to face emerging challenges of the globalized pharmaceutical industry.

- **M2-Researchandlifelonglearning:**

To establishthestrong industryconnections, developresearchprofile and lifelong learning to optimize adequate care and healthcare delivery.

- **M3-Inculcatingvaluesandethics:**

Toinculcatetheprofessionalethicsandhumanvaluesinpharmacyprofessionalsand developing them to serve the healthcare needs of society.

- **M4-Fosteringleadershipqualities:**

Toprovideconduciveenvironmenttoboostthepracticalskills,entrepreneurtraitsand leadership qualities in budding pharmacists to stay ahead in the competitive world.

COREVALUES

- Integrity
- Transparency
- Accountability
- Equality
- Empathy
- Stewardship

QUALITYPOLICY

SanjayGhodawat Universityiscommittedto establishhighstandardsinvalue-basedquality education to enhance and nurture young minds to excel in their chosen profession and develop into socially responsible citizens through resourceful collaboration, innovationand research

OUTCOMEBASEDEDUCATION(OBE)MODEL

Sanjay Ghodawat University(SGU) has implemented OBE modelofeducation, which is a learner-centered approach. SGU has witnessed a sea change in the entire academic system with the implementation of all three components of OBE – Design, Delivery, and Assessment. The SGU model of autonomy focuses on experiential learning which beliefsin learning bydoing.Thisisachievedthroughhands-onexperience, industrialassignments, mini-projects, and live problem solving and collaboration with industries.

SGU isset intodynamicsoftransformationandwitnessingashift in focus fromteachingto learning and the entire academic system of SGU is designed to provide multiple learning opportunities for students to acquire and demonstrate the Knowledge, Skills, and Attitudes (KSA) for rewarding career. The Vision and Mission of the Management, the contribution frometeminentBOGmembersandknowledgeablemembersofAcademicCouncilandBoard ofStudies,themotivationanddriveoftheDirector,therelentlesseffortsofthefellowDeans and Head ofDepartments and all teaching and non-teaching staff along witha commitment tothe learning ofstudents made it possible to successfullytransformthe institute and stand out to carve a niche for itself as an Institute of repute.

OBE is an approach tocurriculum design and teaching that focuses on what students should be able to do(attained) at the endofthe course/ program. Outcome-based education (OBE) is a student-centered instruction model that focuses on measuring student performance through outcomes. Outcomes include knowledge, skills, and attitudes (KSA). Its focus remains on the evaluation of outcomes of the program by stating the knowledge, skill andbehavior a graduateis expected to attain upon completion of a program and after4 – 5 years of graduation. In the OBE model, the required knowledge and skillsets for a particular degree are predetermined and the students are evaluated for all the required parameters (Outcomes) during the program.

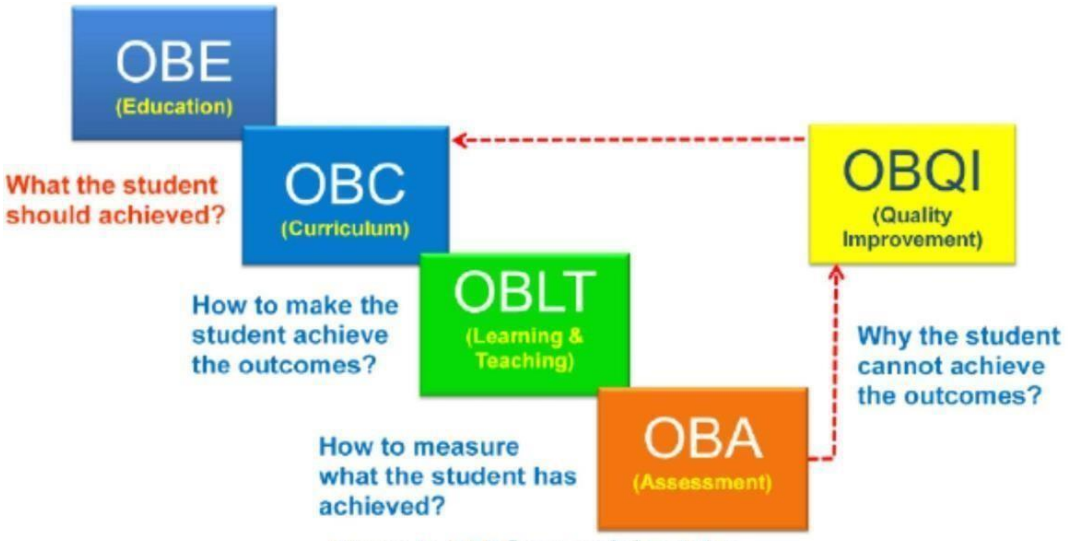
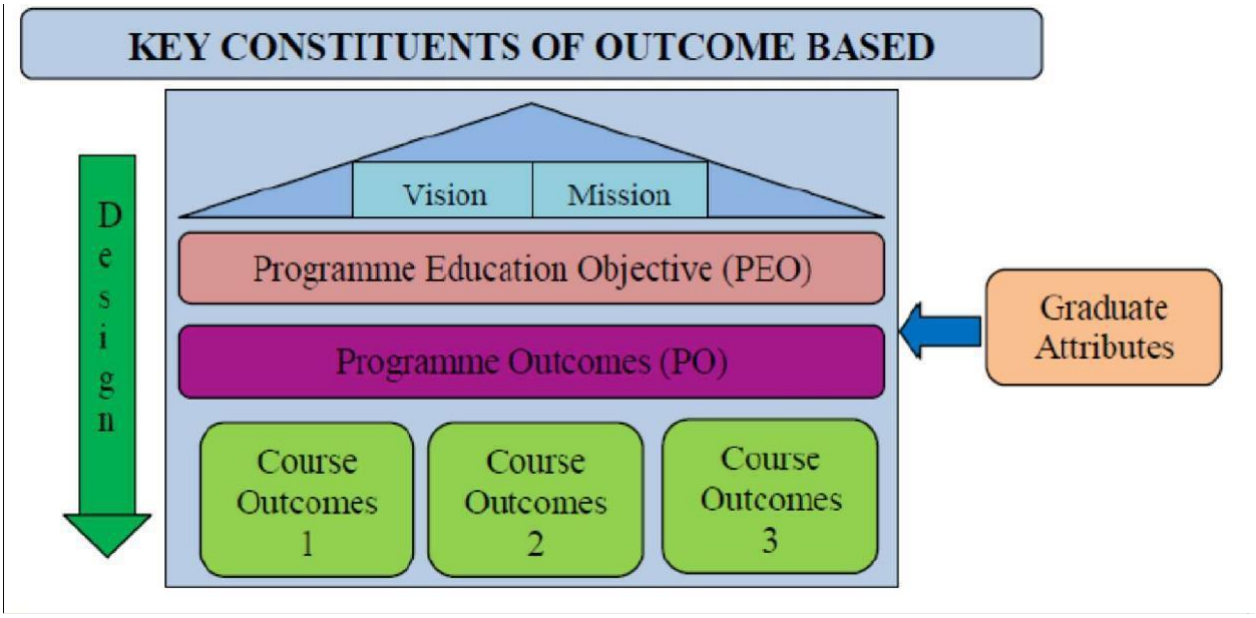


Figure 1: OBE flows and desciption

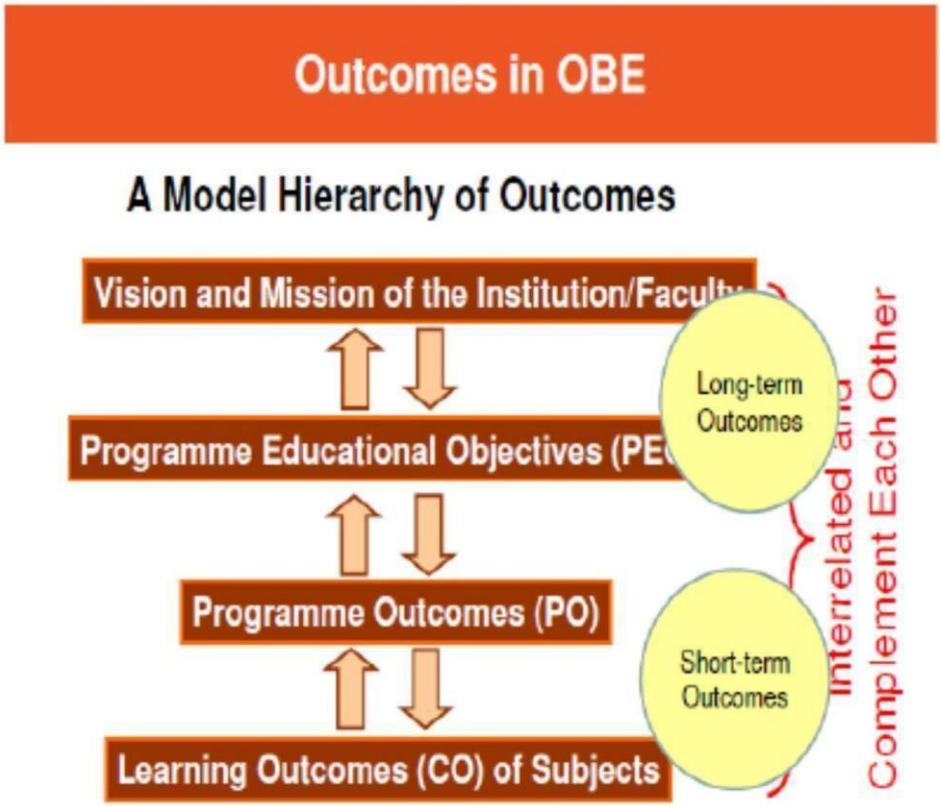


TheOBEmodelmeasurestheprogressofthegraduateinthreeparameters, whichare

- ProgramEducationalObjectives(PEO)
- ProgramOutcomes(PO)
- CourseOutcomes(CO)

Program Educational Objectives (PEO) are broad statements that describe the career and professionalaccomplishmentsthattheprogram ispreparingthegraduatestoachieve.PEO's are measured 4-5 years after graduation. Program outcomes are narrower statements that describe what students are expected to know and be able to do by the time of graduation. They must reflect the Graduate attributes. Course outcomes are the measurable parameters that evaluate each student's performance for each course that the student undertakes every semester.

The various assessment tools for measuring Course Outcomes include Tests and End Semester Examinations, Tutorials, Assignments, Project work, Labs, Presentations, Employer/AlumniFeedback,etc.Thesecourseoutcomesare mappedtoGraduateattributes and Program outcomes based on relevance. This evaluation pattern helps Institutions to measure the Program Outcome. The Program Educational Objective is measure through Employer satisfaction survey (Yearly), Alumni survey (Yearly), Placement records, and higher education records.



SpecialFeaturesof OBE

- OBE is aneducationalprocess that focuses onwhat students cando or the qualities they should develop after they are taught.
- OBE involves the restructuring of curriculum, assessment, and reporting practicesineducationtoreflecttheachievementofhighorderlearningandmasteryratherth an accumulation of course credits.
- Bothstructuresandcurriculaaredesignedtoachievethosecapabilitiesorqualities.
- Discouragestraditionaleducationapproachesbasedondirect instructionoffactsand standard methods.
- Itrequiresthatthestudentsdemonstratethattheyhavelearnedtherequiredskillsand content.

AboutD.Pharmcourse:

The 'Education Regulations 2020' (ER-2020) has been notified in the Gazette of Indiain October 2020. This new regulation has given due consideration for the fact that, universally the role of pharmacist has undergone continuous evolution from 'dispenser of medicines' to 'medicine expert' in the multidisciplinary health care team.

SR2.CompetenciesfortheIndianD.PharmHolders(ProgramOutcome)

Competency is defined as "A distinct composite of knowledge, skill, attitude and value that is essential to the practice of the profession in real life contexts". The candidates who successfully complete the Diploma in Pharmacy (D.Pharm) program of Education Regulations 2020 (ER-2020), fromthe institutionsapprovedbythePharmacyCouncilofIndiaareexpectedto attainthe following professional competencies.

