

**H.P. TECHNICAL UNIVERSITY
HAMIRPUR (HP)**



COURSE: B. PHARMACY (PRACTICE)

SCHEME OF TEACHING AND EVALUATION

**Dean
H.P. Technical University
Hamirpur - 177001**

Bachelor of Pharmacy Practice (Bridge course) Regulations 2010

(B.Pharm.Pr)

(Regulations framed under section 10 of the Pharmacy Act, 1948 (8 of 1948))

CHAPTER-I

1. Short title and commencement. –

(1) These regulations may be called ‘The **Bachelor of Pharmacy Practice (Bridge course) Regulations 2010**’

(2) They shall come into force from the date of their publication in the official Gazette.

2. **Bachelor of Pharmacy Practice (B.Pharm.Pr.)** shall consist of a degree certificate of having passed the course of study and examination as prescribed in these regulations, for the purpose of additional qualification to be entered in Register of Pharmacist under the Pharmacy Act, 1948.

CHAPTER-II

3. Duration of the course. –

a) The duration of the course shall be of two academic years with each year spread over a period of not less than 180 working days

4. Minimum qualification for admission to the course is –

i. A Pass in Diploma in Pharmacy Course from an institution approved by Pharmacy Council of India approved under section 12 of the Pharmacy Act 1948.

ii. A registered Pharmacist under the Pharmacy Act.

iii. A Minimum of four years of pharmacy practice experience in a community or hospital pharmacy –

a. A certificate from competent authority stating that the candidate is endorsed as Registered Pharmacist in the Drug License of a Pharmacy as proof practice experience in case of community pharmacist

b. A certificate from the Principal / medical Superintendent / competent person of the Hospital/Health Unit stating that the candidate is working as a pharmacist will be accepted as proof of practice experience in case of hospital pharmacist

iv. A no objection certificate from the employer in prescribed format (Annexure -A).

Provided that there shall be reservation of seats for the students belonging to the scheduled castes, scheduled tribes and other backward classes in accordance with the instructions issued by



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the Central Government/State Government/Union Territory Administration as the case may be from time to time.

5. The Number of admissions in the above said programme shall be as prescribed by the Pharmacy Council of India from time to time and presently be restricted to 40 students in an academic year

6. Approval of the authority conducting the course of study –

a. No person, institution, society or university shall start or increase number of admissions and conduct Bachelor of Pharmacy Practice programme without the prior approval of the Pharmacy Council of India (PCI).

b. Any person or pharmacy college for the purpose of obtaining permission under sub-section (1) of section 12 of the Pharmacy Act shall submit a scheme as prescribed by the PCI.

c. The scheme referred to in sub-regulation (b) above, shall be in such form and contain such particulars and be preferred in such manner and be accompanied with such fee as may be prescribed.

d. The institutions recognised by the Pharmacy Council of India for running Bachelor of Pharmacy (B.Pharm) approved under section 12 of the Pharmacy Act shall be eligible for starting Bachelor of Pharmacy Practice (B.Pharm.Pr.) degree course.

e. The maximum number of students for the Bachelor of Pharmacy Practice course, shall be determined by the facilities available in the department/ institution in terms of infrastructure, teaching staff and teaching material.

f. Every student, selected for admission to Bachelor of Pharmacy Practice course in any of the pharmacy institutions in the country, shall possess approved D.Pharm qualification and should have registered with the State Pharmacy Council or should obtain the same within one month from the date of his admission, failing which the admission of the candidate shall be cancelled.

Provided that the PCI shall not approve any institution under these regulations unless it provides adequate arrangements for teaching in regard to building, accommodation, laboratories, equipments, teaching staff, non-teaching staff, etc., as specified in Appendix-A to these regulations.

7. Course of study. –The course of study shall consist of the subjects as given in the Tables below. The course shall consist of class room teaching and assignment works. The Assignment works shall be done at the place of work under the supervision and guidance of teaching staff of the academic institution. The number of contact hours in a week, devoted to each subject for class



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room teaching shall not be less than that noted against it in columns (3) below.

T A B L E –1

First Year :

S.No.	Name of Subject	Minimum No. of total contact hours	No. of contact hours /week
(1)	(2)	(3)	(4)
1.1	Pathophysiology and Pharmacotherapeutics I	40	1
1.2	Pathophysiology and Pharmacotherapeutics II	40	1
1.3	Pharmacy Practice I	40	1
1.4	Pharmacy Practice II	40	1
1.5	Applied Pharmaceutics	40	1
1.6	Social Pharmacy I	40	1
1.7	Case presentation, Seminar, Assignments	160	4
	Total	400	10

Second Year :

S.No.	Name of Subject	Minimum No. of total contact hours	No. of contact hours /week
(1)	(2)	(3)	(4)
2.1	Pathophysiology and Pharmacotherapeutics III	40	1
2.2	Pathophysiology and Pharmacotherapeutics IV	40	1
2.3	Pharmacy Practice III	40	1
2.4	Pharmacy Practice IV	40	1
2.5	Social Pharmacy II	40	1
2.6	Pharmaceutical Jurisprudence	40	1
2.7	Case presentation, Seminar, Assignments	160	4
	Total	400	10

8. Syllabus. – The detailed syllabus for each subject of study in the said Tables shall be as specified in the guideline given in Appendix-III

9. Examination. –

1. There shall be an examination at the end of calendar year. The first examination shall be the annual examination and the second examination shall be supplementary examination.
2. The examinations shall be of written nature for theory and for the practical's they shall submit the assignments done by them in the form of a report which will be followed by viva-voce carrying maximum marks for each part of a subject as indicated in Tables below :

T A B L E -II

1st Year examination :

S.No.	Name of Subject	Maximum marks for Theory			Maximum marks for Assignments (including Viva voce 25%)
		University Examination	Sessional marks	Total	
	Pathophysiology and Pharmacotherapeutics I	60	40	100	100
	Pathophysiology and Pharmacotherapeutics II	60	40	100	100
	Pharmacy Practice I	60	40	100	100
	Pharmacy Practice II	60	40	100	100
	Applied Pharmaceutics	60	40	100	100
	Social Pharmacy I	60	40	100	100
	Total			600	600



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2nd Year examination :

S.N o.	Name of Subject	Maximum marks for Theory			Maximum marks for Assignments (including Viva Voce-25%)
		University Examination	Sessional marks	Total	
	Pathophysiology and Pharmacotherapeutics III	60	40	100	100
	Pathophysiology and Pharmacotherapeutics IV	60	40	100	100
	Pharmacy Practice III	60	40	100	100
	Pharmacy Practice IV	60	40	100	100
	Social Pharmacy - II	60	40	100	100
	Pharmaceutical Jurisprudence	60	40	100	100
	Total			600	600

11. Eligibility for appearing Examination.— Only such students who produce certificate from the Head of the Institution in which he or she has undergone the course in proof of his or her having regularly and satisfactorily undergone the course of study by attending not less than 80% of the classes held in theory and have submitted the Assignments/ project report duly approved by the supervising Teacher shall be eligible for appearing the examination.

