

CHHATTISGARH SWAMI VIVEKANAND TECHNICAL UNIVERSITY, BHILAI (C.G.)

Year: 1st

Subject Code: 3121111(041)

Subject: Pathophysiology and Pharmacotherapeutics-I

Branch/Discipline: Pharmacy

Scope:

Practicing pharmacists will have opportunity to review the case notes or prescriptions in their practice setting and able to identify and resolve the drug related problems. This will ensure the improved patient care and decreases the unnecessary health care expenditure.

Objectives:

Upon completion of the course, the student will be able to

- (a) Understand the anatomy and physiology of the respective system
- (b) Understand the disease process
- (c) Know the signs and symptoms of the disease.
- (d) Appreciate the various therapeutic regimens with their advantages and disadvantages.

Course duration:

Learning

40 hours of learning by blended mode of teaching. Blended teaching includes didactic and onsitelarning.

Case Presentations

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

Assignments

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

Detailed Syllabus and Lecture Schedules

1. Introduction to pathophysiology and therapeutics – scope and objectives - 1 hr
2. Prescribing guidelines (Drug and dosage selection and dose calculation) for - 4 hrs
 - a) Pediatrics
 - b) Geriatrics
 - c) Pregnant and breast feeding women
 - d) Renally and hepatically challenged patients
3. Elements of anatomy, etiopathogenesis, diagnostic techniques, clinical manifestations and pharmacotherapeutics of diseases associated with Cardiovascular System - 15 hrs
 - (a) Hypertension
 - (b) Ischemic Heart diseases (Angina and Myocardial Infarction)
 - (c) Hyperlipidemia
 - (d) Congestive Heart Failure
 - (e) Arrhythmias

4. Elements of anatomy, Etiopathogenesis, diagnostic techniques, clinical manifestations and pharmacotherapeutics of diseases associated with Respiratory System - 12 hrs

- (a) Asthma
- (b) COPD
- (c) Drug induced pulmonary diseases

5. Elements of anatomy Etiopathogenesis, diagnostic techniques, clinical manifestations and pharmacotherapeutics of diseases associated with Endocrine System - 8 hrs

- (a) Diabetes.
- (b) Thyroid diseases

Books/References:

Suggested Assignments:

CHHATTISGARH SWAMI VIVEKANAND TECHNICAL UNIVERSITY, BHILAI (C.G.)

Year: 1st

Subject Code: 3121112(041)

Subject: Pathophysiology and Pharmacotherapeutics-II

Branch/Discipline: Pharmacy

Scope:

Practicing pharmacists will have the opportunity to review the case notes or prescriptions in their practice setting and able to identify and resolve the drug related problems. This will ensure the improved patient care and decreases the unnecessary health care expenditure.

Objectives:

Upon completion of the course, the student will be able to

- (a) Understand the anatomy and physiology of respective system
- (b) Understand the disease process
- (c) Know the signs and symptoms of the disease.
- (d) Appreciate the various therapeutic regimens with their advantages and disadvantages.

Course duration:

Learning

40 hours of learning by blending method.

Blended mode of education and includes didactic and onsite learning.

Case Presentations

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

Assignments

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

Detailed Syllabus and Lecture Schedules

1. Elements of anatomy, Etiopathogenesis, diagnostic techniques, clinical manifestations and pharmacotherapeutics of diseases associated with CNS

- (a) Anxiety
- (b) Depression
- (c) Schizophrenia,
- (d) Manic depressive disorders
- (e) Epilepsy,
- (f) Parkinson's disease,
- (g) Headaches

2. Elements of anatomy, Etiopathogenesis, diagnostic techniques, clinical manifestations and pharmacotherapeutics of diseases associated with GI Disorders - 10

- (a) Dyspepsia,
- (b) Acid Pepsin Disease,
- (c) Inflammatory Bowel Disease.
- (d) Liver disorders- Hepatitis, Gall stones, Alcoholic Liver Disease.

3. Elements of anatomy, etiopathogenesis, clinical manifestations and pharmacotherapeutics of diseases associated with hematological System - 8

- (a) Erythropoietic system – Over view, Iron deficiency anemia, Megaloblastic anemia, Sideroblastic anemia, Hemolytic anemia, Venous Thromboembolism, Arterial Thromboembolism, Drug induced blood disorders.

Books and references

Suggested topics for assignment

CHHATTISGARH SWAMI VIVEKANAND TECHNICAL UNIVERSITY, BHILAI (C.G.)

Year: 1st

Subject Code: 3121113(041)

Subject: Pharmacy Practice-I

Branch/Discipline: Pharmacy

Scope:

Practicing pharmacists have opportunity to provide various patient care services to improve the patient's health in community settings through counselling, health screening services, and other education programs. In hospital settings, pharmacists can ensure appropriate dispensing, education to patient, and provide all hospital pharmacy services including clinical pharmacy services such as drug information and ADR reporting.