1. ReviewPrescriptions
2. DispensePrescription/Non-PrescriptionMedicines
3. ProvidePatientCounselling/Education
4. HospitalandCommunityPharmacyManagement
5. ExpertiseonMedications
6. Proficiencyondrugs/pharmaceuticals
7. EntrepreneurshipandLeadership
8. DeliverPrimaryandPreventiveHealthcare
9. Professional,EthicalandLegalPractice
10. ContinuingProfessionalDevelopment

1. **Review Prescriptions:** The student should receive and handle prescriptions in a professional manner and be able to check for their completeness and correctness. Also, the prescribers shouldbecontactedforanyclarificationsandcorrectionsintheprescriptionswithsuggestions ifany.
2. **DispensePrescription/Non-PrescriptionMedicines:**Thestudentshouldbeabletodispense the various scheduled drugs / medicines as per the implications ofthe Drug &Cosmetics Act and Rules thereunder. Also, the non-prescription medicines (over-the-counter drugs) should be dispensed judicially to the patients as required.
3. **ProvidePatientCounselling/Education:**Thestudentshouldbeabletoeffectivelycounsel /educatethepatients/caretakersaboutheprescription/nonprescriptionmedicinesandother health related issues. Effective communication includes using both oral and written communication skills and various communication techniques.
4. **Hospital and Community Pharmacy Management:** The student should be able to manage the drugdistributionsystemas perthe policies and guidelines ofthe hospital pharmacy, good communitypharmacypracticeandtherecommendationsofregulatoryagencies. Also, beable to manage the procurement, inventory, and distribution of medicines in hospital /community pharmacysettings.
5. **ExpertiseonMedications:**Thestudentshouldbeabletoprovideanexpertopinionon

medicationstohealthcareprofessionalsonsafeandeffectivemedication-use,relevantpolicies and procedures based on available evidences.

6. **Proficiency on Pharmaceutical Formulations:** The student should be able to describe the chemistry, characteristics, types, merits and demerits of both drugs and excipients used in pharmaceutical formulations based on her/his knowledge and scientific resources.
7. **EntrepreneurshipandLeadership:**Thestudentshouldbeabletoacquiretheentrepreneurial skills in the dynamic professional environments. Also, be able to achieve leadership skills through teamwork and sound decision- making skills.
8. **Deliver Primary and Preventive Healthcare:** The student should be able to contribute to various healthcare programs ofthe nation including disease prevention initiatives to improve public health. Also contribute to the promotion of national healthpolicies.
9. **Professional,EthicalandLegalPractice:**Thestudent shouldbeabletodeliverprofessional services inaccordance with legal, ethical, and professional guidelines with integrity.
10. **ContinuingProfessionalDevelopment:** The student should be able to recognize the gaps in the knowledge and skills in the effective delivery of professional services from time to time and be self-motivated to bridge such gaps by attending continuing professional development programs.

SR3.CompetencyMappingwiththeCourses(PartI,II&III)ofER 2020

Competencies(POs)		Pharmaceutics	Pharmaceutical Chemistry	Pharmacognosy	HumanAnatomy&Physiology	SocialPharmacy	Pharmacology	CommunityPharmacy & Management	Biochemistry &ClinicalPathology	Pharmacotherapeutics	Hospital& Clinical Pharmacy	PharmacyLaw&Ethics	Practicaltraining
1.	Review Prescriptions	√	√	√	√		√	√	√	√	√	√	√
2.	DispensePrescription/Non-Prescription Medicines	√	√	√		√	√	√	√	√	√	√	√
3.	ProvidePatientCounselling/ Education	√	√	√	√	√	√	√	√	√	√	√	√
4.	HospitalandCommunity Pharmacy Management					√		√			√	√	√
5.	ExpertiseonMedications	√	√	√	√	√	√	√	√	√	√	√	√
6.	Proficiency on pharmaceuticalformulations	√	√	√			√			√			√
7.	Entrepreneurshipand Leadership							√			√		√
8.	Deliver Primary and PreventiveHealthcare				√	√	√	√	√	√	√	√	√
9.	Professional,Ethicaland Legal Practice					√		√		√	√	√	√
10	ContinuingProfessional Development	√	√	√		√	√	√		√	√	√	√

CHAPTER-I:

REGULATIONS

The Education Regulations, 2020 for Diploma Course in Pharmacy Regulations made under section 10 of the Pharmacy Act, 1948. (As approved by the Government of India, Ministry of Health & Family Welfare vide letter No. Z-28020/59/2019- AHS/FTS-8012809 dated 7.10.2020 and notified by the Pharmacy Council of India.)

ER.CHAPTER:1

R1.Shorttitleandcommencement-

(1) These regulations may be called the Education Regulations, 2020 for Diploma coursein Pharmacy.

(2) TheyshallcomeintoforceonthedateoftheirpublicationintheofficialGazette.

R2.QualificationforPharmacist-

The minimum qualification required for registration as a pharmacist shall be a pass in DiplomainPharmacy(Part-I&Part-II)andsatisfactorycompletionofDiplomainPharmacy (Part-III).

Or

Any other qualification approved by the Pharmacy Council of India as equivalent to the above.

R3.DiplomainPharmacy(Part-I,Part-IIandPart-III):

shall consist of a certificate of having completed the course of study and passed the examination after satisfactory completing the practical training as prescribed in Chapter-2 and Chapter-3 of these regulations.

ER.CHAPTER:2

R4.DiplomainPharmacy(Part-IandPart-II)-

Minimumqualification for admissionto Diploma in Pharmacy-Apass in 10+2examination (science academic stream) with Physics, Chemistry and Biology orMathematics. or

Any other qualification approved by the Pharmacy Council of India as equivalent to the aboveexamination.ProvidedthatthereshallbereservationofseatsfortheScheduledCastes and the Scheduled Tribes candidates in accordance with the instructions issued by the CentralGovernment/StateGovernments/Unionterritoryadministrationsasthecase maybe from time to time.

R5.Durationofthecourse-

[1] The duration of the course shall be for two academic years. Each academic year shall be spread over a period ofnot lessthan one hundred and eightyworkingdays.

[2] In addition there shall be a five hundred hours of practical training spread over a period of not less than three months.

R6.Courseofstudy-

Thecourseofstudyfor Diploma inPharmacyPart-I andDiploma inPharmacyPart-II shall include the subjects as given in the Tables I & II below. The number of hours devoted to eachsubjectforitsteachinginTheoryandPractical, shallnotbelessthanthat noted against itincolumns2and3oftheTablesbelow.However,thecourseofstudyandpracticaltraining may be modified by the Pharmacy Council of India from time totime.

Table-I.DiplomainPharmacyPart-I

Nameofthecourse	Theory	Practical	Tutorial
Pharmaceutics	75	75	25
PharmaceuticalChemistry	75	75	25
Pharmacognosy	75	75	25
HumanAnatomy&Physiology	75	75	25
SocialPharmacy	75	75	25
Total	375	375	125

Table-II.DiplomainPharmacyPart-II

Nameofthecourse	Theory	Practical	Tutorial
Pharmacology	75	50	25
CommunityPharmacy& Management	75	75	25
Biochemistry&ClinicalPathology	75	50	25
Pharmacotherapeutics	75	25	25
HospitalandClinicalPharmacy	75	25	25
PharmacyLaw&Ethics	75		25
Total	450	225	150

Table-III.DiplomainPharmacyPart-III

	Activities	Hr/activity	TotalHrs
1)	StockingofDrugsandMedicalDevices		PracticalTraining– 500 hours
2)	InventoryControlProcedures		
3)	Handlingofprescriptions		
4)	Dispensing	(250 hours)	
5)	**Patientcounseling**		

R7. Syllabus-

The syllabus for each subject of study shall be as prescribed by the Pharmacy Council of India from time to time.

SR-2020D.PharmSyllabus–AnOverview

The ER-2020 D.Pharm Syllabus has the following structure in every course. Though the theory and practicalcourses are not mutuallyexclusive, as per the Regulations, the theoryand practical are to be considered as individual courses.

Scope:These are broader statementsonthe purposeofthe courseinthe curriculum, keycontents ofthecoursethatwillcontributetothespecificknowledgeandorskilldevelopments.Thestudents will be orient by the teacher about the scope of the particular course at the beginningand intermittently.

CourseObjectives: The course objectives describe the key topics that are intended by the teacher tobecoveredinthecourse.Ingeneral, theseare morespecificthanthescopeandbroader than the course outcomes. The teacher will discuss the objectives of the course with the students andbreak-downthecourseobjectivesintomicrolevelsasobjectivesofaspecifictopic/objectives ofa specific lecture, etc. Thiswill make the studentsto understand the significance of the course /topic /lectureand enhancetheir attentiononthecourse/topic/lecture.

Course Outcomes: The course outcomes are more specific than the course objectives describe thatdescribetheabilitiesofthestudentstoperform/act,uponsuccessfulcompletionofthe course. Hence, conventionally the course outcomes are described with verbs that are measurable or observableactions.Theteacherwilldescribethedesiredoutcomesoftheparticularcourse,sothat thestudentsshallunderstandthevariousassessmentcriteria, modalities,andparameters. Thisalso servesasabroaderguidelineforpreparingtheassessmentplan.Awell-structuredassessmentplan associated with the course outcomes shallenable to mapping with the professional competencies and their attainment levels that are attributed to the program outcomes.

Theory Courses: The theory courses basically provide concepts and explain the relationships betweenthe concepts. Understanding ofthe theoreticalcoursesenable the studentsto identifythe problems in real life situation and make a plan for addressing such problems. Also, the theory coursehelpstounderstandwhat isnot knownandthus isthetoolforaccumulationofknowledge. The syllabus of the theory courses has been systematically and logically described as different chapters and the minimum number of hours to be spent on teaching are mentioned chapter wise and course wise. The total hours ofany given chapter can be distributed among the sub-topics as required by the subject matter.

Practical Courses: The practicalcourses are designed for applying the theoreticalknowledge in the givenexperimental/ simulated conditions. The practicalcourses deepenthe understanding of theories, develop the skills, hone professional competencies, provide opportunities to observe, think and analyse problem solving methods. Further, they help to gain experience with the real things in practice.

Tutorials:Thepurposeofthetutorialhour istypicallyto engagethestudents insmallergroups in orderto paya closer attentionontheir learning process. This is anopportunityforthe studentsto complete their assignments, develop specific skills, discuss anyproblems in the studytopics in a less formalway. During thetutorialhour,the studentsshallexchange their ideaswithinthe small group, and learn to accept constructive criticism and listen to others. Also, the tutorial hour enables the teachers to closely monitor the progress of the individual student and provide additional academic support to individuals, if necessary.

Assignments:Thepurposetheassignmentsaretoencouragethestudentsforself-directed

learning. Further, the assignments will provoke critical thinking, enhance the skills such as literature search, data mining, data interpretation, report formatting, time-management, and written communication. This is also a mode of self assessment for the student about the level of understanding of the concepts of a particular course. The assignment topics will be selected at a micro levelinalignment withthetopicsgiveninthesyllabus. Theassignmentsshallbeevaluated against asetofcriteria. Atypicalformat fortheassessmentofanassignment isgiven inAppendix -1.

FieldVisits: Thepurposeoffield visits isto provideareal-worldexperiencetothestudents. The field visits will help them to realize that what they learn within the walls of the classroom / laboratorycanhelpthemsolvetheproblemstheyseeintheworldaroundthem.Also,thisishelpful towidenthehorizonsofknowledgeand broadeningthescopeofthesyllabus. Everystudent shall submit areport describingtheirobjectives,experience, learningpoints,etc.pertainingtothe field trip, in the typical format given in Appendix-2.

Recommended Books: For each course, a list of recommended books is given in the syllabus. The list shall be considered as an important and common resource for the teaching-learning process, but not the complete list. It is always encouraged to use the latest edition of the books specified. Further,the teachers and students are encouragedto explore more primary, secondary, and tertiary resources as required.

Practical Training: The goal of the practical training for the students is to provide a real-time, supervised experience on the professional tasks emphasized in their course of study. Further, it helpsthemtoapplytheiracquiredknowledgeandskillsintheprofessionalworkingenvironment. The practical training intensively prepares the students with adequate competencies and qualifications required for the career opportunity in the future.

Thesummaryofthecurriculum,coursesandotheractivitiesandtheir metricsacrosstheER- 2020 D.Pharm program (Part I, II & III) are givenhere.

	Criteria	Metrics
	Number ofsubjectareas(consideringboththeory&practicaltogether)	11
	Numberoftheorycourses	11
	Number ofpracticalcourses	10
	Numberoftheoryhours	825
	Number ofpracticalhours	600
	Number ofpracticaltraining hours	500
	Numberoftutorialhours	275
	Numberofcourseoutcomesfortheorycourses	45
	Numberofcourseoutcomesforpracticalcourses	40
	Number ofcourseswhichhavegivenassignments	9
	Numberofassignmenttopics given	75
	Numberofassignmentsreportseachstudentshall submit	27
	Numberofcourseswhichhavefieldvisit	5
	Numberoffieldvisitreportseachstudentshallsubmit	9
	Numberofprofessionalcompetencies	10

The ER 2020 D. Pharm syllabus is designed to nurture the students in all the three domains of Bloom's Taxonomy viz. cognitive (knowledge), affective (attitude) and psychomotor (skills). Further, it also provides ample of scope to the students for different learning styles viz. visual, auditory and kinaesthetic, i.e., 'see, hear and do'.