12. Mode of examinations.—

- (1) Theory examination shall be of three hours duration.
- (2) A Student who fails in theory examination of a subject shall re-appear in that subject
- (3) Assignment work shall consist of evaluation of report by both internal & External Examiners with a seminar and viva –voce (Oral) examination.

13. Award of sessional marks and maintenance of records.—

- (1) A regular record of theory examinations conducted in an institution imparting the Bachelor of Pharmacy Practice Course, shall be maintained for each student in the institution and 40 marks for each subject shall be allotted as internal assessment.
- (2) There shall be at least three periodic sessional examinations during each year and the highest aggregate of any two performances shall form the basis of calculating sessional marks.

14. Minimum marks for passing examination.— A student shall not be declared to have passed


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examination unless he or she secures at least 50% marks in each of the subjects separately in the theory examinations, including sessional marks and at least 50% marks in Assignment work. The students securing 60% marks or above in aggregate in all subjects in a single attempt at the examination shall be declared to have passed in first class. Students securing 75% marks or above in any subject or subjects shall be declared to have passed with distinction in the subject or those subjects provided he or she passes in all the subjects in a single attempt.

15. Eligibility for promotion to next Class.—

1. All students who have appeared for all the subjects and passed the examination are eligible for promotion to the next Year.
2. The student failing in subjects of 1st year B.Pharm.Pr. examination shall be permitted to proceed to the 2nd year of B.Pharm.Pr , however, such students shall have to pass all the subjects of the 1st and 2nd year of B.Pharm.Pr course and shall complete the course within 4 Academic years from the session in which he/she was admitted in the course, for the consideration of B.Pharm.Pr degree..

16. Approval of examinations.— Examinations mentioned in regulations 10 to12 and 14 shall be held by the examining authority approved by the Pharmacy Council of India under sub-section of section 12 of the Pharmacy Act, 1948.

17. Certificate of passing examination.— every student who has passed the examinations for the Bachelor of Pharmacy Practice shall be granted a degree certificate by the examining authority.

CHAPTER-III

18. Assignment work.—

1. To allow the student to understand and develop data collection and reporting skills in the area of community, hospital and clinical pharmacy in particular and principles of Pharmacy practice in general, the assignment work shall be carried out under the supervision of a teacher of the academic Institution on the topic approved by the Head of the Academic Institution. The same shall be announced to students within one month of commencement of the classes in each of the subjects for the session. Assignment shall be presented in a written report and as a seminar before the final examination. External and the internal examiners appointed by the examining authority for the said purpose shall do the assessment of the work done.
2. Assignment work shall comprise of objectives of the work, methodology, results, discussions and conclusions.



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- a. Objectives of Assignment work.— The main objectives of the work is to—
- (i) show the evidence of having made accurate description of work and of having recorded the findings in an impartial manner; and
 - (ii) develop the students skills in data collection, analysis and reporting and interpretation skills.
- b. Methodology.— To complete the work following methodology shall be adopted, namely:—
- (i) Not more than ten students shall work under an authorized teacher;
 - (ii) The topic shall be approved by the Head of the Department or Head of the Institution;
 - iii) The work chosen shall be related to the subjects taught in a particular Session and due consideration has to be given regarding the suitability for carrying out the work in his/her workplace
- c. Reporting .— (1) Student working on the Assignment shall submit the report after completion of work to the Head of the Department or Head of the Institution. The report should include a certificate issued by the authorized teacher.
- (2) Submission of the report shall be done at least one month prior to the commencement of Annual examination.
- d. Evaluation.— The following methodology shall be adopted for evaluating Assignment work—

Evaluation shall be done on the following items:	Marks
a) Write up of the assignment	40
b) Presentation of work	15
c) seminar	20
d) Question and answer skills (viva voce)	25
Total	(100 marks)

23. The recommended fees for the course shall be prescribed by Pharmacy Council of India from time to time as guidance to the State Government/Course conducting Authorities/Examining Authorities.



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Annexure-A

{See rule 4(iv)}

Format for No Objection Certificate from the Employer

This to certify that ----- son/daughter of----- working in this Institution/Pharmacy as----- since ----- and the undersigned has no objection if he/she gets himself/herself admitted in the Bachelor in Pharmacy Practice Course for the session-----.

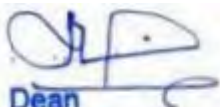
He will be allowed to attend the course and facilities will be provided for carrying out the assignments as part of course in the Institution/Organization

Signature and seal of the authorized Person



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1ST YEAR DETAILED SYLLABUS



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1.1. Pathophysiology and Pharmacotherapeutics I

Teaching Scheme			Marks			Duration of End Semester Examination
L	T	P	Sessional	End Semester Exam	Total	
1	0	0	40	60	100	3 hours

COURSE CONTENT

UNIT	CONTENT	No. of Hrs.
I	<p>Introduction to pathophysiology and therapeutics – scope and objectives</p> <p>Prescribing guidelines (Drug and dosage selection and dose calculation) for</p> <ul style="list-style-type: none"> a) Pediatrics b) Geriatrics c) Pregnant and breast feeding women d) Renally and hepatically challenged patients <p>Elements of anatomy Etiopathogenesis, diagnostic techniques, clinical manifestation and pharmacotherapeutics of diseases associated with Endocrine System</p> <ul style="list-style-type: none"> a) Diabetes. b) Thyroid diseases 	13
II	<p>Elements of anatomy, etiopathogenesis, diagnostic techniques, clinical manifestation and pharmacotherapeutics of diseases associated with Cardiovascular System</p> <ul style="list-style-type: none"> a) Hypertension b) Ischemic Heart diseases (Angina and Myocardial Infarction) c) Hyperlipidemia d) Congestive Heart Failure e) Arrhythmias 	15
III	<p>Elements of anatomy, Etiopathogenesis, diagnostic techniques, clinical manifestation and pharmacotherapeutics of diseases associated with Respiratory System</p> <ul style="list-style-type: none"> a) Asthma b) COPD c) Drug induced pulmonary diseases 	12

Case Presentations

During the course each student should present **5 cases** covering the diseases prescribed in the syllabus

TEXT BOOKS:

1. Clinical Pharmacy and therapeutics – Roger and Walker, Churchill Livingstone publication.
2. Pharmacotherapy: A Pathophysiologic approach – Joseph T. Dipiro et al. Appleton & Lange.

REFERENCE BOOKS:

1. Pathologic basis of disease – Robins SL, W.B Saunders publication.
2. Pathology and therapeutics for Pharmacist: A basis for clinical pharmacy practice – Green and Harris, Chapman and Hall publication.
3. Clinical pharmacy and therapeutics – Eric T Herfindal, Williams and Wilkins and Wilkins Publication.
4. Applied therapeutics: the clinical use of drugs. Lloyd Young and koda-kimble MA [ISBN 0-33365881-7].
5. Avery's drug treatment, 4th edn, Adis International Limited.
6. Relevant review articles from recent medical and pharmaceutical literature.
7. Harrison's Principles of Internal Medicine — Dan L. Longo, Anthony S. Fauci, Dennis L. Kasper, Stephen L. Hauser, J. Larry Jameson, Joseph Loscalzo, Eds., McGraw Hill Publication.