Objectives:

Upon completion of the course, the student will be able to

- (a) Understand the professional roles of pharmacists in community, hospital and clinical pharmacy areas.
- (b) Understand the professional responsibilities of the pharmacists.
- (c) Provide the intended services.

Course duration:

Learning

40 hours of learning by blending method. Blending method includes didactic and onsite learning.

Assignments

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

Detailed Syllabus and Lecture Schedules

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|---|---|---------------|
| 1. Introduction to Pharmacy Practice – Definition, patient focused approach, scope/areas of practice | - | 1 hour |
| 2. Introduction to Clinical Pharmacy | - | 3Hrs |
| a) Definition, Scope, Objectives of Clinical Pharmacy Practice | | |
| b) International v/s National scenario | | |
| c) Professional responsibilities of Clinical Pharmacists. | | |
| 3. Clinical Pharmacy daily activities | - | 6 hrs |
| a) Definition, objectives and procedures of | | |
| 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 | | |

b) Patient Data analysis - **02 hours**
Patient case history, drug therapy evaluation, identification and resolving of drug related problems.

4. Practice Management : - **08 hrs**

- 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.
- d. Concept of Accreditation of Pharmacies
- e. Validation concepts & instruments for community pharmacy and hospital pharmacy
- f. Concept of Audits in community and hospital pharmacy

5. Hospital and Hospital Pharmacy Organisation - **6 Hrs**

- a) Definition of Hospital, Hospital Pharmacy, Organizational Structure of Hospital, 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

6. Drug Committees - **4 Hrs**

Pharmacy and Therapeutics Committee, Hospital Formulary, Infection Control committee, Institutional Review Board.

7. Community Pharmacy - **8 hrs**

- a) Definition, scope and professional responsibilities of community pharmacist.
- 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

8. Community Pharmacy Management - **4 hrs**

Selection of site, legal requirements, procurement, storage, and inventory control, product display, finance management.

Books and references
Suggested assignment topics

CHHATTISGARH SWAMI VIVEKANAND TECHNICAL UNIVERSITY, BHILAI (C.G.)

Year- 1st

Subject Code: 3121114(041)

Subject: Pharmacy Practice-II

Branch/Discipline: Pharmacy

Scope:

Practicing pharmacists have opportunity to provide various patient care services to improve the patient's health in community settings through counseling, health screening services, and other education programs. In hospital settings, pharmacists can ensure appropriate dispensing, education to patient, and provide all hospital pharmacy services including clinical pharmacy services such as drug information and ADR reporting

Objectives:

Upon completion of the course, the student will be able to

- Understand the professional roles of pharmacists in community, hospital and clinical pharmacy areas.
- Understand the professional responsibilities of the pharmacists.
- Provide the intended services.

Course duration:

Learning

40 hours of learning by blending method.

Blended teaching includes didactic and onsite learning.

Assignments

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

Detailed syllabus and lecture wise teaching schedules

- Hospital Pharmacy Stores Management** - 04 hours
Stores Management, Drug Purchase and Procurement, Inventory Control and GPP. Management of Material and Finance.
- Drug Dispensing and Drug Distribution** - 8 hours
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.
- Central Sterile Supply Services** - 2 hours
- Prescription and prescription handling** - 5 hours
 - 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 and 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

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|--|---|-----------------|
| 5. Pharmaceutical Care | - | 02 hours |
| Definition, principles and procedures of pharmaceutical care | | |
| 6. Patient Counseling | - | 04 hours |
| Definition, various stages of patient counseling, barriers in counseling and strategies to overcome barriers in patient counseling. Patient information leaflets- definition, layout and design of PILs. | | |
| 7. Health Screening Services | - | 04 hours |
| Definition, scope, and uses of health screening services, procedures involved in screening blood pressure, capillary blood glucose, body mass index | | |
| 8. Interpretation of laboratory data | - | 10 hours |
| <ul style="list-style-type: none"> a) Haematological, Liver function, Renal function, thyroid function tests b) Tests associated with cardiac disorders c) Fluid and electrolyte balance d) Microbiological culture sensitivity tests e) Pulmonary Function Tests | | |

Books and references

Suggested assignment topics

CHHATTISGARH SWAMI VIVEKANAND TECHNICAL UNIVERSITY, BHILAI (C.G.)

Year: 1st

Subject Code: 3121115(041)

Subject: Applied Pharmaceutics

Branch/Discipline: Pharmacy

Scope:

This course is designed to impart a fundamental knowledge on different dosage forms and pharmacokinetic changes in the body. It helps the student to understand the basic concepts regarding, absorption, distribution, metabolism and excretion.

Objectives

Upon completion of the course, the student shall be able to—

- Understand the formulation principles of various dosage forms
- Understand the basic principles of stability, storage and administration of various dosage forms
- Learn about novel drug delivery systems
- Understand various pharmacokinetic pathways and optimize the drug therapy.
- Understand Pro Drugs concept.

Course duration:

Learning

40 hours of learning by blended teaching. Blending teaching includes didactic and onsite learning.

