



SILVER OAK UNIVERSITY

Silver college of Pharmacy (067)

Programme Name: D.Pharm (18)

Subject Name: Hospital & Clinical Pharmacy

Subject Code: 1180672205

Year: II

Prerequisite:

This course is designed to impart fundamental knowledge and professional skills required for facilitating various hospital and clinical pharmacy services.

Course Objectives: This course will discuss and train the students in the following

1. Hospital and Hospital Pharmacy organization and set-ups
2. Basics of hospital pharmacy services including the procurement, supply chain, storage of medicines and medical supplies
3. Basics of clinical pharmacy including introduction to comprehensive pharmaceutical care services
4. Basic interpretations of common laboratory results used in clinical diagnosis towards optimizing the drug therapy

Teaching and Examination Scheme:

Teaching Scheme				
L	T	P	Contact Hours	Credit
4	1	1	6	6

Content:

Unit No.	Contents	Teaching Hours	Weightage %
1	Hospital Pharmacy Definition, scope, national and international scenario Organisational structure Professional responsibilities, Qualification and experience requirements, job specifications, work load requirements and inter professional relationships Good Pharmacy Practice (GPP) in hospital Hospital Pharmacy Standards (FIP Basel Statements, AHSP) Introduction to NABH Accreditation and Role of Pharmacists	06 Hrs	08%
2	Different Committees in the Hospital	04 Hrs	05%

	<p>Pharmacy and Therapeutics Committee - Objectives, Composition and functions</p> <p>Hospital Formulary- Definition, procedure for development and use of hospital formulary</p> <p>Infection Control Committee – Role of Pharmacist in preventing Antimicrobial Resistance</p>		
3	<p>Supply Chain and Inventory Control</p> <p>Preparation of Drug lists - High Risk drugs, Emergency drugs, Schedule H1 drugs, NDPS drugs, reserved antibiotics</p> <p>Procedures of Drug Purchases – Drug selection, short• term, long term and tender/e-tender process, quotations, etc.</p> <p>Inventory control techniques: Economic Order Quantity, Reorder Quantity Level, Inventory Turnover etc.</p> <p>Inventory Management of Central Drug Store Storage• conditions, Methods of storage, Distribution, Maintaining Cold Chain, Devices used for cold storage (Refrigerator, ILR, Walk-in-Cold rooms)</p> <p>FEFO, FIFO methods</p> <p>Expiry drug removal and their disposal methods e.g.,Narcotics</p> <p>Documentation - purchase and inventory</p>	14 Hrs	19%
4	<p>Drug distribution</p> <p>Drug distribution (in- patients and out - patients) – Definition, advantages and disadvantages of individual prescription order method, Floor Stock Method, Unit Dose Drug Distribution Method, Drug Basket Method.</p> <p>Distribution of drugs to ICCU/ICU/NICU/Emergency wards.</p> <p>Automated drug dispensing systems and devices</p> <p>Distribution of Narcotic and Psychotropic substances and their storage</p>	07 Hrs	09%
5	<p>Compounding in Hospitals. Bulk compounding, IV admixture services and incompatibilities, Total parenteral nutrition</p>	04 Hrs	05%
6	<p>Radio Pharmaceuticals</p> <p>Storage, dispensing and disposal of radiopharmaceuticals</p>	02 Hr	03%
7	<p>Application of computers in Hospital Pharmacy Practice, Electronic health records, Softwares used in hospital pharmacy</p>	02 Hr	03%
8	<p>Clinical Pharmacy: Definition, scope, and development - in India and other countries Technical definitions, common terminologies used in clinical settings and their significance such as Paediatrics, Geriatric, Anti-natal Care, Post-natal Care, etc</p> <p>Daily activities of clinical pharmacists: Definition, goal, and procedure of</p> <p>Ward round participation</p>	12 Hr	16%

	Treatment Chart Review Adverse drug reaction monitoring Drug information and poisons information Medication history Patient counselling Interprofessional collaboration Pharmaceutical care: Definition, classification of drug related problems. Principles and procedure to provide pharmaceutical care Medication Therapy Management, Home Medication Review		
9	Clinical laboratory tests used in the evaluation of disease states - significance and interpretation of test results Haematological, Liver function, Renal function, thyroid function tests Tests associated with cardiac disorders Fluid and electrolyte balance Pulmonary Function Tests	10 Hr	13%
10	Poisoning: Types of poisoning: Clinical manifestations and Antidotes Drugs and Poison Information Centre and their services: Definition, Requirements, Information resources with examples, and their advantages and disadvantage	06 Hr	08%
11	Pharmacovigilance Definition, aim and scope Overview of Pharmacovigilance	02 Hr	03%
12	Medication errors: Definition, types, consequences, and strategies to minimize medication errors, LASA drugs and Tallman lettering as per ISMP Drug Interactions: Definition, types, clinical significance of drug interactions	06 Hr	08%
	Total	75 Hrs	100%