1.1. Pathophysiology and Pharmacotherapeutics I (ASSIGNMENT)

Teaching Scheme			Marks			Duration of End Semester Examination
L	T	P	Sessional	End Semester Exam	Total	
0	0	1	--	100	100	3 hours

Assignments

Each student should complete **two assignments** covering therapeutics and pharmacy practice concepts and will be evaluated at the time Final Examination.

1.2 Pathophysiology and Pharmacotherapeutics II

Teaching Scheme			Marks			Duration of End Semester Examination
L	T	P	Sessional	End Semester Exam	Total	
1	0	0	40	60	100	3 hours

COURSE CONTENT

UNIT	CONTENT	No. of Hrs.
I	<p>Elements of anatomy, Etiopathogenesis, diagnostic techniques, clinical manifestations and pharmacotherapeutics of diseases associated with CNS</p> <p>a) Anxiety b) Depression c) Schizophrenia, d) Manic depressive disorders e) Epilepsy, f) Parkinson's disease, g) Headaches</p>	18
II	<p>Elements of anatomy, Etiopathogenesis, diagnostic techniques, clinical manifestations and pharmacotherapeutics of diseases associated with GI Disorders</p> <p>a) Dyspepsia, b) Acid Pepsin Disease, c) Inflammatory Bowel Disease. d) Liver disorders- Hepatitis, Gall stones, Alcoholic Liver Disease.</p>	10
III	<p>Elements of anatomy, etiopathogenesis, clinical manifestations and pharmacotherapeutics of diseases associated with hematological System</p> <p>Erythropoietic system – Over view, Iron deficiency anemia, Megaloblastic anemia, Sideroblastic anemia, Hemolytic anemia, Venous Thromboembolism, Arterial, Thromboembolism, Drug induced blood disorders</p>	12

TEXT BOOKS:

1. Clinical Pharmacy and Therapeutics - Roger and Walker, Churchill Livingstone publication
2. Pharmacotherapy : A Pathophysiological approach – Joseph T. Dipiro et al. Appleton& Lange

REFERENCE BOOKS:

1. Pathologic basis of disease – Robins SL, W.B Saunders publication.
2. Pathology and therapeutics for Pharmacists: A Basis for Clinical Pharmacy Practice – Green and Harris, Chapman and Hall publication.
3. Clinical Pharmacy and Therapeutics-Eric T. Herfindal, Williams and Wilkins Publication.
4. Applied Therapeutics: The clinical use of drugs. Lloyd Young and Koda – Kimble MA (ISBN 0-333-65881- 7).
5. Avery's drug treatment, 4th edn, 1997, Adis International Limited.
6. Relevant review articles from recent medical and pharmaceutical literature.
7. Harrison's Principles of Internal Medicine, —Dan L. Longo, Anthony S. Fauci, Dennis L. Kasper, Stephen L. Hauser, J. Larry Jameson, Joseph Loscalzo, Eds., McGraw Hill Publication.

1.2 Pathophysiology and Pharmacotherapeutics II (ASSIGNMENT)

Teaching Scheme			Marks			Duration of End Semester Examination
L	T	P	Sessional	End Semester Exam	Total	
0	0	1	--	100	100	3 hours

Assignments

Each student should complete **two assignments** covering therapeutics and pharmacy practice concepts and will be evaluated at the time Final Examination.

1.3 Pharmacy Practice-I

Teaching Scheme			Credits	Marks			Duration of End Semester Examination
L	T	P		Sessional	End Semester Exam	Total	
1	0	0		40	60	100	3 hours

COURSE CONTENT

UNIT	CONTENT	No. of Hrs.
I	<p>Introduction to Pharmacy Practice – Definition, patient focused approach, scope/areas of practice.</p> <p>Introduction to Clinical Pharmacy</p> <ul style="list-style-type: none"> a) Definition, Scope, Objectives of Clinical Pharmacy Practice b) International v/s National scenario c) Professional responsibilities of Clinical Pharmacists <p>Drug Committees</p> <p>Pharmacy and Therapeutics Committee, Hospital Formulary, Infection Control committee, Institutional Review Board.</p> <p>Hospital and Hospital Pharmacy organisation</p> <p>Definition of Hospital, Hospital Pharmacy, Organizational structure of Hospital,</p> <ul style="list-style-type: none"> a) Hospital Pharmacy, professional roles and responsibilities of hospital pharmacist. b) Advantages, need and disadvantages/risks of Hospitalization. Nosocomial infections/HAI – worldwide scenario, statistics/prevalence, dangers, precautions to take. Problems related to hospitals, high risk environment. c) International scenario vs Indian Scenario of Hospital Pharmacy Practice. d) Hospital Pharmacy Practice - Requirements for functioning of hospital pharmacy, Qualification and experience requirements for pharmacists, work load statistics. e) Standards of Pharmacies in hospitals 	14

II	<p>Clinical Pharmacy daily activities</p> <p>a) Definition, objectives and procedures of</p> <ul style="list-style-type: none"> i) Ward round participation ii) Treatment chart review iii) Drug information iv) Patient counseling v) ADR monitoring and reporting vi) Therapeutic drug monitoring. vii) Home Medication Review <p>b) Patient Data analysis</p> <p>Patient case history, drug therapy evaluation, identification and resolving of drug related problems.</p> <p>Practice Management :</p> <ul style="list-style-type: none"> a. Professional practice standards - Good Pharmacy Practice – in detail including Good storage practice, good dispensing practices, etc. (national and international scenario) (for both community and hospital pharmacy) b. Pharmacy Practice Regulations (PCI), Code of Ethics for Pharmacists c. SOPs, writing SOPs, Documentation, writing various record formats for community and hospital pharmacy, validation of various processes in Hospital & Community Pharmacy. 	14
III	<p>Community Pharmacy</p> <p>Definition, scope and professional responsibilities of community pharmacist.</p> <ul style="list-style-type: none"> b) International scenario vs Indian Scenario of community Pharmacy Practice c) Pharmacy Assistant/Technician/Salesperson – roles and responsibilities, d) Community pharmacist’s services to other health care professionals, and to nursing homes. <p>Community Pharmacy Management</p> <p>Selection of site, legal requirements, procurement, storage, and inventory control, product display, finance management.</p> <p>Concept of Accreditation of Pharmacies, Validation concepts & instruments for community pharmacy and hospital pharmacy, Concept of Audits in community and hospital pharmacy</p>	14

TEXT BOOKS:

1. Basic skills in interpreting laboratory data – Scott LT, American Society of Health System Pharmacists Inc.
2. Practice Standards and Definitions - The Society of Hospital Pharmacists of Australia.1997
3. Clinical Pharmacokinetics - Rowland and Tozer, Williams and Wilkins Publication.