R9. Examinations:

1) Thereshallbeanannualexaminationattheendofthe academicyear.
2) Ifnecessary, there shall be a supplementaryexamination for the students who are not able to pass Diploma in Pharmacy Part-I or Part-II, as the case may be, as per the criteria specified by the examining authority.
3) The examinationsshallbe ofwrittenand practical(including viva – voce) nature,carrying maximum marks for each part of a subject, as indicated inTable IV and Vbelow.

Table-IV.DiplomainPharmacyPart-IExamination

Nameofthecourse	Theory (MaximumMarks)			Practical (MaximumMarks)		
	SE	EAE	Total	SE	EAE	Total
Pharmaceutics	20	80	100	20	80	100
PharmaceuticalChemistry	20	80	100	20	80	100
Pharmacognosy	20	80	100	20	80	100
HumanAnatomy&Physiology	20	80	100	20	80	100
SocialPharmacy	20	80	100	20	80	100
Total			500			500

Table-V.DiplomainPharmacyPart-IIExamination

Nameofthecourse	Theory (MaximumMarks)			Practical (MaximumMarks)		
	SE	EAE	Total	SE	EAE	Total
Pharmacology	20	80	100	20	80	100
CommunityPharmacy& Management	20	80	100	20	80	100
Biochemistry&ClinicalPathology	20	80	100	20	80	100
Pharmacotherapeutics	20	80	100	20	80	100
HospitalandClinicalPharmacy	20	80	100	20	80	100
PharmacyLaw&Ethics	20	80	100			
Total			600			500

EAE=EndAnnualExam;SE=SessionalExam

Note:75%attendanceintheoryandpracticalseparatelyis compulsoryto attendthe examinations

R10.EligibilityforappearingattheDiplomainPharmacyPart-IandPartIIexamination-

Onlysuchcandidates who produce certificate fromthe Headofthe academic institution inwhich he/shehasundergonetheDiploma inPharmacyPart-IandPart-IIcourseinproofofhis/her having regularly and satisfactorily undergone the course of study by attending not less than 75% of the classesheldbothintheoryandinpracticalseparatelyineachsubjectshallbeeligibleforappearing at the Diploma inPharmacy (Part-I) or (Part II) examination, as the case maybe.

R11.Modeofexaminations-

(1) Theoryand Practicalexamination in the subjects mentioned in Tables – IV & V shall be of three hours duration. Both Theory and Practical are considered as two separatepapers.

(2) Acandidate who fails intheoryor practicalexaminationofa subject shallre-appear for the failed subject. Theory and Practical of a particular subject are considered as individual subjects for the purpose of pass criteria.

(3) Practicalexaminationshallalso consistofaviva-voceexamination.

SR5.Theoryexaminations

SessionalExaminations(Theory):

There shall be two or more periodic sessional (internal assessment) examinations during each academic year. The durationofthe sessionalexamshall be 90 minutes. The highest aggregateof any two performances shall formthe basis ofcalculating the sessional marks. The scheme ofthe question paper for theory sessional examinations shall be as given below.

I.	LongAnswers(Answer3outof4)	3x5=15
II.	ShortAnswers(Answer5outof6)	5x3=15
III.	Objective type Answers (Answer all 10 out of 10) (Multiple Choice Questions/Fill-intheBlanks/OnewordORoneSentencequestions)	10x1=10
	Totalmarks	=40

Internalassessment:

The marks secured by the students out of the total 40 shall be reduced to20 in each sessional, and thenthe internalassessment shall be calculated based onthe best two averages for 20marks

UniversityFinalTheoryExaminations(AnnualTheoryExam):

The scheme of the question paper for the theory examinations conducted by the examining authority(Board/ University) shall be asgiven below.The durationofthe finalexaminationshall be 3 hours.

I.	LongAnswers(Answer6outof7)	=6x5=30
II.	ShortAnswers(Answer10outof11)	=10x3=30
III.	ObjectivetypeAnswers(Answerall20)(MultipleChoiceQuestions/ Fill-in the Blanks /One word OR one Sentence questions)	=20x1=20
	Totalmarks	=80

SR6.Practicalexaminations

SessionalExaminations(Practical):

Thereshallbetwoor moreperiodicsessional(internalassessment) practicalexaminationsduring eachacademicyear.Thedurationofthesessionalexamshallbethreehours.Thehighestaggregate of any two performances shall form the basis of calculating the sessional marks. The scheme of the question paper for practical sessional examinations shall be as givenbelow.

I.	Synopsis	=10
II.	Experiments(Majorexperiment=30;Minorexperiment/spotteretc=20)	=50*
III.	Vivavoce	=10
IV.	PracticalRecordMaintenance	=10
	Totalmarks	=80
	Convertedto	=10

Internalassessment:

The marks secured bythe students out ofthetotalof80 shall be reduced to 10 ineachsessional, and thenthe internalassessment shall be calculated based onthe best two averages for 10 marks from the sessional and other 10 marks shall be awarded as per the details given below.

Actualperformanceinthesessionalexamination	=10marks
Assignmentmarks(Averageofthree)	=5marks*
FieldVisitReport marks(Average forthereports)	=5marks$
Totalmarks	=20marks
*,$Onlyforthecoursesgivenwithbothassignmentsandfield visit/s	

Note:

1. Forthecourseshavingeither assignmentsorfieldvisit/s, theassessmentsofassignmentsor field visit/s shall be done directly for 10 marks and added to the sessional marks.

2. Forthecoursesnothavingbothassignment andfieldvisit,thewhole20marksshallbe calculated from the sessional marks.

UniversityFinalPracticalExaminations(AnnualPracticalExam):

The scheme of the question paper for the practical examinations conducted by the examining authority (Board / University) shall be as given below. The duration of the final examinationshall be 3 hours.

I.	Synopsis	=10
II.	Experiments(Majorexperiment=35;Minorexperiment/spotteretc=25)	=60*
III.	Vivavoce	=10
	Totalmarks	=80
*Themarksfortheexperimentsshallbedivided intovariouscategories,viz. major experiment, minor experiment, spotters, etc. as per the requirement of the course		

SR.Appendix–19

AtypicalformatfortheassessmentofanAssignment

Nameofthe College:	
Nameofthe Student:	
AcademicYear ofthe Student:	
Nameofthe Subject:	
Titleofthe Assignment:	
DateonwhichtheAssignmentwas given:	
DateonwhichtheAssignmentwassubmitted:	
Name&DesignationoftheEvaluator:	
SignatureoftheEvaluatorwithDate:	

Directions:Forevaluation,enterratingofthestudent utilizingthe followingscale: 5 – Excellent; 4 - Very Good; 3 – Good; 2 – Satisfactory; 1 – Poor

AssessmentCriteria	Score	Commentsifany
a.Relevancewiththecontent		
b.Useofresource material		
c.Organization&mechanicalaccuracy		
d. Cohesion&coherence		
e. Languageproficiency&Timelysubmission		
TotalScore		
SignatureoftheStudentwithDate:		

Note: Subject teacher should tryto cover allassignments mentioned in the list for each practical subject by assigning the topics to the students. Students should be encouraged to submit an assignment (ina format decided bythe Institute)and encouraged to present assignments(at least any one assignment per subject) in the class.

SR.Appendix–20

AtypicalformatfortheassessmentofaFieldVisitReport

Nameofthe College:	
Nameofthe Student:	
AcademicYear ofthe Student:	
Nameofthe Subject:	
Name&fulladdressoftheorganizationvisited:	
DateandDurationofVisit:	
Name&DesignationoftheEvaluator:	
SignatureoftheEvaluatorwith Date:	
Objectivessetforthefieldvisit: (give2–4objectivesonebyone)	
Priorpreparationofthestudentforthefieldvisit:(minimum100words)	
Describethegeneralexperiencesduringthefieldvisit:(minimum100 words)	
Learningpoints:Describewhattheoreticalconceptthat iscorrelatedduringthefieldvisit: (minimum 300 words)	

R12.Awardofsessionalmarksandmaintenanceofrecords-

(1) A regular record of both theory and practical class work and examinations held in an institution imparting training for diploma in Pharmacy Part-I and diploma in Pharmacy Part-II courses, shall be maintained for each student in the institution and 20 marks for each theoryand 20 marks for each practical subject shall be allotted as sessional marks.

(2) There shall be twoormore periodic sessional(internalassessment) examinations during each academicyear.Thehighest aggregateofanytwo performancesshallformthebasisofcalculating sessional marks.

(3) Thesessionalmarksinpracticalsshall beallottedonthefollowingbasis:-

(i) Actualperformanceinthesessional/spacingexamination=10marks.

(ii) Daytodayassessmentinthepracticalclass/spacingwork=10marks.

R13.Minimummarksforpassingtheexamination–

A student shall not be declared to have passed Diploma in Pharmacy examination unless he/she securesat least 40% marks ineachofthesubjectsseparatelyin thetheoryaswellasthe practical examinations, including sessional marks.

Thecandidatessecuring60% marksoraboveinaggregateinallsubjectsshallbedeclaredto have passed in firstclass.

The candidates securing 75% marks orabove inanysubject orsubjects shallbe declared to have passed with distinction in that subject or those subjects.

Thegrantoffirstclassanddistinctionshallbesubjecttotheconditionthatthecandidateshallpass all the subjects in a single attempt.

R14.EligibilityforpromotiontoDiplomainPharmacy(Part-II)-

Allcandidateswho have appeared for allthe subjectsand passedthe Diploma inPharmacyPart-IexaminationareeligibleforpromotiontotheDiplomainPharmacyPart-IIclass.Howeverfailure in more than two subjects shall debar him/her from promotion to Diploma in Pharmacy Part II class.

R15.Improvementofsessionalmarks-

The candidates who wish to improve sessional marks can do so, by appearing in two additional sessionalexaminationsduringthenextacademicyear.Theaveragescoreofthetwoexaminations shallbethebasisfor improvedsessionalmarksintheoryaswellasinpractical. Marksawardedto a candidate for day to day assessment in the practical class cannot beimproved unless he/she attends a regular course of studyagain.

R16.Approvalofexaminations-

Theexaminationsmentionedinregulations9to15shallbeheldbyanexamining authority.

R17.CertificateofpassingexaminationforDiplomainPharmacy(Part-II)-

CertificateofhavingpassedtheexaminationfortheDiploma inPharmacyPart-IIshallbegranted by the examining authority to a successful student.

ER.CHAPTER-3

DiplomainPharmacy(Part-III)(PracticalTraining)

R18.Periodandotherconditionsforpracticaltraining-

(1) After having appeared in Part-II examination for the Diploma in Pharmacy held by an approvedExamining Authorityacandidateshallbeeligibletoundergopracticaltraining inoneor more of the following institutions namely:

(i) Hospitals/DispensariesrunbyCentral/StateGovernments.

(ii) A pharmacy licensed for retail sale of drugs under the Drugs and Cosmetics Rules, 1945 having the services of registered pharmacists.

(iii) HospitalandDispensaryotherthanthosespecifiedinsub-regulation(i)aboveforthepurpose of giving practical training shall have to be recognized by Pharmacy Council of India on

fulfillingtheconditionsspecifiedinAppendix-Ctotheseregulations.

(2) The institutionsreferred insub-regulation(1)shallbeeligibleto imparttrainingsubject tothe condition that number of student pharmacists that may be taken in any hospital, dispensary or pharmacy licensed under the Drugs and Cosmetics Rules, 1945 made under the Drugs and Cosmetics Act, 1940, shall not exceed four where there is one registered pharmacist engaged in theworkinwhichthestudentpharmacistisundergoingpracticaltraining,wherethereismorethan one registered pharmacist similarlyengaged, the number shallnot exceed two for eachadditional such registered pharmacist.

(3) Inthecourseofpracticaltraining,thetraineeshallhaveexposureto-

(i) WorkingknowledgeofkeepingofrecordsrequiredbyvariousLegislativeActsconcerningthe profession of pharmacy; and

(ii) Practical experience in activities mentioned in Table III under regulation 6 of these regulations.

(4) Thepracticaltraining shallbenot lessthanfivehundred hoursspreadoveraperiodofnot less than three months provided that not less than two hundred and fifty hours are devoted to actual dispensing of prescriptions.

TableIII.DiplomainPharmacy(PartIII)PracticalTraining–500hours	
Activities	
1)	StockingofDrugsandMedicalDevices
2)	InventoryControlProcedures
3)	Handlingofprescriptions
4)	Dispensing(250hours)
5)	Patient counseling

R19.Proceduretobefollowedpriortocommencementofthetraining-.

(1) The head of institution imparting practical training, on application, shall supply in triplicate 'PracticalTrainingContractFormforPharmacist'(hereinafterreferredtoastheContract Form)to the candidate eligible to undertake the said practical training. The Contract Form shall be as specified in Appendix-D to these regulations.

(2) The head of institution imparting practical training shall fill Section I of the Contract Form. The trainee shall fill Section II ofthe said Contract Formand the head ofthe institution agreeing toimpart thetraining (hereinafterreferredto astheApprenticeMaster) shallfillSectionIIIofthe said Contract form.