Assignments

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

Text Books

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

Reference Books

- Introduction to Pharmaceutical dosage forms by Howard C. Ansel.
- Remington's Pharmaceutical Sciences

Lecture wise program and detailed syllabus

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|--|---|--------|
| 1. Introduction to Pharmaceutical Dosage Forms | - | 1 hr |
| 2. Basics of GMP, GLP, QA, QC | - | 1 hr |
| 3. Study the following about all dosage forms : | - | 15 hrs |
| a. Need, advantage, disadvantages | | |
| b. Brief of various ingredients used and need for these, basic properties of inactives. Basic overview of manufacturing without going into details. | | |
| c. Storage, packaging requirements | | |
| d. Possible stability and defects issues | | |
| e. Proper use, special precautions while using, instructions to patients | | |
| f. Bioavailability/biopharmaceutics aspects | | |
| 4. Introduction to Novel drug delivery systems, instructions to be given to patients – Transdermal, infusion pumps, genetically engineered medicines, etc. | - | 6 hrs |
| 5. Introduction to Bio-Pharmaceutics | - | 1 hr |
| 6. Absorption of drugs | - | 3 hrs |
| a) Introduction to absorption, structure and physiology of cell membrane | | |
| b) Factors affecting drug absorption, Absorption of drugs from extra vascular routes. | | |

7. Distribution of Drugs	-	2 hrs
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.		
8. Biotransformation of drugs	-	3 hrs
a) Drug metabolizing organs and Enzymes		
b) Phase I reactions, Phase II reactions		
c) Factors affecting biotransformation of the drugs		
9. Excretion of drugs	-	1 hour
Renal excretion of drugs, Factors affecting the renal filtration, Non renal routes of drug excretion		
10. Prodrugs	-	1 hour
a) Definition and applications of prodrugs		
11. Bioavailability and Bioequivalence	-	4 hours
a) Definition of bioavailability and bioequivalence		
b) Factors affecting bioavailability.		
c) Importance of BA, BE, BA Classification system, NTI drugs, care to be taken in prescribing and dispensing of such drugs		

Assignments

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

CHHATTISGARH SWAMI VIVEKANAND TECHNICAL UNIVERSITY, BHILAI (C.G.)

Year: 1st

Subject Code: 3121116(041)

Subject: Social Pharmacy-I

Branch/Discipline: Pharmacy

Scope:

Practicing pharmacists have opportunity to provide various patient care services to improve the patient's health in the society. By monitoring the health of the individuals, providing them education about health, precautions, and pharmacists can improve their professional image.

Objectives:

Upon completion of the course, the student will be able to

- Understand the social responsibility of the pharmacists in the society
- Understand the health policies
- Provide health care services to patients.

Course duration:

Learning

40 hours of learning by blending method. Blending method includes didactic and onsite learning.

Assignments

Each student should complete **two assignments** covering therapeutics and pharmacy practice concepts

Detailed syllabus and topics

1. Introduction to Social Pharmacy --

- 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 - 1 hr
- WHO Definition of health – various dimensions of health - 1 hr
- 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.- 5 hrs

2. Drugs, Industry & Policies

- 7 hrs

- Drugs and developed countries, developing countries, GATT, patents, Patents Act.
- Pharmaceutical Industry and its activities, Classification systems of drugs, Social marketing – brief study of organizations and functioning like Medicines Sans Frontiers
- Concept of RUM, WHO Essential Medicines, Irrational medicine use and its associated problems, etc., Evidence based medicine, STGs (Standard Treatment Guidelines)
- National Drug Policy, National Health Policy, Pharmacy & Drug Ethics –

3. Pharmacoeconomics – Definition, types of pharmacoeconomic models, consumption of drugs, pharmaceutical pricing and reimbursement, Health Insurance

- 3 hrs

4. Pharmacoepidemiology – Definition, scope, advantages and disadvantages.

- 3

hrs

5. Health Promotion and Health education

- 20

hrs

- Epidemiology of Communicable Diseases : Causative agents and Clinical presentations and Role of Pharmacist in prevention of communicable diseases :
 - Respiratory infections – chickenpox, measles, rubella, mumps, influenza (including Avian-Flu, H1N1), diphtheria, whooping cough, meningococcal meningitis, acute respiratory infections, tuberculosis

- (ii) Intestinal infections – poliomyelitis, viral hepatitis, cholera, acute diarrhoeal diseases, typhoid, food poisoning, amebiasis, worm infestations
- (iii) Arthropod-borne infections - dengue, malaria, filariasis and, chikungunya
- (iv) Zoonoses – rabies, yellow fever, Japanese encephalitis, plague, human salmonellosis, rickettsial diseases, taeniasis, hydatid disease, leishmaniasis
- (v) Surface infections – trachoma, tetanus, leprosy, STDs, HIV/AIDS
- (vi) Emerging and reemerging infectious diseases.

Text books (Theory)

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.**