REFERENCE BOOKS:

1. Biopharmaceutics and Applied Pharmacokinetics - Leon Shargel, Prentice Hall Publication
2. Relevant review articles from recent medical and pharmaceutical literature.
3. A Textbook of Clinical Pharmacy Practice - G. Parthasarathi, Karin Nyfort-Hansen, Milap C Nahata. Universities Press India Ltd.
4. Clinical Guidelines: Diagnosis & treatment Manual - MSF

1.3 Pharmacy Practice-I (ASSIGNMENT)

Teaching Scheme			Marks			Duration of End Semester Examination
L	T	P	Sessional	End Semester Exam	Total	
0	0	1	--	100	100	3 hours

Assignments

Each student should complete **two assignments** covering therapeutics and pharmacy practice concepts and will be evaluated at the time Final Examination.

1.4 Pharmacy Practice -II

Teaching Scheme				Marks			Duration of End Semester Examination
L	T	P		Sessional	End Semester Exam	Total	
1	0	0	40	60	100	3 hours	

COURSE CONTENT

UNIT	CONTENT	No. of Hrs.
I	<p>Hospital Pharmacy Stores Management Stores Management, Drug Purchase and Procurement, Inventory Control and GPP. Management of Material and Finance.</p> <p>Drug Dispensing and Drug Distribution Drug distribution – various methods, individual order method, Floor Stock Method, Unit Dose Drug Distribution Method, Drug basket method, Distribution to ICCU/ICU/Emergency wards, Automated drug dispensing systems and devices , Distribution of Narcotic and Psychotropic substances , GPP associated with all these.</p>	12
II	<p>Central Sterile Supply Services</p> <p>Prescription and prescription handling</p> <ol style="list-style-type: none"> Definition, Parts of prescriptions, good prescribing practices, legality of prescriptions, identification of drug related problems in prescriptions. Prescription handling, labeling of dispensed medications (Main label, Ancillary label, pictograms), Medication usage instructions. Good dispensing practices Drug Interactions (Drug-Drug, Drug-Food, Drug-Lab investigations) – types, interpretation detection, prevention, Practice on market prescriptions, Use of drug interaction software's. PPIs – (Patient Package Insert) - Basic concept, Importance and beneficial use of PPIs. Scenario in India and other countries. <p>Pharmaceutical Care Definition, principles and procedures of pharmaceutical care</p> <p>Patient Counseling</p>	13


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 H.P. Technical University
 Hamirpur - 177001

	Definition, various stages of patient counseling, barriers in counseling and strategies to overcome in patient counseling. Patient information leaflets- definition, layout and design of PILs.	
III	<p>Health Screening Services</p> <p>Definition, scope, and uses of health screening services, procedures involved in screening blood capillary blood glucose, body mass index</p> <p>Interpretation of laboratory data</p> <p>a) Haematological, Liver function, Renal function, thyroid function tests</p> <p>b) Tests associated with cardiac disorders</p> <p>c) Fluid and electrolyte balance</p> <p>d) Microbiological culture sensitivity tests</p> <p>e) Pulmonary Function Tests</p>	14

TEXT BOOKS:

1. Hospital pharmacy – Hassan WE. Lec and Febiger publication
2. Text book of hospital pharmacy – Allwood MC and Blackwell
3. A Textbook of Pharmacy Practice – Dr. B. D. Miglani, K. G. Revikumar. Career Publication

REFERENCES BOOKS:

1. Avery's Drug Treatment, 4th Edn, 1997, Adis International Limited
2. Remington Pharmaceutical Sciences
3. Relevant review articles from recent medical and pharmaceutical literature
4. International society for pharmacoepidemiology (<http://www.pharmacoepi.org/>) & International society for pharmacoeconomics and outcomes research (<http://www.ispor.org/>) websites.

Pharmacy Practice-II (ASSIGNMENT)

Teaching Scheme			Marks			Duration of End Semester Examination
L	T	P	Sessional	End Semester Exam	Total	
0	0	1	--	100	100	3 hours

Assignments

Each student should complete **two assignments** covering therapeutics and pharmacy practice concepts and will be evaluated at the time Final Examination.



Dean
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Hamirpur - 177001

1.5 APPLIED PHARMACEUTICS

Teaching Scheme				Marks			Duration of End Semester Examination
L	T	P		Sessional	End Semester Exam	Total	
1	0	0		40	60	100	3 hours

COURSE CONTENT

UNIT	CONTENT	No. of Hrs.
I	<p>Introduction to Pharmaceutical Dosage Forms</p> <p>Basics of GMP, GLP, QA, QC</p> <p>Introduction to Novel drug delivery systems, instructions to be given to patients – Transdermal, infusion pumps, genetically engineered medicines, etc</p>	10
II	<p>Introduction to Bio-Pharmaceutics</p> <p>Absorption of drugs</p> <p>a) Introduction to absorption, structure and physiology of cell membrane b) Factors affecting drug absorption, Absorption of drugs from extra vascular routes.</p> <p>Distribution of Drugs</p> <p>a) Tissue permeability of drugs, Physiological barriers to drug distribution. b) Factors affecting drug distribution. c) Volume of drug distribution, Drug protein, drug tissue binding.</p> <p>Biotransformation of drugs</p> <p>a) Drug metabolizing organs and Enzymes b) Phase I reactions, Phase II reactions c) Factors affecting biotransformation of the drugs</p> <p>Excretion of drugs</p> <p>a) Renal excretion of drugs, Factors affecting the renal filtration, b) Non renal routes of drug excretion</p> <p>Prodrugs</p> <p>a) Definition and applications of prodrugs</p>	13

	<p>Bioavailability and Bioequivalence</p> <p>a) Definition of bioavailability and bioequivalence</p> <p>b) Factors affecting bioavailability.</p> <p>c) Importance of BA, BE, BA Classification system, NTI drugs, care to be taken in prescribing and dispensing of such drugs</p>	
III	<p>Study the following about all dosage forms :</p> <p>a. Need, advantage, disadvantages</p> <p>b. Brief of various ingredients used and need for these, basic properties of inactives. Basic overview of manufacturing without going into details.</p> <p>c. Storage, packaging requirements</p> <p>d. Possible stability and defects issues</p> <p>e. Proper use, special precautions while using, instructions to patients</p> <p>f. bioavailability/biopharmaceutics aspects</p>	<p>15 hrs</p> <p>14</p>

TEXT BOOK:

1. Cooper and Gunns Dispensing for pharmacy students.
2. A text book Professional Pharmacy by N.K.Jain and S.N.Sharma.
3. D.M. Brahmkar and Sunil B Jaiswal. Text Book of Biopharmaceutics and Pharmacokinetics
– A treatise. Vallabh Prakashan. Delhi.

REFERENCE BOOK:

1. Introduction to Pharmaceutical dosage forms by Howard C. Ansel.
2. Remington's Pharmaceutical Sciences
3. Register of General Pharmacy by Cooper and Gunn. d. General Pharmacy by M.L.Schroff.