(3) It shall be the responsibility of the trainee to ensure that one copy (hereinafter referred to as the first copy of the Contract Form) so filled is submitted to the head of institution imparting practicaltrainingandtheothertwo copies(hereinafterreferredtoasthesecondcopyandthethird copy)shallbefiledwiththeApprenticeMaster(ifhesodesires)orwiththetraineetillcompletion of the training.

20. CertificateofpassingDiplomainPharmacyPart-III

On satisfactory completion of the practical training period the Apprentice Master shall fill Section IV ofthe second copy and third copyofthe Contract Formand forward it to the head of institution imparting practical training who shall suitably enter in the first copyof the entries

from the second copy and the third copy and shall fill Section V of the three copies of Contract Form and thereafter hand over both the second copy and the third copy to the trainee.

This Contract Form, completed in all respects, shall be regarded as a certificate of having successfully completed the course of Diploma in Pharmacy (Part- III).

ER.CHAPTER-4

21. CertificateofDiplomainPharmacy-

AcertificateofDiploma inPharmacyshall be granted bythe examining authorityto asuccessful candidate on producing certificates of having passed the Diploma in PharmacyPart I and Part II and satisfactory completion of practical training for Diploma in Pharmacy (Part-III).

UniversityFacilities,RulesandRegulations

1. AuditCourse:

A student may have to register for an audit course in a D. Pharm Part-I or Part-II which could be an institute requirement or department requirement.

Anaudit course mayinclude either a) aregular course required to be done asperstructure or required as a pre-requisite of any higher-level course or b) the programs like practical training, industry visits, societal activities etc

Audit courseshall notcarryanycredits but shallbereflectedinGradeCardas"PP"/"NP" depending upon the satisfactoryperformance inthe semester evaluation as per the course curriculum structure.

2. FacilitationtoStudents:

FacultyAdvisor:

On joining the institute, a student or a group of students shall be assigned to a faculty advisor who shall be a mentor for a student throughout his/her tenure in the institute. A student shall be expected to consult the faculty advisor on any matter relating to his/her academicperformanceandthecourseshe/shemaytakeinvarioussemesters/summerterm. A faculty advisor shall be the person to whom the parents/guardians should contact for performance-related issues of their ward.

TheroleoftheFacultyAdviserisoutlinedbelow:

a) Guide the students about the rules and regulations governing the courses ofstudyfor a particular degree.

b) Advise the students for registering courses as per the curriculum given. For this purpose, the Faculty Adviser has to discuss with the student his/her academic performance during the previous semester and then decide the number and nature of thecourses for whichHe/ Shecanregister during thesemester asperthe curriculum.

c) Approvetheregistrationofthestudents.

d) Advice students to overload/ drop one or more courses/activities based on her/his academic performance as per the prescribed rules.

e) At the end ofthe first semester/year, the Faculty Adviser mayeven advise a reduced load program for a poorly performing student.

f) Pay special attention to weak students and carefully monitor the performance of students recommended for the slow track option.

g) Advice students for Course Adjustment/Dropping of courses during the Semester within the stipulated time frame given in the Academic calendar.

h) Advice students seeking semester drop either during the ongoing semester or before thecommencement ofthesemester.FAhastoensurestrictcompliancewithrulesand regulations laid down for this purpose. Recommend the cases to the appropriate authorities for consideration.

i) Make a revised plan of study for weak/bright students based on their semester-wise performance.

j) Suggest modalities for course/credit requirements for the students recommended for the exchange program.

k) Guidanceandliaisonwithparentsofstudentsfortheirperformance.

l) To ensure that students are not permitted to re-register for courses, which they have alreadypassed.

m) Inform students that any academic activity (course/Lab./seminar/project/noncredit requirement etc.) undergone without proper registration will not be counted towards the requirements of his/her degree.

n) Strictlywarnstudentsthat ifshe/he failstoregisterduringanysemesterwithout prior approval, his/her studentship is liable to be canceled.

o) KeepthestudentsupdatedabouttheAcademicAdministrationoftheUniversity.

2.2.HelpingWeakerStudents:

Astudentwithbacklog/sshouldcontinuouslyseekhelpfromhis/her facultyadvisor, Head oftheDepartmentandtheDeanofrespectiveschools.Additionally, he/shemust alsobein constant touch with his/her parents/local guardians for keeping them informed about academic performance. The universityalso shallcommunicatetothe parents/guardiansof such student at-least once during each semester regarding his/her performance in various tests and examinations and also about his/her attendance. It shall be expected that the parents/guardianstokeepconstanttouchwiththeconcerned facultyadvisororHeadofthe Department, and if necessary - the Dean of the respective school.

3. DisciplineandConduct:

- Every student shall be required to observe discipline and decorous behavior both insideandoutsidethecampusand nottoindulge inanyactivity, whichshalltendto bring down the prestige of the university.
- AnyactofindisciplineofastudentreportedtotheDean,Student Development, shall be discussed in a Disciplinary Action Committee of the institute. The Committee shall enquire into the charges and recommend suitable punishmentifthe charges are substantiated.
- Ifastudentwhilestudyingintheuniversityisfoundindulginginanti-national

activities contrary to the provisions of acts and laws enforced by the Government, he/she shall be liable to be expelled from the institute without any notice.

- If a student is involved in any kind of ragging, the student shall be liable for strict action as per provisions in the Maharashtra anti-ragging act.
- If any statement/information supplied by the student in connection with his/her admission is found to be false/ incorrect at any time, his/ her admission shall be canceled and he/she shall be expelled from the university, and fees paid shall be forfeited.
- If a student is found guilty of malpractice in examinations, then he/she shall be punishedaspertherecommendationsoftheGrievanceRedressalCommittee(CRC) constituted by the Board of Examinations.
- Every admitted student shall be issued a photo identification (ID) card which must be retained bythe student while he/she isregistered at SanjayGhodawat University Kolhapur. The student must have a valid ID card with him/her while on the UniversityCampus.
- AnystudentwhoaltersorintentionallymutilatesanIDcardorwhousestheIDcard of another student or allows his/her ID card to be used byanother, the student shall be subjected to disciplinary action.
- The valid ID card must be presented for identification purposes as and when demanded by authorities. Any student refusing to provide an ID card shall be subjected to disciplinary action.
- Students should switch off the Mobiles during the Instructional hours and in the academic areas of the university Building, Library, Reading roometc. Strict action will be taken if students do not adhere to this.
- During the conduct of any Tests and Examinations, students must not bring their mobiles. A student in possession of the mobile whether in use or switched off condition will face disciplinary action and will be debarred from appearing for the Test / Examination.

4. AcademicCalendar

The academic activities of the institute are regulated by Academic Calendar and is made available to the student's/ faculty members and all other concerned in electronic form or hard copy. It shall be mandatory for students/faculty to strictly adhere to the academic calendar for the completion of academic activities.

CHAPTER-II:

FirstYearD.Pharm(Part-I)
SYLLABUS

DiplomainPharmacy(Part-I)

Course Code	CourseTitle	ComponentHr/Year			ComponentHr/week			Exam	WT		MinPassing (%)
		L	T	P	L	T	P				
ER20-11T	Pharmaceutics–Theory(100 Marks)	75	25	-	3	1	-	Sessional-1	40	20	40%
								Sessional-2	40		
								Sessional-3	40		
								EAE	80	80	
ER20-11P	Pharmaceutics–Practical(100Marks)	-	-	75	-	-	3	Sessional-1	80	10	40%
								Sessional-2	80		
								Sessional-3	80		
								Assignment-1	05	05	
								Assignment-2	05		
								Assignment-3	05		
								FVR	05	05	
								EAE	80	80	
ER20-12T	PharmaceuticalChemistry–Theory(100 Marks)	75	25	-	3	1	-	Sessional-1	40	20	40%
								Sessional-2	40		
								Sessional-3	40		
								EAE	80	80	
ER20-12P	PharmaceuticalChemistry–Practical(100Marks)	-	-	75	-	-	3	Sessional-1	80	10	40%
								Sessional-2	80		
								Sessional-3	80		
								Assignment-1	10	10	
								Assignment-2	10		
								Assignment-3	10		
								EAE	80	80	
ER20-13T	Pharmacognosy–Theory(100 Marks)	75	25	-	3	1	-	Sessional-1	40	20	40%
								Sessional-2	40		
								Sessional-3	40		
								EAE	80	80	
ER20-13P	Pharmacognosy–Practical(100Marks)	-	-	75	-	-	3	Sessional-1	80	10	40%
								Sessional-2	80		
								Sessional-3	80		
								Assignment-1	05	05	
								Assignment-2	05		
								Assignment-3	05		
								FVR	05	05	
								EAE	80	80	
ER20-14T	Human Anatomy &Physiology–Theory(100 Marks)	75	25	-	3	1	-	Sessional-1	40	20	40%
								Sessional-2	40		
								Sessional-3	40		
								EAE	80	80	
ER20-14P	Human Anatomy &Physiology–Practical(100 Marks)	-	-	75	-	-	3	Sessional-1	80	20	40%
								Sessional-2	80		
								Sessional-3	80		
								EAE	80	80	
ER20-15T	SocialPharmacy–Theory(100 Marks)	75	25	-	3	1	-	Sessional-1	40	20	40%
								Sessional-2	40		
								Sessional-3	40		
								EAE	80	80	
ER20-15P	SocialPharmacy–Practical(100Marks)	-	-	75	-	-	3	Sessional-1	80	10	40%
								Sessional-2	80		
								Sessional-3	80		
								Assignment-1	05	05	
								Assignment-2	05		
								Assignment-3	05		
								FVR	05	05	
								EAE	80	80	
	Total									1000	400

EAE=EndAnnualExam;FVR=FieldVisitReport

Note:75%attendanceintheoryandpracticalseparatelyiscompulsorytoattendtheexaminations

DIPLOMA IN PHARMACY- PART I With effect from: 2022-23

Duration: 32 weeks

Sr. no.	Course Title	Course Abbreviation	Course code	Components Hr/week			Examination Scheme													Grand Total
							Theory							Practical						
				L	T	P	Exam Duration in Hrs.	TH Max Marks	TH Min Marks	TM Max Marks	TM Min Marks	Total Max Marks	Total Min Marks	PR Max Marks	PR Min Marks	PM Max Marks	PM Min Marks	Total Max Marks	Total Min Marks	
1	PHARMACEUTICS-Theory	PH T	ER20-11T	3	1	-	3	80	00	20*	00	100	40	-	-	-	-	-	-	100
2	PHARMACEUTICS-Practical	PH P	ER20-11P	-	-	3	3	-	-	-	-	-	-	80#	00	20*	00	100	40	100
3	PHARMACEUTICAL CHEMISTRY- Theory	PC T	ER20-12T	3	1	-	3	80	00	20*	00	100	40	-	-	-	-	-	-	100
4	PHARMACEUTICAL CHEMISTRY-Practical	PC P	ER20-12P	-	-	3	3	-	-	-	-	-	-	80#	00	20*	00	100	40	100
5	PHARMACOGNOSY - Theory	PY T	ER20-13T	3	1	-	3	80	00	20*	00	100	40	-	-	-	-	-	-	100
6	PHARMACOGNOSY - Practical	PY P	ER20-13P	-	-	3	3	-	-	-	-	-	-	80#	00	20*	00	100	40	100
7	HUMAN ANATOMY & PHYSIOLOGY-Theory	HP T	ER20-14T	3	1	-	3	80	00	20*	00	100	40	-	-	-	-	-	-	100
8	HUMAN ANATOMY & PHYSIOLOGY-Practical	HP P	ER20-14P	-	-	3	3	-	-	-	-	-	-	80#	00	20*	00	100	40	100
9	SOCIAL PHARMACY - Theory	SP T	ER20-15T	3	1	-	3	80	00	20*	00	100	40	-	-	-	-	-	-	100
10	SOCIAL PHARMACY - Practical	SP P	ER20-15P	-	-	3	3	-	-	-	-	-	-	80#	00	20*	00	100	40	100
Total				**15**	**5**	**15**	-	**400**	-	**100**	-	**500**	-	**400**		**100**		**500**	-	**1000**

Student Contact Hours Per Week: 35 Hrs
Theory and Practical periods of 60 minutes each.
Abbreviations: TH- Theory, PR- Practical, TM- Theory Sessional, PM, Practical Sessional, L- Lectures, T- Tutorial, P- Practical
External Assessment
*Internal Assessment
Candidate shall be declared as “detained” in case of not fulfilling the condition in regulation R10 as per ER2020 for Diploma Course in Pharmacy.