Course Outcome:

Sr. No.	CO statement
CO-1	Explain about the basic concepts of hospital pharmacy administration
CO-2	Manage the supply chain and distribution of medicines within the hospital settings
CO-3	Assist the other healthcare providers in monitoring drug therapy and address drug related problems
CO-4	Interpret common lab investigation reports for optimizing drug therapy

Teaching & Learning Methodology: -

The various methods or tools follows by the faculties to teach the above subject are:

1. Student centered learning
2. Experimental learning

Scope: This course is designed to train the students to assist other healthcare providers in the basic services of hospital and clinical pharmacy.

Course Objectives: This course will train the students with hands-on experiences, simulated clinical case studies in the following

1. Methods to systematically approach and respond to drug information queries
2. How to interpret the common laboratory reports to understand the need for optimizing the dosage regimen
3. How to report the suspected adverse drug reactions to the concerned authorities
4. Uses and methods of handling various medical/surgical aids and devices
5. How to interpret the drug-drug interactions in the treatment of common diseases.

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

1. Professionally handle and answer the drug information queries
2. Interpret the common laboratory reports
3. Report suspected adverse drug reactions ing standard procedures
4. Understand the uses and methods of handling various medical/surgical aids and devices
5. Interpret and report the drug-drug interactions in common diseases for optimizing the drug therapy

Note: Few of the experiments of Hospital and Clinical Pharmacy practical course listed here require adequate numbers of desktop computers with internet connectivity, adequate drug information resources including reference books, different types of surgical dressings and other medical devices and accessories. Various charts, models, exhibits pertaining to the experiments shall also be displayed in the laboratory.

Practicals

1. Systematic approach to drug information queries using primary / secondary / tertiary resources of information (2 cases)
2. Interpretation of laboratory reports to optimize the drug therapy in a given clinical case (2 cases)
3. Filling up IPC's ADR Reporting Form and perform causality assessments using various scales (2 cases)
4. Demonstration / simulated / hands-on experience on the identification, types, use / application /administration of
Orthopaedic and Surgical Aids such as knee cap, LS belts, abdominal belt,walker, walking sticks, etc.

Different types of bandages such as sterile gauze, cotton, crepe bandages, etc.
Needles, syringes, catheters, IV set, urine bag, RYLE's tube, urine pots, colostomy bags, oxygen masks, etc.

5. Case studies on drug-drug interactions (any 2 cases)
6. Wound dressing (simulated cases and role play – any 2 cases)
7. Vaccination and injection techniques (IV, IM, SC) using mannequins (5 activities)

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

1. Typical profile of a drug to be included in the hospital formulary
2. Brief layout and various services of the Central Sterile Supplies Department (CSSD)
3. Various types of sterilizers and sterilization techniques used in hospitals
4. Fumigation and pesticide control in hospitals
5. Genesis and development of Drug / Poison Information centres in India
6. Role of Pharmacists in Transition of Care: Discharge cards, post hospitalization care, medicine reconciliation activities in developed countries
7. Total parenteral nutrition and IV admixtures and their compatibility issues
8. Concept of electronic health records
9. Invasive and Non-invasive diagnostic tests - HRCT, MRI, Sonography, 2DECHO, X-rays, Mammography, ECG, EMG
10. Diagnostic Kits - Pregnancy Test
11. Measures to be taken in hospitals, ICUs to minimize the Antimicrobial Resistance
12. Antimicrobial Stewardship Program

Field Visit

The students shall be taken in groups to visit a Govt / private healthcare facility to understand and witness the various hospital and clinical pharmacy services provided. Individual reports from each student on their learning experience from the field visit shall be submitted

Books Recommended: - (minimum 3 books)

1. H.C. Ansel et al., Pharmaceutical Dosage Form and Drug Delivery System, Lippincott Williams and Walkins, New Delhi.
2. Remington's Pharmaceutical Sciences.
3. The Extra Pharmacopoeia-Martindale.
4. Mehta RM. Pharmaceutics I. Delhi: Vallabh Prakashan
5. Practical manual for pharmaceutical dosage forms by Munira M. Momin
6. United States Pharmacopoeia (USP)
7. Subrahmanyam CVS. Textbook of physical pharmaceutics. 2nd ed. Delhi: Vallabh Prakashan

List of Open Source Software/learning website:

- <http://silveroakuni.ac.in/video-lecture>
- <https://nptel.ac.in/>
- <https://nptel.ac.in/courses/112/105/112105124/>