1.5 Applied Pharmaceutics (ASSIGNMENT)

Teaching Scheme			Marks			Duration of End Semester Examination
L	T	P	Sessional	End Semester Exam	Total	
0	0	1	--	100	100	3 hours

Assignments

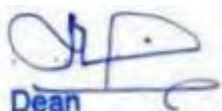
Each student should complete **two assignments** covering Pharmaceutical Dosage forms and Pharmacokinetic concepts

1.6 Social Pharmacy

Teaching Scheme				Marks			Duration of End Semester Examination
L	T	P		Sessional	End Semester Exam	Total	
1	0	0	40	60	100	3 hours	

COURSE CONTENT

UNIT	CONTENT	No. of Hrs.
I	<p>Introduction to Social Pharmacy –</p> <p>a) Definition and Scope - Introduction to Social Pharmacy as a discipline and its various concepts. Sociological Understanding of Health and Illness, Role of Pharmacist in Public Health</p> <p>b) WHO Definition of health – various dimensions of health</p> <p>c) Introduction and broad overview of health systems, infrastructure, and functioning in India and other countries – both in Public and private sector. National health programmes in India – brief study of these and the role of pharmacist in each of these</p>	10
II	<p>Drugs, Industry & Policies</p> <p>a. Drugs and developed countries, developing countries, GATT, patents, Patents Act.</p> <p>b. Pharmaceutical Industry and its activities, Classification systems of drugs, Social marketing – brief study of organizations and functioning like Medicines Sans Frontiers</p> <p>c. Concept of RUM, WHO Essential Medicines, Irrational medicine use and its associated problems, etc., . Evidence based medicine, STGs (Standard Treatment Guidelines)</p> <p>d. National Drug Policy, National Health Policy, Pharmacy & Drug Ethics</p> <p>Pharmacoeconomics – Definition, types of pharmacoeconomic models, consumption of drugs, pharmaceutical pricing and reimbursement, Health Insurance</p> <p>Pharmacoepidemiology – Definition, scope, advantages and disadvantages.</p>	10



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III	<p>Health Promotion and Health education</p> <p>Epidemiology of Communicable Diseases : Causative agents and Clinical presentations and Role of Pharmacist in prevention of communicable diseases :</p> <p>i) Respiratory infections – chickenpox, measles, rubella, mumps, influenza (including Avian-Flu, H1N1), diphtheria, whooping cough, meningococcal meningitis, acute respiratory infections, tuberculosis</p> <p>ii) Intestinal infections – poliomyelitis, viral hepatitis, cholera, acute diarrhoeal diseases, typhoid, food poisoning, amebiasis, worm infestations</p> <p>iii) Arthropod-borne infections - dengue, malaria, filariasis and, chikungunya</p> <p>iv) Zoonoses – rabies, yellow fever, Japanese encephalitis, plague, human salmonellosis, rickettsial diseases, taeniasis, hydatid disease, leishmaniasis</p> <p>v) Surface infections – trachoma, tetanus, leprosy, STDs, HIV/AIDS</p> <p>vi) Emerging and reemerging infectious diseases.</p>	20
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TEXT BOOKS:

1. Social Pharmacy – Innovation and development edt. Geoff Harding, Sarah Nettleton and Kevin Taylor. The Pharmaceutical Press.
2. Text Book of Community Pharmacy Practice. RPSGB Publication
3. Text Books: a. Health Education and Community Pharmacy by N.S.Parmar.

REFERENCE BOOKS

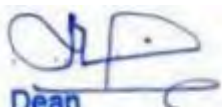
1. WHO consultative group report. c. Drug store & Business management by Mohammed Ali & Jyoti.
2. Handbook of pharmacy – health care.Edt. Robin J Harman. The Pharmaceutical press.
3. Comprehensive Pharmacy Review – Edt. Leon Shargel. Lippincott Williams & Wilkins.

Social Pharmacy (ASSIGNMENT)

Teaching Scheme			Marks			Duration of End Semester Examination
L	T	P	Sessional	End Semester Exam	Total	
0	0	1	--	100	100	3 hours

Assignments

Each student should complete **two assignments** covering therapeutics and pharmacy practice concepts and will be evaluated at the time Final Examination.



Dean
H.P. Technical University
Hamirpur - 177001

2ND YEAR DETAILED SYLLABUS



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Hamirpur - 177001

2.1 Pathophysiology and Pharmacotherapeutics III

Teaching Scheme				Marks			Duration of End Semester Examination
L	T	P		Sessional	End Semester Exam	Total	
1	0	0		40	60	100	3 hours

COURSE CONTENT

UNIT	CONTENT	No. of Hrs.
I	Infectious disease: <ul style="list-style-type: none"> a) Guidelines for the rational use of antibiotics and surgical Prophylaxis. b) Pathophysiology and Pharmacotherapeutics of Tuberculosis, Meningitis, Respiratory tract infections, Gastroenteritis, Endocarditis, Septicemia, Urinary tract infections, Protozoal infection- Malaria, HIV & Opportunistic infections, Fungal infections, Viral infections, Gonorrhoea and Syphilis 	12
II	Musculoskeletal disorders <ul style="list-style-type: none"> a) Basics of Anatomy and physiology of musculoskeletal system. b) Pathophysiology and Pharmacotherapeutics of Rheumatoid arthritis, Osteoarthritis, Gout, Spondylitis, Systemic Lupus Erythematosus 	13
III	Renal system <ul style="list-style-type: none"> a) Basics of anatomy and physiology of Renal system b) Pathophysiology and pharmacotherapeutics of Acute Renal Failure, Chronic Renal Failure, Renal Dialysis, Drug induced renal disorders 	12

TEXT BOOKS:

1. Clinical Pharmacy and therapeutics – Roger and Walker, Churchill Livingstone publication.
2. Pharmacotherapy: A Pathophysiologic approach – Joseph T. Dipiro et al. Appleton & Lange.

REFERENCE BOOKS:

1. Pathologic basis of disease – Robins SL, W.B Saunders publication.
2. Pathology and therapeutics for Pharmacist: A basis for clinical pharmacy practice – Green and Harris, Chapman and Hall publication.
3. Clinical pharmacy and therapeutics – Eric T Herfindal, Williams and Wilkins and Wilkins Publication.
4. Applied therapeutics: the clinical use of drugs. Lloyd Young and koda-kimble MA [ISBN 0-33365881-7].
5. Avery's drug treatment, 4th edn, Adis International Limited.
6. Relevant review articles from recent medical and pharmaceutical literature.
7. Harrison's Principles of Internal Medicine — Dan L. Longo, Anthony S. Fauci, Dennis L. Kasper, Stephen L. Hauser, J. Larry Jameson, Joseph Loscalzo, Eds., McGraw Hill Publication.