Specification Table

Program: Diploma in Pharmacy

Year: First Year

Course Title: ER20-11T

Course Name: PHARMACEUTICS- TH

Chapter	Chapter Title	Teaching Hours	Distribution of marks as per Blooms Taxonomy			Total
			Remember Level	Understand Level	Apply Level	
1	History of the profession of Pharmacy in India	7	3	5	0	8
2	Packaging materials	5	2	3	0	5
3	Pharmaceutical aids	3	3	0	0	3
4	Unit operations	9	4	5	3	12
5	Tablets	8	2	5	3	10
	Capsules	4	0	5	0	5
	Liquid orals	6	1	5	0	6
	Topical preparations	8	2	3	3	8
	Nasal & Ear preparations	2	2	0	0	2
	Powder & granules	3	0	3	0	3
	Sterile formulations	6	0	5	3	8
	Immunological products	4	1	5	0	6
6	Basicstructure,layout,sections, andactivitiesofpharmaceutical manufacturingplantsQualityco ntrolandqualityassurance	5	0	3	3	6
7	Noveldrugdeliverysystems	5	0	3	3	6
Total		**75**	**20**	**50**	**18**	**88**

Specification Table

Program: Diploma in Pharmacy

Year: First Year

Course Title: ER20-12T

Course Name: PHARMACEUTICAL CHEMISTRY- TH

Chapter	Chapter Title	Teaching Hours	Distribution of marks as per Blooms Taxonomy			Total
			Remember Level	Understand Level	Apply Level	
1	IntroductiontoPharmaceuticalchemistry	8	1	3	5	9
2	Volumetricanalysis	8	1	3	5	9
3	InorganicPharmaceuticals	7	2	0	5	7
4	Introductiontonomenclatureoforganicchemicalsystemswithparticular referencetoheterocyclic compoundscontaininguptoThreerings	2	4	0	0	4
5	DrugsActingonCentralNervousSystem	9	2	3	5	10
6	DrugsActingonAutonomicNervous System	9	2	3	5	10
7	DrugsActingonCardiovascularSystem	5	2	3	0	5
8	Diuretics	2	1	3	0	4
9	Hypoglycemic Agents	3	0	3	0	3
10	Analgesic And Anti-Inflammatory Agents	3	2	3	0	5
11	Anti-InfectiveAgents	8	1	3	5	9
12	Antibiotics	8	1	3	5	9

13	Anti-NeoplasticAgents	3	1	3	0	4
Total		**75**	**20**	**33**	**35**	**88**

Specification Table

Program: Diploma in Pharmacy

Year: First Year

Course Title: ER20-13T

Course Name: PHARMACOGNOSY- TH

Chapter	Chapter Title	Teaching Hours	Distribution of marks as per Blooms Taxonomy			Total
			Remember Level	Understand Level	Apply Level	
1	Definition, history, present status and scope of Pharmacognosy	2	0	3	0	3
2	Classification of drugs	4	0	5	0	3
3	Quality control of crude drugs	6	2	3	3	8
4	Brief outline of occurrence, distribution, isolation, identification tests, therapeutic activity and Pharmaceutical application of alkaloids, terpenoids, glycosides, volatile oils, tannins and resins	6	3	3	0	6
5	Biological source, chemical constituents and therapeutic efficacy of the following categories of crude drugs	30	12	18	0	30
6	Plant fibres used as surgical dressings	3	1	3	0	4
7	Basic principles involved in the traditional systems of medicine	8	2	6	0	8
8	Roleofmedicinalandaromaticplantsinnationaleconomyandtheirexportpotential	2	0	3	0	3
9	Herbs as health food	4	1	3	3	7

10	Introduction to herbal formulation	4	1	3	0	4
11	Herbal Cosmetics	4	2	5	0	7
12	Phytochemical investigation of drugs	2	0	3	0	3
Total		75	24	58	6	88

Specification Table

Program: Diploma in Pharmacy

Year: First Year

Course Title: ER20-14T

Course Name: HUMAN ANATOMY & PHYSIOLOGY- TH

Chapter	Chapter Title	Teaching Hours	Distribution of marks as per Blooms Taxonomy			Total
			Remember Level	Understand Level	Apply Level	
1	Scope of Anatomy and Physiology Definition of various terminologies	2	2	0	0	2
2	Structure of Cell	2	0	3	0	3
3	Tissues of the human body	4	1	3	0	4
4	Osseous system	6	2	5	0	7
5	Haemopoietic system	8	3	5	0	8
6	Lymphatic system	3	0	3	0	3
7	Cardiovascular system	8	2	5	3	10
8	Respiratory system	4	2	0	3	5
9	Digestive system	8	2	7	0	9
10	Skeletal muscles	2	2	0	0	2
11	Nervous system	8	2	8	0	10
12	Sense organs - Anatomy and physiology	6	2	6	0	8
13	Urinary system	4	1	5	0	6
14	Endocrine System (Hormones and their functions)	6	3	3	0	6
15	Reproductive System	4	2	3	0	5
Total		**75**	**26**	**56**	**6**	**88**

Specification Table

Program: Diploma in Pharmacy

Year: First Year

Course Title: ER20-15T

Course Name: SOCIAL PHARMACY- TH

Chapter	Chapter Title	Teaching Hours	Distribution of marks as per Blooms Taxonomy			Total
			Remember Level	Understand Level	Apply Level	
1	Introduction to Social Pharmacy	9	4	3	5	12
2	Preventive healthcare – Role of Pharmacists	18	4	6	10	20
3	Nutrition and Health	10	2	6	0	8
4	Introduction to Microbiology and common microorganisms	28	5	12	15	32
5	Introduction to health systems and all ongoing National Health programs	8	4	3	5	12
6	Pharmacoeconomics	2	1	3	0	4
Total		**75**	**20**	**33**	**35**	**88**

ER20-11T.PHARMACEUTICS(Theory)

75Hours(3Hours/week)

Course Code	CourseTitle	Hours			Component	Exam	WT		Passing Min.(%)
		L	T	P					
ER20-11T.	Pharmaceutics (Theory)	3/wk 75/yr	1/wk 25/yr	-	Theory (100Marks)	Sessional-1	40	20	40%
						Sessional-2	40		
						Sessional-3	40		
						EAE	80	80	

CourseContent:

Scope:

Scope:Thiscourseisdesignedtoimpart basicknowledgeandskillsontheartandscienceof formulating and dispensing different pharmaceutical dosage forms..

CourseObjectives:

Thiscoursewilldiscussthe followingaspectsofpharmaceuticaldosageforms.

1. Basicconcepts,typesandneed
2. Advantagesanddisadvantages,methodsofpreparation/formulation
3. Packagingandlabellingrequirements
4. Basicqualitycontroltests,conceptsofqualityassuranceandgoodmanufacturing practices

CourseLearningOutcomes:

Uponsuccessfulcompletionofthiscourse,thestudentswillbeableto

CLO1.Describeaboutthedifferentdosageformsandtheir formulationaspects

CLO2. Explaintheadvantages, disadvantages, andqualitycontroltestsofdifferent dosageform.

CLO3.Discusstheimportanceofqualityassuranceandgoodmanufacturingpractices.

CH	Topic	Hours
1.	• Historyofthe professionofPharmacyin IndiainrelationtoPharmacy education, industry, pharmacypractice, and variousprofessional associations. • Pharmacyasacareer • 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 plastic, metal, rubber as packagingmaterials	5
3.	**Pharmaceuticalaids:**Organoleptic(Colouring,flavouring,andsweetening) agents **Preservatives:**Definition,typeswithexamplesand uses	3
4.	**Unit operations:** Definition, objectives/applications, principles, construction,andworkingsof: **Sizereduction:**hammer millandballmill	9

	Sizeseparation: ClassificationofpowdersaccordingtoIP,Cyclone separator, Sieves and standards of sieves. **Mixing:**Doubleconeblender,Turbinemixer,Triplerollermilland Silverson mixer homogenizer. **Filtration:**Theoryoffiltration,membranefilterandsinteredglassfilter **Drying:**workingoffluidizedbeddryerandprocessoffreezedrying. **Extraction:**Definition,Classification,method,andapplications	
5.	**Tablets**–coatedanduncoated,variousmodifiedtablets(sustainedrelease, extended-release, fast dissolving, multilayered, etc.)	8
	Capsules-hardandsoft gelatinecapsules	4
	Liquidoralpreparations-solution,syrup,elixir,emulsion,suspension, dry powder for reconstitution	6
	Topicalpreparations-ointments,creams,pastes,gels,liniments and lotions,suppositories,andpessaries	8
	Nasalpreparations,Earpreparations	2
	Powdersandgranules-Insufflations,dustingpowders,effervescent powders,andeffervescentgranules	3
	Sterileformulations–Injectables,eyedropsandeyeointments	6
	Immunologicalproducts:Sera,vaccines,toxoids,andtheirmanufacturing methods.	4
6.	**Basicstructure, layout,sections, andactivitiesofpharmaceutical manufacturing plants** **Qualitycontroland qualityassurance:** Definitionand conceptsofquality controlandqualityassurance,current goodmanufacturingpractice(cGMP), Introduction to the concept of calibration and validation	5
7.	**Noveldrugdeliverysystems:**Introduction,Classificationwithexamples, advantages,andchallenges	5

RecommendedBooks

1. HistoryofPharmacyinIndiabyDr. HarikishanSingh
2. IndianPharmacopoeia, Govt.ofIndiaPublication
3. AText bookofPharmaceuticalsFormulationbyB.M.Mithal,VallabhPrakashan.
4. Bentleys'Text bookofPharmaceutics,EditorE.A.Rawlins,ElsevierInt.,
5. TheTheoryandPracticeofIndustrialPharmacy. LeonLachman,Herbert Liebermanand Joseph Kanig, Editors, Lea and Febiger, Philadelphia. Varghese Publishing House
6. ResponsibleUseofMedicines:ALayman'sHandbook, www.ipapharma.org/ publications

ER20-11P.PHARMACEUTICS(Practical)

75Hours(3Hours/week)

Course Code	CourseTitle	Hours			Component	Exam	WT		Passing Min.(%)
		L	T	P					
ER20-11P	Pharmaceutics (Practical)	-	-	3/wk 75/yr	Practical (100marks)	Sessional-1	80	10	40%
						Sessional-2	80		
						Sessional-3	80		
						Assignment-1	05	05	
						Assignment-2	05		
						Assignment-3	05		
						FVR	05	05	
						EAE	80	80	

Scope:

Thiscourseisdesignedtotrainthestudentsin formulatinganddispensingcommon pharmaceutical dosage forms.

CourseObjectives:

Thiscoursewilldiscussandtrainthefollowingaspectsofpreparinganddispensingvarious pharmaceutical dosage forms

1. Calculationofworkingformulafromtheofficialmasterformula
2. Formulationofdosageforms based onworkingformula
3. AppropriatePackagingandlabellingrequirements
4. Methodsofbasicqualitycontroltests

CourseLearningOutcomes:

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

CLO1.Calculate theworking formula fromthegivenmasterformula

CLO2. Formulate the dosage form and dispense inan appropriate container

CLO3.Designthelabelwiththenecessaryproductandpatient information

CLO4.Performthe basicqualitycontroltestsforthecommondosage forms

No.	Practicals
1.	Handlingandreferringtheofficialreferences:Pharmacopoeias,Formularies,etc. forretrievingformulas,procedures,etc.
2.	Formulationofthefollowingdosageformsaspermonographstandardsanddispensing with appropriate packaging and labelling • **LiquidOral:**Simplesyrup,Piperazinecitrateelixir,AqueousIodinesolution • **Emulsion:**Castoroilemulsion,Codliveroilemulsion • **Suspension**:Calaminelotion,Magnesiumhydroxidemixture • **Ointment:**Simpleointmentbase,Sulphurointment • **Cream:**Cetrimidecream • **Gel:**Sodiumalginategel

- **Liniment:**Turpentineliniment,Whiteliniment BPC
- **Drypowder:**Effervescentpowdergranules,Dustingpowder
- **SterileInjection:**NormalSaline,CalciumgluconateInjection
- **HardGelatineCapsule:**Tetracyclinecapsules
- **Tablet:**Paracetamoltablets

3.	Formulationofatleast fivecommonlyusedcosmeticpreparations–e.g.coldcream, shampoo, lotion, toothpaste etc
4.	Demonstrationonvariousstagesoftabletmanufacturingprocesses
5.	Appropriatemethodsofusageandstorageofalldosage formsincludingspecialdosage such as different types of inhalers, spacers, insulin pens
6.	Demonstrationofqualitycontroltestsandevaluationofcommondosageformsviz. tablets, capsules, emulsion, sterile injections as per the monographs

Assignments

Thestudentsshallbeaskedto submit writtenassignmentsonthefollowingtopics(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.

FieldVisit

The students shall be taken for an industrial visit to pharmaceutical industriesto witness and understand the various processes of manufacturing of any of the common dosageformsviz.tablets,capsules, liquidorals, injectables,etc.Individualreportsfrom each student on their learning experience from the field visit shall be submitted.

