



Gandaki University
Mustang Chowk, Pokhara

Syllabus for Assistant Professor/Lecturer- Pharmaceutics/Industrial Pharmacy/Pharmaceutical Engineering

- 1. The knowledge of the related subject matters which are generally included in the concerned Bachelor and Master level courses**
 - a. Fundamentals of Pharmaceutics (Drugs, Dosage form, Drug discovery, Drug manufacturing)
 - b. Physiochemical phenomena, Micrometrics, Disperse system, Rheology, Drug stability
 - c. Dosage form design and manufacture (Solid and semi-solid dosage, Solution, Gases and Colloidal dosages form, Parenteral, Topical formulations), Pharmaceutical excipients and Polymers, Radiopharmaceuticals, Sterile products and Sterilization, Cosmetics and Cosmeceutical products
 - d. Pharmaceutical Processing (Mixing, Milling, Drying, Compression, Filtration), Packaging, Evaluation and regulations, Industrial hazards, plant safety and Safety guidelines
 - e. Principles of Biopharmaceutics and Pharmacokinetics (ADME, Reaction rate and order, Pharmacokinetics models, Applications of Pharmacokinetics to clinical situations, Bioavailability and Bioequivalence)
 - f. Sustained and controlled drug delivery systems, Microencapsulation, Topical and Transdermal drug delivery systems, Novel drug delivery systems, Targeted drug delivery systems
 - g. Pharmaceutical preformulation, Pilot plant scaleup and technology transfer in pharmaceutical industry, Pharmaceutical plant: Premises, Utilities and services, Production management and sales
 - h. Pharmaceutical unit operations and processes, Heat transfer, Flow of fluids, Solid-liquid extraction, Crystallization, Bioprocessing, Pharmaceutical Process development and scaleup techniques, Overall applications of pharmaceutical unit operations

- 2. Basic Knowledge on the recent trend in Pharmaceutics, Industrial Pharmacy and Drug delivery system; National and International regulatory affairs; Pharmaceutical research and publication**
 - a. Pharmaceutical Biotechnology, Vaccine delivery system (COVID-19 vaccine development process)
 - b. Pharmaceutical nanotechnology and nanomedicine (Liposomes, Noisome, monoclonal antibodies)
 - c. National and International regulatory affairs
 - d. Introduction to pharmaceutical research, Research design and methodology, Literature review and information retrieval, Scientific writing and presentation skills, Scientific communication and publication process, Ethics, conduct of research and plagiarism, Grant writing and funding opportunities, Patents

- 3. National and global trends/issues about Pharmaceutical Education**

- 4. Teaching and research methodology:** Teaching skills, Conceptualization of research topic, Pharmaceutical research proposal design and scientific writing, Project development, Pharmacy law and research ethics.