2.1 Pathophysiology and Pharmacotherapeutics III (ASSIGNMENT)

Teaching Scheme			Marks			Duration of End Semester Examination
L	T	P	Sessional	End Semester Exam	Total	
0	0	1	--	100	100	3 hours

Assignments

Each student should complete **two assignments** covering therapeutics and pharmacy practice concepts and will be evaluated at the time Final Examination


Dean
H.P. Technical University
Hamirpur - 177001

2.2 Pathophysiology and Pharmacotherapeutics IV

Teaching Scheme				Marks			Duration of End Semester Examination
L	T	P		Sessional	End Semester Exam	Total	
1	0	0		40	60	100	3 hours

COURSE CONTENT

UNIT	CONTENT	No. of Hrs.
I	<p>Oncology:</p> <ul style="list-style-type: none"> a) Basic principles of Cancer therapy, b) General introduction to cancer chemotherapeutic agents, c) Chemotherapy of breast cancer, leukemia. d) Management of chemotherapy induced nausea and emesis 	13
II	<p>Women's Health</p> <ul style="list-style-type: none"> a) Physiology of Menstrual Cycle b) Contraception – Physical Methods, Chemical Methods, IUDs, and Permanent methods. c) Disorders related to Menstrual Cycle – Polycystic ovary Syndrome, Dysmenorrhea, Premenstrual Syndrome. d) Obstetric Drug Therapy – Trimesters of Pregnancy, Common complaints of Pregnancy and their management – nausea, vomiting, reflex esophagitis, Diabetes mellitus, Hypertension and Preeclampsia, FDA Categorisation of drugs in Pregnancy e) Menopause – signs and symptoms and Management 	12
III	<p>Dermatology:</p> <p>Pathophysiology and Pharmacotherapeutics of Psoriasis, Scabies, Eczema, Impetigo</p> <p>Elements of anatomy and Physiology of Vision Etiopathogenesis, diagnostic techniques, clinical manifestations and pharmacotherapeutics of diseases associated with Eye suc</p> <ul style="list-style-type: none"> a) Glaucoma b) Infectious ophthalmic diseases 	10

TEXT BOOKS:

1. Clinical Pharmacy and Therapeutics - Roger and Walker, Churchill Livingstone publication
2. Pharmacotherapy : A Pathophysiological approach – Joseph T. Dipiro et al. Appleton& Lange

REFERENCE BOOKS:

1. Pathologic basis of disease – Robins SL, W.B Saunders publication.
2. Pathology and therapeutics for Pharmacists: A Basis for Clinical Pharmacy Practice – Green and Harris, Chapman and Hall publication.
3. Clinical Pharmacy and Therapeutics-Eric T. Herfindal, Williams and Wilkins Publication.
4. Applied Therapeutics: The clinical use of drugs. Lloyd Young and Koda – Kimble MA (ISBN 0-333-65881- 7).
5. Avery's drug treatment, 4th edn, 1997, Adis International Limited.
6. Relevant review articles from recent medical and pharmaceutical literature.
7. Harrison's Principles of Internal Medicine, —Dan L. Longo, Anthony S. Fauci, Dennis L. Kasper, Stephen L. Hauser, J. Larry Jameson, Joseph Loscalzo, Eds., McGraw Hill Publication.

2.2 Pathophysiology and Pharmacotherapeutics IV (ASSIGNMENT)

Teaching Scheme			Marks			Duration of End Semester Examination
L	T	P	Sessional	End Semester Exam	Total	
0	0	1	--	100	100	3 hours

Assignments

Each student should complete **two assignments** covering therapeutics and pharmacy practice concepts and will be evaluated at the time Final Examination


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Hamirpur - 177001

2.3 Pharmacy Practice-III

Teaching Scheme				Marks			Duration of End Semester Examination
L	T	P		Sessional	End Semester Exam	Total	
1	0	0		40	60	100	3 hours

COURSE CONTENT

UNIT	CONTENT	No. of Hrs.
I	<p>Drugs and Poison Information</p> <ul style="list-style-type: none"> a) Introduction to drug information resources available b) Systematic approach in answering DI queries c) Critical evaluation of drug information and literature d) Preparation of written and verbal reports e) Establishing a Drug Information Centre f) Poisons information- organization & information resources g) Drug Information Bulletin <p>Pharmacovigilance</p> <ul style="list-style-type: none"> a) Scope, definition and aims of Pharmacovigilance b) Adverse drug reactions - Classification, mechanism, predisposing factors, causality assessment [different scales used] c) Reporting, evaluation, monitoring, preventing & management of ADRs d) Role of pharmacist in management of ADR. <p>Medication Errors</p> <p>Classification, consequences, prevention, and role of Pharmacist. Dispensing errors, and ways to minimize them.</p>	14
II	<p>Hospital supplies</p> <ul style="list-style-type: none"> a. Surgical items/supplies – catheters, syringes & needles, I.v. sets, Ryle’s tubes b. Study of Wound management, stoma and incontinence products, Surgical dressing like cotton, gauze, bandages and adhesive tapes , sutures, ligatures, 	15


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	<p>c. Patient care equipment – nebulizers, thermometers</p> <p>Medication adherence</p> <p>Consequences on non-adherence, role of pharmacist methods to improve adherence, compliance aids</p> <p>Communication skills – verbal, written, Body language</p> <p>OTC medications</p> <p>Definition, need, and role of Pharmacist. OTC medications in India, counseling for OTC products. Self medication and role of pharmacist in promoting safe selfmedication.</p>	
III	<p>Responding to symptoms/minor ailments</p> <p>Relevant pathophysiology, common non-pharmacological and OTC drug therapy, and referral to doctor – in :Pain, GI disturbances (Nausea, Vomiting, Dyspepsia, diarrhea, constipation), Worm infestations, Pyrexia, Ophthalmic symptoms, URT infections, skin disorders, oral and dental disorders,.</p> <p>Veterinary Pharmacy</p> <p>Introduction and Role of pharmacist in procurement and distribution of veterinary medicines</p>	14

TEXT BOOKS:

1. Hospital pharmacy – Hassan WE. Lec and Febiger publication
2. Text book of hospital pharmacy – Allwood MC and Blackwell
3. A Textbook of Pharmacy Practice – Dr. B. D. Miglani, K. G. Revikumar. Career Publication

REFERENCES BOOKS:

1. Avery's Drug Treatment, 4th Edn, 1997, Adis International Limited
2. Remington Pharmaceutical Sciences
3. Relevant review articles from recent medical and pharmaceutical literature
4. International society for pharmacoepidemiology (<http://www.pharmacoepi.org/>) & International


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 Hamirpur - 177001

2.3 Pharmacy Practice-III (ASSIGNMENT)

Teaching Scheme			Marks			Duration of End Semester Examination
L	T	P	Sessional	End Semester Exam	Total	
0	0	1	--	100	100	3 hours

Assignments

Each student should complete **two assignments** covering therapeutics and pharmacy practice concepts and will be evaluated at the time Final Examination


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Hamirpur - 177001

2.4 Pharmacy Practice-IV

Teaching Scheme				Marks			Duration of End Semester Examination
L	T	P		Sessional	End Semester Exam	Total	
1	0	0		40	60	100	3 hours