RecommendedBooks

1. IndianPharmacopoeia, Govt.ofIndiaPublication
2. AText bookofPharmaceuticalsFormulationbyB.M.Mithal,VallabhPrakashan.
3. Bentleys'TextbookofPharmaceutics,EditorE.A.Rawlins,ElsevierInt.,
4. TheTheoryandPracticeofIndustrialPharmacy. LeonLachman,Herbert Liebermanand Joseph Kanig, Editors, Lea and Febiger, Philadelphia. Varghese Publishing House

ER20-12T.PHARMACEUTICALCHEMISTRY(Theory)

75Hours(3Hours/week)

Course Code	CourseTitle	Hours			Component	Exam	WT		Passing Min.(%)
		L	T	P					
ER20-12T.	Pharmaceutical Chemistry (Theory)	3/wk 75/yr	1/wk 25/yr	-	Theory (100Marks)	Sessional-1	40	20	40%
						Sessional-2	40		
						Sessional-3	40		
						EAE	80	80	

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.

CourseObjectives:

Thiscoursewilldiscussthe followingaspectsofthechemicalsubstancesused asdrugsand pharmaceuticals for various disease conditions

1. Chemicalclassification,chemicalname,chemicalstructure
2. Pharmacologicaluses,doses,stabilityandstorageconditions
3. Differenttypesof formulations/ dosageformavailableand theirbrandnames
4. Impuritytestingandbasicqualitycontroltests

CourseLearningOutcomes:

Uponsuccessfulcompletionofthiscourse,thestudentswillbeableto

CLO1. Describethechemicalclass,structureandchemicalnameofthecommonly useddrugs and pharmaceuticals of both organic and inorganic nature

CLO2. Discuss the pharmacological uses, dosage regimen, stability issues and storageconditionsofallsuchchemicalsubstancescommonlyused asdrugs

CLO3.Describethequantitativeandqualitativeanalysis, impuritytestingofthe chemicalsubstances given in the official monographs

CLO4. Identifythedosageform&thebrandnamesofthedrugsand pharmaceuticalspopular in the marketplace

CH	Topic	Hours
1.	**IntroductiontoPharmaceuticalchemistry**:Scopeandobjectives **Sourcesandtypesoferrors:** Accuracy,precision,significant figures **Impurities in Pharmaceuticals**: Source and effect of impurities in Pharmacopoeialsubstances, importanceoflimittest,Principleand proceduresofLimittestsforchlorides,sulphates,iron,heavymetalsand arsenic.	8
2.	**Volumetricanalysis:**Fundamentalsofvolumetricanalysis,Acid-base titration,non-aqueoustitration,precipitationtitration,complexometric	8

	titration,redoxtitration **Gravimetricanalysis:**Principleandmethod.	
3.	**InorganicPharmaceuticals:**Pharmaceuticalformulations,market7preparations, 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 • **Medicinalgases:**Carbondioxide,nitrousoxide,oxygen	
4.	Introduction to nomenclature of organic chemical systems with particular reference to heterocyclic compounds containing up to Threerings	2
Study of the following category of medicinal compounds with respect to classification, chemicalname,chemicalstructure(compoundsmarkedwith*)uses,stabilityandstorage conditions, different types of formulations and their popular brand names		
5.	**DrugsActingonCentralNervousSystem** • **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.	**DrugsActingonAutonomicNervousSystem** • **Sympathomimetic Agents: Direct Acting:** Nor- Epinephrine*, Epinephrine, Phenylephrine, Dopamine*, Terbutaline, Salbutamol (Albuterol),Naphazoline*,Tetrahydrozoline. **IndirectActingAgents:** Hydroxy Amphetamine, Pseudoephedrine. Agents With Mixed Mechanism: Ephedrine, Metaraminol • **Adrenergic Antagonists:** Alpha Adrenergic Blockers: Tolazoline, Phentolamine	9

	• Phenoxybenzamine,Prazosin.BetaAdrenergicBlockers: Propranolol*, Atenolol*, Carvedilol • **Cholinergic Drugs and Related Agents:** Direct Acting Agents: Acetylcholine*,Carbachol,AndPilocarpine.CholinesteraseInhibitors: Neostigmine*, Edrophonium Chloride, Tacrine Hydrochloride, Pralidoxime Chloride, Echothiopate Iodide • **Cholinergic Blocking Agents:** Atropine Sulphate*,Ipratropium Bromide • **SyntheticCholinergicBlockingAgents**:Tropicamide,Cyclopentolate Hydrochloride, Clidinium Bromide, Dicyclomine Hydrochloride*	
7.	**DrugsActingonCardiovascularSystem** • **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, • **AntianginalAgents:**IsosorbideDinitrate	5
8.	**Diuretics:**Acetazolamide,Frusemide*,Bumetanide,Chlorthalidone, Benzthiazide,Metolazone,Xipamide,Spironolactone	2
9.	**Hypoglycemic Agents:** Insulin and Its Preparations, Metformin*, 3 Glibenclamide*, Glimepiride, Pioglitazone, Repaglinide, Gliflozins, Gliptins	
10.	**Analgesic And Anti-Inflammatory Agents:** Morphine Analogues, 3 Narcotic Antagonists; NonsteroidalAnti-InflammatoryAgents (NSAIDs) - Aspirin*, Diclofenac, Ibuprofen*, Piroxicam, Celecoxib, Mefenamic Acid, Paracetamol*, Aceclofenac	
11.	**Anti-InfectiveAgents** • **Antifungal Agents:** Amphotericin-B, Griseofulvin, Miconazole, Ketoconazole*, Itraconazole, Fluconazole*, NaftifineHydrochloride. • **UrinaryTractAnti-InfectiveAgents:**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,	8

	Artemisinin • **Sulfonamides:** Sulfanilamide, Sulfadiazine, Sulfamethoxazole, Sulfacetamide*, Mafenide Acetate, Cotrimoxazole, Dapsone*	
12.	• **Antibiotics:**PenicillinG,Amoxicillin*,Cloxacillin, Streptomycin, • **Tetracyclines:**Doxycycline,Minocycline, • **Macrolides:**Erythromycin,Azithromycin, • **Miscellaneous:**Chloramphenicol*Clindamycin	8
13.	**Anti-NeoplasticAgents:**Cyclophosphamide*,Busulfan, Mercaptopurine, Fluorouracil*,Methotrexate,Dactinomycin,DoxorubicinHydrochloride, Vinblastine Sulphate, Cisplatin*, Dromostanolone Propionate	3

RecommondedBooks:

1. Medicinal&PharmaceuticalchemistrybyHarikishanSinghandVKKapoor
2. WilsonandGriswold'sTextbookofOrganicMedicinalandpharmaceuticalChemistry
3. PracticalOrganicChemistrybyMannandSaunders.
4. PracticalPharmaceuticalChemistry,Volume- I&IIbyBeckettandJ.B.Stenlake
5. IndianPharmacopoeia
6. Vogel'stextbookofPracticalOrganicChemistry

ER20-12P.PHARMACEUTICALCHEMISTRY(Practical)

75Hours(3Hours/week)

Course Code	CourseTitle	Hours			Component	Exam	WT		Passing Min. %)
		L	T	P					
ER20-12P	Pharmaceutical Chemistry (Practical)	-	-	3/wk 75/yr	Practical (100marks)	Sessional-1	80	10	40%
						Sessional-2	80		
						Sessional-3	80		
						Assignment-1	10	10	
						Assignment-2	10		
						Assignment-3	10		
						EAE	80	80	

Scope:

This course is designed to impart basic training and hands-on experiences to synthesis chemical substancesusedasdrugsandpharmaceuticals. Also,toperformthequalitycontroltests,impurity testing, test for purity and systematic qualitative analysis of chemical substances usedas drugs and pharmaceuticals.

CourseObjectives:

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

1. Limittestsandassaysofselectedchemicalsubstancesasperthemonograph
2. Volumetricanalysisofthechemicalsubstances
3. Basicsofpreparatorychemistryandtheiranalysis
4. Systematicqualitativeanalysisfortheidentificationofthechemicaldrugs

CourseLearningOutcomes:

Uponsuccessfulcompletionofthiscourse,thestudentswillbeableto

CLO1.Performthelimittestsforvariousinorganicelementsand report
CLO2.Preparestandardsolutionsusingtheprinciplesofvolumetricanalysis
CLO3. Testthepurityoftheselectedinorganicandorganiccompoundsagainstthe monographstandards
CLO4.Synthesizetheselectedchemicalsubstancesasperthestandardsyntheticscheme
CLO5. Performqualitativeteststosystematicallyidentifytheunknownchemicalsubstances

No.	Experiment
1.	**Limittestfor:**Chlorides;sulphate;Iron;heavymetals.
2.	IdentificationtestsforAnionsandCationsasperIndianPharmacopoeia
3.	**FundamentalsofVolumetricanalysis** PreparationofstandardsolutionandstandardizationofSodiumHydroxide, Potassium Permanganate.
4.	**Assayofthefollowing compounds**

- **Ferroussulphate**-byredoxtitration
- **Calciumgluconate**-bycomplexometric
- **Sodiumchloride**-byModifiedVolhard'smethod
- **Ascorbicacid**byiodometry
- **Ibuprofen**byalkalimetry

5. **Fundamentalsofpreparativeorganicchemistry**
DeterminationofMeltingpointandboilingpointoforganic compounds

6. **Preparationoforganiccompounds**
- Benzoicacid fromBenzamide
- PicricacidfromPhenol

7. **Identificationandtestforpurityofpharmaceuticals**
Aspirin,Caffeine,Paracetamol,Sulfanilamide

8. SystematicQualitativeanalysisexperiments(4substances)

Assignments

Thestudentsshallbeaskedto submit thewrittenassignmentsonthefollowingtopics (One assignment per student per sessional period. i.e., a minimum of THREE assignments per student)

1. Differentmonographsandformulariesavailableandtheirmajorcontents
2. Significanceofqualitycontrolandqualityassurance inpharmaceutical industries
3. OverviewonGreenChemistry
4. Varioussoftwareprogramsavailable forcomputeraideddrugdiscovery
5. Variousinstrumentationsusedforcharacterizationandquantificationofdrug

RecommondedBooks:

1. Medicinal&PharmaceuticalchemistrybyHarikishanSinghandVKKapoor
2. WilsonandGriswold'sTextbookofOrganicMedicinalandpharmaceuticalChemistry
3. PracticalOrganicChemistrybyMannandSaunders.
4. PracticalPharmaceuticalChemistry,Volume-I&IIbyBeckettandJ. B.Stenlake
5. IndianPharmacopoeia
6. Vogel'stextbookofPracticalOrganicChemistry

ER20-13T. PHARMACOGNOSY(Theory)

Theory(75Hours)

Course Code	CourseTitle	Hours			Component	Exam	WT		Passing Min.(%)
		L	T	P					
ER20-13T.	Pharmacognosy (Theory)	3/wk 75/yr	1/wk 25/yr	-	Theory (100Marks)	Sessional-1	40	20	40%
						Sessional-2	40		
						Sessional-3	40		
						EAE	80	80	

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.

CourseObjectives:

Thiscoursewilldiscussthefollowing aspectsofdrugsubstancesderivedfromnaturalresources.

