Solapur University, Solapur

Syllabus for PhD (Pharmacy) Course Work

1. Research Methodology & Information Communication Technology
2. Recent Trends in Pharmaceutical Sciences
3. Modern Topics in Pharmaceutical Science
4. Advance Developments in Pharmaceutical Science

2. Recent Trends in Pharmaceutical Sciences

Drug Discovery and Development: Pre-discovery, Drug Discovery, Early Safety Tests, Preclinical Testing, Investigational New Drug (IND) Application and Safety, Clinical Trial, New Drug Application (NDA) and Approval, Manufacturing, Ongoing Studies and Phase 4 Trials

Analytical methods for bulk drug substances, as well as drugs in pharmaceutical dosage forms and biological fluids, and methods and procedures for assuring that quality is designed into pharmaceutical products.

Basic principles and pharmaceutical applications:
UV-Visible Spectroscopy
IR Spectroscopy
HPLC Chromatography
ELISA

Drug Regulatory bodies

Pharmacological Screening and Assays: General principles of screening, correlations between various animal models and human situations, animal ethics.

GMP: Guidelines- Building and Facilities, Equipment, Personnel, Raw Materials, Production, Laboratory Controls, Records, Labeling, Complaints, Other.

3. Modern Topics in Pharmaceutical Science

Biopharmaceutics:- Introduction, drug transport and absorption, biopharmaceutic principles.

Novel Drug Delivery Systems: Microencapsulation, oral controlled release tablets, intravenous fat emulsions, transdermal patch devices.

Basic Pharmacokinetics: Pharmacokinetics-Introduction, one compartment model, multicompartment model nonlinear pharmacokinetics, Non compartment model.

Bioavailability & Bioequivalence: Definitions, bioavailability and bioequivalence, relative and absolute bioavailability bioequivalence studies for solid oral drug product, bioequivalence issues, drug production selection.

Product Development: New chemical entity, product line extension, combination products

Packaging of the Pharmaceutical Product

4. Advance Developments in Pharmaceutical Science

Clinical Trials: Types, design, protocol, Phases viz., Phase 0, Phase I, Phase II, Phase III, Phase IV, Phase V, safety, ethical conduct.

Developing Therapeutic Guidelines: Independence and conflicts of interest, Choosing the topics, Expert group, Management, Planning meeting, Formulating and revising the guidelines, Basis of recommendations, Endorsement, Postpublication evaluation.

Adverse Drug Reaction Reporting: Introduction, definition, types, recognition, surveillance program reporting to FDA.

Drug Interaction: Introduction, pharmacokinetic interactions, pharmacodynamic interactions, clinical significance and management of drug interactions.

Drug Information Resources: Definition, drug information resources, internet, strategies for evaluating information request, search strategy, evaluating the clinical study, general guidelines for responses to drug information request.

Rational Drug Use & Essential Drug Concept: Importance, role of pharmacists – drug procurement, inventory control, information & education, pharmaceutical care. Investing drug use in drug facilities, national drug policy of India, guidelines for rational prescribing, rational use of antibiotics and rational use of common OPC drugs over the counter.

References

1. Novel Drug Delivery System by Yie W. Chien.
2. Controlled Drug Deliver by Joseph R. Robinson and Vincent H. L. Lee.
3. Controlled and Novel drug delivery systems by N. K. Jain.
4. Targeted and Controlled Drug Delivery (Novel carrier systems) by S. P. Vyas
and Khar.
5. Modern Pharmaceutics by Gilbert S. Banker and Christopher T. Rhodes.
6. Controlled Drug Deliver by N.K Jain.
7. Remington's Pharmaceutical Sciences –Latest Edition
8. Comprehensive Pharmacy Review by Leon Shargel and others–Latest Edition