COURSE CONTENT

UNIT	CONTENT	No. of Hrs.
I	<p>Health Accessories</p> <p>Study and handling of various common health accessories handled in hospital and community pharmacy. Student should have working knowledge, uses and cautions in using these. (Wheel Chairs, Canes, Crutches, and other orthopedic aids, Bed Pans, Vaporizers, Syringes and Needles, Hot water Bottles, Clinical Thermometers, Trusses, First Aid Supplies, Family Medicine Cabinet, etc.</p> <p>Medical gases – different gases and their use, coding and care of cylinders, delivery of gases to various parts of hospital, domiciliary oxygen services, and role of pharmacist.</p> <p>I.V admixture services and role of Pharmacist</p> <p>Total Parenteral Nutrition – Definition, composition and clinical use of TPN</p>	13
II	<p>5. Clinical Research</p> <p>Introduction to Clinical trials, Various phases of clinical trial. Methods of post marketing Surveillance Abbreviated New Drug Application submission, Good Clinical Practice – ICH, GCP, Central drug standard control organisation (CDSCO) guidelines, Schedule Y. Composition, responsibilities, procedures of IRB / IEC. Role and responsibilities of clinical trial personnel as per ICH GC</p> <ol style="list-style-type: none"> Sponsor Investigators Clinical research associate Auditors 	16


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	<p>e. Contract research coordinators</p> <p>f. Regulatory authority</p> <p>Designing of clinical study documents (protocol, CRF, ICF, PIC with assignment), Informed conse</p> <p>Introduction to Biostatistics Research in pharmacy practice areas.</p> <p>Continuing education for pharmacists</p>	
III	<p>Compounding of Pharmaceuticals in the hospital/community pharmacy. Weights and measures, calculations involving percentage solutions, allegation, proof spirit, Isotonic solutions. Bulk compounding in hospitals, pre-packaging.</p> <p>Manufacturing of Pharmaceutical Formulations in hospital – various aspects, current status</p> <p>Radiopharmaceuticals – Handling and Packaging, clinical usage, and role of pharmacist</p> <p>Applications of IT and computers in pharmacy practice</p> <p>Provision of cytotoxic chemotherapy, and various considerations/handling. Handling of cytotoxic waste and disposal.</p> <p>Pharmaceutical (Medicines and allied products) waste management in hospitals, community pharmacy, and the community and the role of the pharmacist. –</p> <p>Medical Devices & I.V. pumps, Individualised medicines, Gene therapy, Genomics & proteomics, Biochips, biosensors and MEMS micro electro mechanical systems</p>	13

TEXT BOOKS:

1. Basic skills in interpreting laboratory data – Scott LT, American Society of Health System Pharmacists Inc.
2. Practice Standards and Definitions - The Society of Hospital Pharmacists of Australia.1997
3. Clinical Pharmacokinetics - Rowland and Tozer, Williams and Wilkins Publication.

REFERENCE BOOKS:

1. Biopharmaceutics and Applied Pharmacokinetics - Leon Shargel, Prentice Hall Publication
2. Relevant review articles from recent medical and pharmaceutical literature.
3. A Textbook of Clinical Pharmacy Practice - G. Parthasarathi, Karin Nyfort-Hansen, Milap C Nahata. Universities Press India Ltd.
4. Clinical Guidelines: Diagnosis & treatment Manual - MSF



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Hamirpur - 177001

2.4 Pharmacy Practice-IV (ASSIGNMENT)

Teaching Scheme			Marks			Duration of End Semester Examination
L	T	P	Sessional	End Semester Exam	Total	
0	0	1	--	100	100	3 hours

Assignments

Each student should complete **two assignments** covering therapeutics and pharmacy practice concepts and will be evaluated at the time Final Examination


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2.5 Pharmaceutical Jurisprudence

Teaching Scheme				Marks			Duration of End Semester Examination
L	T	P		Sessional	End Semester Exam	Total	
1	0	0		40	60	100	3 hours

COURSE CONTENT

UNIT	CONTENT	No. of Hrs.
I	<p>Drugs and Cosmetics Act-1940 and Rules 1945</p> <ul style="list-style-type: none"> a) Duties & Responsibilities of Drug Inspectors, other officers, and obligations of the pharmacy to them. b) Brief about DTAB, DCC, Drug testing laboratories c) Various drug licences for retail pharmacy, requirements to start a pharmacy/medical store, application forms, issue of licence, display of licences, duration of licences, laws related to stocking, handling and sale of drugs and devices. d) Various schedules under the Act & Rule – study in brief –those relevant to pharmacy practice e) Labelling requirements of drugs – various aspects f) Spurious, misbranded, adulterated, counterfeit drugs – various aspects related to this, how to recognize, role of the pharmacist g) Import of drugs for personal use h) Various documents to be maintained under the Act & Rules by a pharmacy i) Storage requirements, handling expired goods j) Various punishments under the Act k) Practical study of Prescription and non-prescription drugs, market samples, examine for labeling, etc l) Laws relating to various traditional systems/ medicines approved in India m) Banning of drugs 	15
II	A brief review of Pharmaceutical legislations.	


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	<p>A Study of various pharmaceutical and related legislations with more emphasis on aspects relevant to community & hospital pharmacy practice in India. Study the aspects only from practical angle, with examples, case studies, etc.</p> <p>Pharmacy Act – 1948</p> <p>Medicinal and Toilet Preparation Act-1955</p> <p>Narcotic Drugs and Psychotropic Substances Act – 1985</p>	12
III	<p>Drugs and Magic Remedies (Objectionable Advertisements) Act and Rules, 1954,</p> <p>Essential commodities act</p> <p>Drugs Prices Control Order</p> <p>Prevention of Cruelty to Animals Act, 1960</p> <p>Consumer Protection Act , 1986</p> <p>Prevention of Food Adulteration Act & Rules, laws relating to Dietary Supplements, Food supplements, etc</p> <p>The Infant Milk Substitutes, Feeding Bottles and Infant Foods (Regulation of Production, Supply and Distribution) Amendment Act, 2003</p>	13

TEXT BOOKS

Mithal , B M. Textbook of Forensic Pharmacy. Calcutta :National; 1988.

REFERENCE BOOKS

- a. Singh, KK, editor. Beotra's the Laws of Drugs, Medicines & cosmetics. Allahabad: Law Book House; 1984.
- b. Jain, NK. A Textbook of forensic pharmacy. Delhi: Vallabh prakashan ; 1995.
- c. Reports of the Pharmaceutical enquiry Committee
- d. I.D.M.A., Mumbai. DPCO 1995
- e. Various reports of Amendments.
- f. Deshapande, S.W. The drugs and magic remedies act 1954 and rules 1955. Mumbai: Susmit Publications; 1998.
- g. Eastern Book Company .The narcotic and psychotropic substances act 1985, Lucknow: Eastern; 1987.