1. Occurrence,distribution,isolation,identificationtestsofcommonphytoconstituents
2. Therapeutic activity and pharmaceutical applications of various natural drug substances and phytoconstituents
3. Biologicalsource,chemicalconstituentsofselectedcrudedrugsandtheirtherapeutic efficacy in common diseases and ailments
4. Basicconceptsinqualitycontrolofcrudedrugsandvarioussystemofmedicines
5. Applicationsofherbsinhealthfoodsandcosmetics:

CourseLearningOutcomes:

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

CLO1.Identify the important/common crude drugs of natural origin
CLO2.Describetheusesofherbsinnutraceuticalsandcosmeceuticals
CLO3.Discuss the principles of alternative system ofmedicines
CLO4.Describetheimportanceofqualitycontrolofdrugsofnaturalorigin

CH	Topic	Hours
1.	Definition,history,presentstatusandscopeofPharmacognosy	2
2.	**Classificationofdrugs:** • Alphabetical • Taxonomical • Morphological • Pharmacological • Chemical • Chemo-taxonomical	4
3.	**Qualitycontrolofcrudedrugs:** • Differentmethodsofadulterationofcrudedrugs	6

	• Evaluationofcrudedrugs	
4.	Briefoutlineofoccurrence,distribution,isolation,identificationtests, therapeutic activity and pharmaceutical applications of alkaloids, terpenoids, glycosides, volatile oils, tannins and resins.	6
5.	Biologicalsource, chemicalconstituentsand therapeuticefficacyofthe followingcategoriesofcrudedrugs.	30
	Laxatives — Aloe,Castoroil,Ispaghula,Senna	
	Cardiotonic — Digitalis,Arjuna	
	Carminativesand G.I. regulators — Coriander, Fennel, Cardamom, Ginger, Clove, Black Pepper, Asafoetida, Nutmeg, Cinnamon	
	AstringentsDrugs — Myrobalan, Black Catechu, Pale Catechu	
	acting on nervous system — Hyoscyamus,Belladonna,Ephedra,Opium,Tea leaves, Coffee seeds, Coca	
	Anti-hypertensive — Rauwolfia	
	Anti-tussive — Vasaka,ToluBalsam	
	Anti-rheumatics — Colchicum seed	
	Anti-tumour — Vinca, Podophyllum	
	Antidiabetics — Pterocarpus,Gymnema	
	Diuretics — Gokhru, Punarnava	
	Anti-dysenteric — Ipecacuanha	
	Antisepticsand 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.	**Plantfibres used assurgicaldressings:**Cotton,silk,wooland regeneratedfibres **Sutures**–SurgicalCatgutandLigatures	3
7.	• **Basicprinciplesinvolvedinthetraditionalsystemsofmedicine like**:Ayurveda,Siddha,UnaniandHomeopathy • **MethodofpreparationofAyurvedicformulationslike**:Arista, Asava, Gutika, Taila, Churna, Lehya and Bhasma	8
8.	Roleofmedicinalandaromaticplantsinnationaleconomyandtheir exportpotential	2

9.	**Herbsashealthfood:** Briefintroductionandtherapeuticapplicationsof: Nutraceuticals, Antioxidants,Pro-biotics,Pre-biotics,Dietaryfibres, Omega-3-fatty acids,Spirulina,Carotenoids,SoyaandGarlic	4
10.	Introductiontoherbalformulations	4
11.	**Herbalcosmetics:** Sources, chemicalconstituents, commercialpreparations, therapeutic and cosmetic uses of: Aloe vera gel, Almond oil, Lavender oil, Olive oil, Rosemary oil, Sandal Wood oil	4
12.	**Phytochemicalinvestigationofdrugs**	2

RecommondedBooks:

1. KokateCK,PurohitAP,GokhaleSB.**Pharmacognosy**.Pune:NiraliPrakashan.
2. Text bookofPharmacognosybyC.S.ShahandJ.S.Qadry,CBSPublishers& Distributors Pvt. Ltd.
3. TextBookofPharmacognosybyT.E. Wallis.CBSPublishers&DistributorsPvt.Ltd.
4. StudyofcrudedrugsbyM.A.Iyengar,ManipalPressLtd,Manipal
5. PowdercrudedrugsbyM.A.Iyengar, ManipalPressLtd,Manipal
6. AnatomyofcrudedrugsbyM.A.Iyengar,ManipalPressLtd,Manipal
7. AugmentedText BookofHomeopathicPharmacybyDr.DDBanerjee,BJain Publishers (P) Ltd

ER20-13P.PHARMACOGNOSY(Practical)

75Hours(3Hours/week)

Course Code	CourseTitle	Hours			Component	Exam	WT		Passing Min.(%)
		L	T	P					
ER20-13P	Pharmacognosy (Practical)	-	-	3/wk 75/yr	Practical (100marks)	Sessional-1	80	10	40%
						Sessional-2	80		
						Sessional-3	80		
						Assignment-1	05	05	
						Assignment-2	05		
						Assignment-3	05		
						FVR	05	05	
						EAE	80	80	

Scope:

This course is designed to train the students in physical identification, morphological characterization,physicalandchemicalcharacterization,andevaluationofcommonlyusedherbal drugs.

CourseObjectives:

Thiscoursewillprovidehands-onexperiencestothestudentsin

1. Identificationofthecrudedrugsbasedontheirmorphologicalcharacteristics
2. Variouscharacteristicanatomicalcharacteristicsoftheherbaldrugsstudiedthrough transverse section
3. Physicalandchemicalteststoevaluatethecrudedrugs

CourseLearningOutcomes:

Uponsuccessfulcompletionofthiscourse,thestudentswillbeableto

CLO1.Identifythegivencrudedrugsbasedonthemorphologicalcharacteristics
CLO2.Takeatransversesectionofthegivencrude drugs
CLO3.Describetheanatomicalcharacteristicsofthegivencrudedrugunder microscopicalconditions
CLO4. Carryoutthephysicaland chemicalteststoevaluatethegivencrudedrugs

No.	Practicals
1.	**MorphologicalIdentificationofthefollowingdrugs:** Ispaghula, Senna, Coriander, Fennel, Cardamom, Ginger, Nutmeg, Black Pepper, Cinnamon, Clove, Ephedra, Rauwolfia, Gokhru, Punarnava, Cinchona, Agar.
2.	**Grossanatomicalstudies(TransverseSection)ofthefollowingdrugs:** 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 submitthe written assignments on thefollowing topics(Oneassignment perstudent persessionalperiod.i.e., aminimumofTHREE assignments per student)

1. Market preparations of various dosage forms of Ayurvedic, Unani, Siddha, Homeopathic (Classical and Proprietary), indications, and their labeling 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

FieldVisit

The students shall be taken in groups to a medicinal garden to witness and understand the natureofvarious medicinalplantsdiscussed intheoryand practical courses. Additionally,theyshallbetakeningroupstothepharmaciesoftraditional systems of medicines to understand the availability of various dosage forms and their labelling requirements. Individualreportsfromeachstudent ontheir learning experience from the field visit shall be submitted.

RecommondedBooks:

1. KokateCK,PurohitAP,GokhaleSB.**Pharmacognosy**.Pune:NiraliPrakashan
2. TextbookofPharmacognosybyC.S.ShahandJ.S.Qadry,CBSPublishers& Distributors Pvt. Ltd.
3. TextBookofPharmacognosybyT.E. Wallis.CBSPublishers&DistributorsPvt.Ltd.
4. StudyofcrudedrugsbyM.A.Iyengar,ManipalPressLtd,Manipal
5. PowdercrudedrugsbyM.A.Iyengar, ManipalPressLtd,Manipal
6. AnatomyofcrudedrugsbyM.A.Iyengar,ManipalPressLtd,Manipal
7. AugmentedText BookofHomeopathicPharmacybyDr.DDBanerjee,BJain Publishers (P) Ltd

ER20-14T.HUMANANATOMYANDPHYSIOLOGY(Theory)

75Hours(3Hours/week)

Course Code	CourseTitle	Hours			Component	Exam	WT		Passing Min.(%)
		L	T	P					
ER20-14T.	HumanAnatomy and Physiology (Theory)	3/wk 75/yr	1/wk 25/yr	-	Theory (100Marks)	Sessional-1	40	20	40%
						Sessional-2	40		
						Sessional-3	40		
						EAE	80	80	

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.

CourseObjectives:

Thiscoursewilldiscussthe following:

1. Structureandfunctionsofthevariousorgansystemsandorgansofthe humanbody
2. Homeostaticmechanismsandtheirimbalancesinthehumanbody
3. Variousvitalphysiologicalparametersofthehumanbodyandtheirsignificances

CourseLearningOutcomes:

Uponsuccessfulcompletionofthiscourse,thestudentswillbeableto

CLO1. Describethevariousorgansystemsofthehumanbody

CLO2. Discusstheanatomicalfeaturesoftheimportanthumanorgansand tissues

CLO3.Explainthehomeostatic mechanismsregulatingthenormalphysiologyinthe humansystem

CLO4.Discussthesignificanceofvariousvitalphysiologicalparametersofthehumanbody

:

CH	Topic	Hours
1.	ScopeofAnatomyandPhysiologyDefinitionofvariousterminologies	2
2.	**StructureofCell:**Componentsand itsfunctions	2
3.	**Tissuesofthehumanbody:**Epithelial,Connective,MuscularandNervous tissues–theirsub-typesandcharacteristics.	4
4.	**Osseoussystem:**structureandfunctionsofbonesofaxialand appendicular skeleton Classification,typesandmovementsofjoints,disordersofjoints	3 3
5.	**Haemopoieticsystem** • Compositionandfunctionsofblood • ProcessofHemopoiesis • CharacteristicsandfunctionsofRBCs,WBCs, andplatelets • MechanismofBloodClotting • ImportanceofBloodgroups	8

6.	**Lymphaticsystem** • Lymphandlymphaticsystem,composition,function andits formation. • Structureandfunctionsofspleenandlymphnode.	3
7.	**Cardiovascularsystem** • AnatomyandPhysiologyofheart • Bloodvesselsandcirculation(Pulmonary,coronaryand systemic circulation) • CardiaccycleandHeartsounds,BasicsofECG • Bloodpressureanditsregulation	8
8.	**Respiratorysystem** • Anatomyofrespiratoryorgansandtheirfunctions. • Regulation,andMechanismofrespiration. • Respiratoryvolumesandcapacities–definitions	4
9.	**Digestivesystem** • Anatomyand PhysiologyoftheGIT • Anatomyandfunctionsofaccessoryglands • Physiologyofdigestionandabsorption	8
10.	**Skeletalmuscles** • Histology • Physiologyofmusclecontraction • Disorderofskeletalmuscles	2
11.	**Nervoussystem** • Classificationofnervoussystem • Anatomyandphysiologyofcerebrum,cerebellum,midbrain • Functionofhypothalamus,medullaoblongataandbasalganglia • Spinalcord-structure andreflexes • Namesandfunctionsofcranialnerves. • Anatomyandphysiologyofsympatheticandparasympathetic nervous system (ANS)	8
12.	**Senseorgans-Anatomyandphysiology of** • Eye • Ear • Skin • Tongue • Nose	6
13.	**Urinarysystem** • Anatomyandphysiologyofurinarysystem • Physiologyofurineformation	4

	• Renin-angiotensinsystem • Clearancetestsandmicturition	
14.	**Endocrinesystem(Hormonesandtheirfunctions)** • Pituitarygland • Adrenalgland • Thyroidandparathyroidgland • Pancreasandgonads	6
15.	**Reproductivesystem** • Anatomyofmaleandfemalereproductivesystem • Physiologyofmenstruation • SpermatogenesisandOogenesis • Pregnancyandparturition	4

RecommondedBooks:

1. HumanPhysiologybyC.C.Chatterjee
2. DerasariandGandhi'selementsofHumanAnatomy, PhysiologyandHealthEducation
3. S.R.KaleandR.R.Kale,TextbookofPracticalAnatomyandPhysiology
4. Tortora GJ, Derrickson BH. **Principles of Anatomy and Physiology.** Singapore: John Wiley & Sons (Asia) Pte Ltd
5. Waugh A. Grant A. **Ross and Wilson's Anatomy and physiology in health and illness**. New York: Churchill Livingstone (Elsevier).Human Anatomy and Physiology by S. Chaudhary and A. Chaudhary
6. FundamentalsofMedicalPhysiologybyK.SambulingamandPSambulingam
7. RanadeV.G.TextBookofPracticalPhysiology
8. GoyalR.K.,NatvarM.P.andShahS.A.,PracticalAnatomy,PhysiologyandBiochemistry, ExperimentalPhysiology.

ER20-14P.HUMANANATOMYANDPHYSIOLOGY(Practical)

75Hours(3Hours/week)

Course Code	CourseTitle	Hours			Component	Exam	WT		Passing Min.(%)
		L	T	P					
ER20-14P	Human Anatomyand Physiology (Practical)	-	-	3/wk 75/yr	Practical (100 marks)	Sessional-1	80	20	40%
						Sessional-2	80		
						Sessional-3	80		
						EAE	80	80	

Scope:

Thiscourseisdesignedtotrainthestudentsandinstiltheskillsfor carryingoutbasic physiological monitoring of various systems and functions.