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2.5 Pharmaceutical Jurisprudence (ASSIGNMENT)

Teaching Scheme			Marks			Duration of End Semester Examination
L	T	P	Sessional	End Semester Exam	Total	
0	0	1	--	100	100	3 hours

Assignments

Each student should complete **two assignments** covering therapeutics and pharmacy practice concepts and will be evaluated at the time Final Examination



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Hamirpur - 177001

2.6 Social Pharmacy-II

Teaching Scheme				Marks			Duration of End Semester Examination
L	T	P		Sessional	End Semester Exam	Total	
1	0	0		40	60	100	3 hours

COURSE CONTENT

UNIT	CONTENT	No. of Hrs.
I	<p>A. Preventive care:</p> <ol style="list-style-type: none"> 1. Vaccines, and immunizations – and Role of Pharmacist 2. Role of Pharmacist in Demography & Family Planning 3. Mother and child health, importance of breastfeeding, ill effects of formula foods and bottle feeding, and role of Pharmacist 4. Geriatrics and role of Pharmacist 5. Effect of Environment on Health & Role of Pharmacist – Water pollution, safe supply of water, 6. Occupational diseases/illnesses and Role of Pharmacist 7. Mental Health and role of Pharmacist 	14
II	<p>B. Nutrition and health : 20 Hr</p> <ol style="list-style-type: none"> 1. Basics of nutrition – Macronutrients and Micronutrients, fibre – importance, sources (Plant and animal origin), 2. Calorific and nutritive values of various foods 3. Daily/recommended dietary allowance and functions of each. Balanced diets – for various individual groups. Nutrition deficiency diseases 4. Food as a medicine. Brief study of various concepts of Naturopathy. 5. Nutrition as per Ayurveda – Ayurvedic outlook to diets – as per prakruti, seasons, seasonal availability of foods, etc. Prakruti study in brief. 	14


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 Hamirpur - 177001

	<p>6. Wrong/improper foods and food habits, causes of various disease conditions, ill effects of wrong foods/fast foods, timed foods, etc – Western foods as well as Indian foods – reasons for wrong effects on body.</p> <p>7. Basics of genetically modified foods – advantages, disadvantages</p> <p>8. Effects of environment on foods, artificial ripening, hybridization, use of pesticides, adulteration, etc.</p> <p>9.</p>	
III	<p>Psychosocial Pharmacy : Drugs of misuse and abuse – psychotropic and narcotics, and other pharmaceuticals and chemicals, tobacco and tobacco products, alcohol. Social & psychosocial impact of these, role of pharmacist in reducing, preventing the menace. Tobacco cessation and role of pharmacist</p> <p>Palliative/terminal care and role of pharmacist in handling psychosocial issues</p> <p>Care for disabled and role of pharmacist in handling psychosocial issues</p> <p>Early intervention in hereditary diaseses, screening tests</p> <p>Nutrition/dietary recommendation for different disease conditions – e.g. diabetes, blood pressure, Hyperlipidemia, arthritis, renal disease, liver disease, allergies, etc.</p> <p>Artificial sweeteners, zero calorie concept, glycemic index of foods</p> <p>Dietary supplements, nutraceuticals, food supplements – legal standing, indications, rational use, benefits, ADRs, Drug Interactions, pharmacoconomics.</p> <p>First Aid services in community pharmacy</p>	12

TEXT BOOKS:

1. Social Pharmacy – Innovation and development ed. Geoff Harding, Sarah Nettleton and Kevin Taylor. The Pharmaceutical Press.
2. Text Book of Community Pharmacy Practice. RPSGB Publication
3. Text Books: a. Health Education and Community Pharmacy by N.S.Parmar.

REFERENCE BOOKS

1. WHO consultative group report. c. Drug store & Business management by Mohammed Ali & Jyoti.
2. Handbook of pharmacy – health care. Edt. Robin J Harman. The Pharmaceutical press.
3. Comprehensive Pharmacy Review – Edt. Leon Shargel. Lippincott Williams & Wilkins.



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Hamirpur - 177001

2.6 Social Pharmacy-II (ASSIGNMENT)

Teaching Scheme			Marks			Duration of End Semester Examination
L	T	P	Sessional	End Semester Exam	Total	
0	0	1	--	100	100	3 hours

Assignments

Each student should complete **two assignments** covering therapeutics and pharmacy practice concepts and will be evaluated at the time Final Examination


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H.P. Technical University
Hamirpur - 177001

OTHER RECOMMENDED BOOKS

1. Clinical Pharmacy and Therapeutics - Roger and Walker, Churchill Livingstone publication
2. Pharmacotherapy: A Pathophysiologic approach - Joseph T. Dipiro et al. Appleton & Lange
3. Clinical Pharmacy and Therapeutics - Eric T. Herfindal, Williams and Wilkins Publication
4. Applied Therapeutics: The clinical Use of Drugs. Lloyd Young and Koda-Kimble MA]
5. Text Book of Hospital Pharmacy by Quadry and Merchant.
6. Text Book of Clinical Pharmacy Practice. Edt. G.Parthasarathi, Karin nyfort Hansen and Milap.C.Nahata. Orient Longman Publications.
7. Text Book of Community Pharmacy Practice. RPSGB Publication.
8. Community Pharmacy Handbook- Jonathan Waterfield
9. Community Pharmacy:Symptoms,Diagnosis and treatment: Paul Rutter
10. Minor illness in Major diseases-the clinical manifestation in the community: Paul Stillman
11. Sociology for Pharmacist: Tayler,Nettleton,Harding
12. Pharmacy Practice: Tayler,Harding
13. Social Pharmacy: Tayler,Geoffery
14. Stockley's Drugs Interaction:Karen baxter
15. Cooper and Gunn :Dispensing for pharmacy students.
16. A text book Professional Pharmacy by N.K.Jain and S.N.Sharma.
17. Introduction to Pharmaceutical dosage forms by Howard C. Ansel.
18. Remington's Pharmaceutical Sciences
19. D.M. Brahmkar and Sunil B Jaiswal. Text Book of Biopharmaceutics and Pharmacokinetics – A treatise. Vallabh Prakashan. Delhi.
20. Biopharmaceutics by Swarbrik
21. Bio pharmaceutics and Clinical Pharmacokinetics by Milo Gibaldi.
22. Mithal , B M. Textbook of Forensic Pharmacy. Calcutta :National; 1988.
23. Singh, KK, editor. Beotra's the Laws of Drugs, Medicines & cosmetics. Allahabad: Law Book House; 1984.
24. Jain, NK. A Textbook of forensic pharmacy. Delhi: Vallabh prakashan ; 1995.
25. Reports of the Pharmaceutical enquiry Committee
26. I.D.M.A., Mumbai. DPCO 1995
27. Various reports of Amendments.



28. Deshapande, S.W. The drugs and magic remedies act 1954 and rules 1955. Mumbai: Susmit Publications; 1998.

29. Eastern Book Company .The narcotic and psychotropic substances act 1985, Lucknow: Eastern; 1987.

30. Drug Information about Commonly used Drugs: P.P.Sharma,R.Singh



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