CourseObjectives:

Thiscoursewillprovidehands-onexperienceinthefollowing:

1. Generalbloodcollectiontechniquesandcarryingoutvarioushaematologicalassessments and interpreting the results
2. Recordingand monitoringthevitalphysiologicalparameters inhumansubjectsandthe basic interpretations of the results
3. Microscopicexaminationsofthevarioustissuespermanentlymountedinglassslides
4. Discusstheanatomicaland physiologicalcharacteristicsofvariousorgansystemsofthe body using models, charts, and other teaching aids

CourseLearningOutcomes:

Uponsuccessfulcompletionofthiscourse,thestudentswillbeableto

CLO1.Performthehaematologicaltestsinhumansubjectsandinterprettheresults

CLO2.Record,monitoranddocumentthevitalphysiologicalparametersofhuman subjectsand interpret the results

CLO3.Describetheanatomicalfeaturesofthe importanthumantissuesunder themicroscopical conditions

CLO4.Discussthesignificanceofvariousanatomicalandphysiologicalcharacteristicsof thehuman body

No.	Practicals
1.	Studyofcompoundmicroscope
2.	Generaltechniquesforthecollectionofblood
3.	Microscopic examination of Epithelial tissue, Cardiac muscle, Smooth muscle, Skeletalmuscle,Connectivetissue,andNervoustissueofready/pre-preparedslides.
4.	StudyofHuman Skeleton-Axialskeletonandappendicularskeleton
5.	**Determinationof** a. Blood group

	b. ESR c. Haemoglobincontentofblood d. BleedingtimeandClottingtime
6.	DeterminationofWBC countofblood
7.	DeterminationofRBC countofblood
8.	DeterminationofDifferentialcountofblood
9.	Recording of Blood Pressure in various postures, different arms, before and after exertion and interpreting the results
10.	RecordingofBodytemperature(usingmercury,digitalandIRthermometersatvarious locations), Pulse rate/ Heart rate (at various locations in the body, before and after exertion), Respiratory Rate
11.	RecordingPulseOxygen(beforeandafterexertion)
12.	Recordingforceofair expelledusingPeakFlowMeter
13.	Measurementofheight,weight,andBMI
14.	Studyofvarioussystemsandorganswiththehelpofchart,models,andspecimens a) Cardiovascularsystem b) Respiratorysystem c) Digestivesystem d) Urinarysystem e) Endocrinesystem f) Reproductivesystem g) Nervoussystem h) Eye i) Ear j) Skin

RecommondedBooks:

1. HumanPhysiologybyC.C.Chatterjee
2. HumanAnatomyandPhysiologybyS. ChaudharyandA.Chaudhary
3. DerasariandGandhi'selementsofHumanAnatomy, PhysiologyandHealth Education
4. S.R.KaleandR.R.Kale,TextbookofPracticalAnatomyandPhysiology
5. FundamentalsofMedicalPhysiologybyK.SambulingamandPSambulingam
6. RanadeV.G.TextBookofPracticalPhysiology
7. GoyalR.K.,NatvarM.P.andShahS.A.,PracticalAnatomy,Physiologyand Biochemistry, Experimental Physiology

ER20-15T.SOCIALPHARMACY(Theory)

75Hours(3Hours/week)

Course Code	CourseTitle	L	T	P	Component	Exam	WT		Passing Min.(%)
ER20-15T.	SocialPharmacy (Theory)	3/wk 75/yr	1/wk 25/yr	-	Theory (100Marks)	Sessional-1	40	20	40%
						Sessional-2	40		
						Sessional-3	40		
						EAE	80	80	

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 ofpharmacists in the public health programs.

CourseObjectives:

Thiscoursewilldiscussaboutbasicconceptsof

1. Publichealthandnationalhealthprograms
2. Preventivehealthcare
3. Foodandnutritionrelatedhealthissues
4. Healtheducationandhealthpromotion
5. Generalrolesandresponsibilitiesofpharmacistsinpublichealth

CourseLearningOutcomes:

Uponsuccessfulcompletionofthiscourse,thestudentswillbeableto

CLO1.Discuss about roles of pharmacists in the various national health programs
CLO2.Describe various sources ofhealth hazards and disease preventive measures
CLO3.Discussthehealthcare issuesassociated with foodand nutritionalsubstances
CLO4.Describethegeneralrolesandresponsibilitiesofpharmacistsinpublichealth

CH	Topic	Hours
1.	**IntroductiontoSocialPharmacy** • DefinitionandScope.SocialPharmacyasadisciplineand itsscopein improvingthepublichealth. RoleofPharmacists inPublicHealth.(2) • Concept of Health -WHO Definition, various dimensions, determinants, and health indicators. (3) • NationalHealthPolicy–Indianperspective(1) • PublicandPrivateHealthSysteminIndia,NationalHealthMission(2) • IntroductiontoMillenniumDevelopmentGoals, • SustainableDevelopmentGoals,FIPDevelopmentGoals (1)	9

2.	**PreventivehealthcareRoleofPharmacistsinthefollowing** • DemographyandFamilyPlanning(3) • Mother and child health, importance of breastfeeding, ill effects of infant milk substitutes and bottle feeding(2) • OverviewofVaccines,typesofimmunityandimmunization(4) • **EffectofEnvironmentonHealth**–Waterpollution,importanceofsafe drinking water, waterborne diseases, air pollution, noise pollution, sewageandsolidwastedisposal, occupationalillnesses, 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)	18
3.	**NutritionandHealth** • Basicsofnutrition–MacronutrientsandMicronutrients(3) • Importanceofwaterandfibresindiet(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.	IntroductiontoMicrobiologyandcommonmicroorganisms(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: • Respiratoryinfections–chickenpox,measles,rubella,mumps,influenza (including Avian-Flu, H1N1, SARS, MERS, COVID-19),diphtheria, whooping cough, meningococcal meningitis, acute respiratory infections, tuberculosis, Ebola (7)	28

	• Intestinal infections – poliomyelitis, viral hepatitis, cholera, acute diarrhealdiseases, typhoid, amebiasis, worm infestations, food poisoning (7) • Arthropod-borne infections - dengue, malaria, filariasis and, chikungunya (4) • Surfaceinfections–trachoma,tetanus,leprosy(2) • STDs,HIV/AIDS(3)	
5.	Introduction to health systems and all ongoing National Healthprograms in India, their objectives, functioning, outcome, and the role ofpharmacists.	8
6.	**Pharmacoeconomics**–Introduction,basicterminologies,importanceof pharmacoeconomics	2

RecommondedBooks

1. SocialPharmacy–Innovationanddevelopment.GeoffHarding,SarahNettletonand Kevin Taylor. The Pharmaceutical Press.
2. TextBookofCommunityPharmacyPractice. RPSGBPublication
3. CommunityPharmacyHandbook-JonathanWaterfield
4. SKhurana,PSureshandRKalsi.HealthEducation&CommunityPharmacy. SVikas & Co
5. SocialPharmacy:Tayler,Geoffrey.PharmaceuticalPress.London.
6. TextbookbyDandiyaPC,ZaferZYK,ZaferA.Healtheducation&Community Pharmacy. Vallabh Prakashan.
7. WebsitesofMinistryofHealthandFamilyWelfare,NationalHealthPortal
8. PharmacistsattheFrontlines:ANovelApproachatCombatingTBwww.ipapharma.org Visit Publications
9. WhereThereIsNoDoctor:AVillageHealthCareHandbookbyDavid Werner ,2015 updated version
10. VariousWHOpublicationswww.who.int

ER20-15P.SOCIALPHARMACY(Practical)

75Hours(3Hours/week)

Course Code	CourseTitle	Hours			Component	Exam	WT		Passing Min.(%)
		L	T	P					
ER20-15P	SocialPharmacy (Practical)	-	-	3/wk 75/yr	Practical (100marks)	Sessional-1	80	10	40%
						Sessional-2	80		
						Sessional-3	80		
						Assignment-1	05	05	
						Assignment-2	05		
						Assignment-3	05		
						FVR	05	05	
						EAE	80	80	

Scope:

Thiscourseisdesignedto providesimulatedexperience invariouspublic healthandsocial pharmacy activities.

CourseObjectives:

Thiscoursewilltrainthestudentsonvariousrolesofpharmacists inpublichealthandsocial pharmacy activities in the following areas:

1. Nationalimmunizationprograms
2. Reproductiveandchildhealthprograms
3. Foodandnutritionrelatedhealthprograms
4. Healtheducationandpromotion
5. Generalrolesandresponsibilitiesofthepharmacistsinpublichealth
6. First Aid for various emergency conditions including basic life support and cardiopulmonaryresuscitation

CourseLearningOutcomes:

Uponsuccessfulcompletionofthiscourse,thestudentswillbeableto

CLO1.DescribetherolesandresponsibilitiesofpharmacistsinvariousNational healthprograms

CLO2.Designpromotionalmaterialsforpublichealthawareness

CLO3. Describe various health hazards including microbial sources

CLO4.Adviceonpreventive measuresforvariousdiseases

CLO5.Providefirstaidforvariousemergencyconditions

Note: Demonstration / Hands-on experience / preparation of charts / models / promotional materials / role plays / enacting / e-brochures / e-flyers / podcasts / video podcasts / any other innovativeactivitiesto understandtheconcept ofvariouselementsofsocialpharmacylistedhere. (At least one activity to be carried out for each one of the following):

No.	Practicals
1.	Nationalimmunizationscheduleforchildren,adultvaccineschedule,Vaccines whicharenotincludedintheNationalImmunizationProgram
2.	RCH–reproductiveandchildhealth–nutritionalaspects,relevant national health programmes.
3.	Familyplanningdevices
4.	Microscopicalobservationofdifferentmicrobes(readymadeslides)
5.	OralHealthandHygiene
6.	Personalhygieneandetiquettes–handwashingtechniques,Coughandsneeze etiquettes
7.	Varioustypesofmasks,PPEgear,wearing/usingthem,anddisposal.
8.	Menstrualhygiene,productsused
9.	First Aid – Theory, basics, demonstration, hands on training, audio-visuals, and practice, BSL(Basic Life Support)Systems[SCA - SuddenCardiac 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.	RoleofPharmacistinDisaster Management.
12.	Marketed preparations of disinfectants, antiseptics, fumigating agents, antilarval agents, mosquito repellents, etc.
13.	HealthCommunication: Audio / Video podcasts, Images, Power Point Slides, Short Films, etc. inregional language(s) for masscommunication/ education/ Awareness on 5 different communicable diseases, their signs and symptoms, andprevention.
14.	Water purification techniques, use of water testing kit, calculation of Content/percentage of KMnO4, 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

Thestudentsshallbeasked tosubmitthewrittenassignmentsonthe following topics(Oneassignment perstudentpersessionalperiod.i.e.,aminimumofTHREE assignments per student)

1. AnoverviewofWomen'sHealthIssues
2. Studythe labelsofvariouspacked foodsto understandtheir nutritional contents
3. Breastfeedingcounselling,guidance–usingInformation,Educationand Communication (IEC)
4. Informationabouttheorganizationsworkingonde-addictionservices inthe region (city / district, etc.)
5. Roleofapharmacistindisastermanagement–Acasestudy
6. OverviewontheNationalTuberculosisEliminationProgramme(NTEP)
7. Drugdisposalsystemsinthecountry,atindustrylevelandcitizenlevel
8. VariousPrebioticsorProbiotics(dietaryandmarketproducts)
9. Emergencypreparedness: StudyoflocalGovernment structurewithrespectto Fire, Police departments, health department
10. Prepareposter/presentation for generalpubliconanyone oftheHealthDays. e.g.Day,AIDSDay,HandwashingDay,ORSday,WorldDiabetesDay, World Heart Day, etc.
11. Listofhome medicines,theirstorage,safehandling,anddisposalofunused medicines
12. ResponsibleUseofMedicines:FromPurchasetoDisposal
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. Readaminimumofonearticlerelevanttoanytheorytopic,fromPharma /Science/ orother Periodicalsandpreparesummaryofitfor submission
15. PotentialrolesofpharmacistsinruralIndia

FieldVisits

The students shall be taken in groups to visit any THREE of the following facilities towitnessandunderstandtheactivitiesofsuchcenters/facilitiesfromtheperspectives ofthetopicsdiscussedintheoryand/orpracticalcourses.Individualreportsfromeach student on their learning experience from the field visits shall be submitted.

1. GarbageTreatmentPlant
2. SewageTreatmentPlant

3. Bio-medicalWasteTreatmentPlant
4. EffluentTreatmentPlant
5. Waterpurificationplant
6. Orphanage/Elderly-Care-Home/SchoolandorHostel/Homeforpersons with disabilities
7. Primaryhealthcarecentre

RecommondedBooks

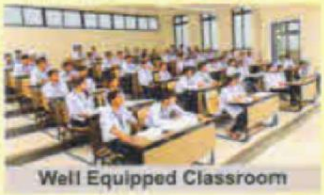
1. SocialPharmacy–Innovationanddevelopment.GeoffHarding,SarahNettletonand Kevin Taylor. The Pharmaceutical Press.
2. TextBookofCommunityPharmacyPractice. RPSGBPublication
3. CommunityPharmacyHandbook-JonathanWaterfield
4. SKhurana, PSureshandRKalsi. HealthEducation&CommunityPharmacy. SVikas & Co
5. SocialPharmacy:Tayler,Geoffrey.PharmaceuticalPress.London.
6. TextbookbyDandiyaPC,ZaferZYK,ZaferA.Healtheducation&Community Pharmacy. Vallabh Prakashan.
7. WebsitesofMinistryofHealth andFamilyWelfare,NationalHealthPortal
8. PharmacistsattheFrontlines:ANovelApproachatCombatingTB www.ipapharma.org Visit Publications
9. WhereThereIsNoDoctor:AVillageHealthCareHandbookbyDavid Werner ,2015 updated version
10. VariousWHOpublicationswww.who.int

Facilities


Administrative Building


Auditorium


Reading Hall


Well Equipped Classroom


Sophisticated Computer Lab


Advanced Laboratories


Workshop


Food Court


Stadium


Gymnasium


Music Academy


Transport

SGU

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