



Planning and Quality Assurance Affairs

Course Specifications

Course name	INDUSTRIAL PHARMACY 2
Course number	PHTC5316
Faculty	
Department	
Course type	Major Needs
Course level	5
Credit hours (theoretical)	3
Credit hours (practical)	0
Course Prerequisites	

Course Objectives

- 1 To understand principles of operation of various equipment used in the corresponding unit operations.
- 2 To recognize the basic unit operations involved in manufacturing different pharmaceutical dosage forms
- 3 To identify the different ingredients used in formulation of solid dosage forms-mainly tablets and capsules.
- 4 To recognize principles of tablet compression.

Intended Learning Outcomes

Knowledge and Understanding	*	Understand the concepts of pharmaceutical operations
	*	Review the use and application of each operation in relation to its advantages, disadvantages and mechanism of action
	*	Explain and discuss the use of different equipment to achieve certain operation in pharmaceutical industry
	*	Predict the relationship between the equipment design and product characteristics.
	*	Define GMP, quality assurance and quality control
	*	Apply the guidelines of GMP to improve the quality of pharmaceutical products.

Course Contents

- Extraction process definition, mechanisms of extraction, classification of extraction process, factors affecting extraction rate, Leaching by percolation, - Moving Bed, Stationary – bed leaching Batch percolator, - Liquid-Liquid Extraction, - Types of Liquid-Liquid Extractors
- 2 Filtration process Theory of filtration and filtration media. Darcy's equation. Filter aids. Classification of filtration filters (e.g. plate and frame filter, leaf filter, filter press, rotary filter....).
- 3 Centrifugation process Theoretical consideration. Laboratory equipment. Large scale equipment; continuous conical centrifuge, semi-continuous centrifuge.
- Distillation process: Which contains, definition, Theory of distillation of mixtures The main difference between distillation and evaporation, - Parts of distillation equipment, distilled water, types of impurities, preparation of distilled water distillation under reduced pressure, - A steam distillation, others types of distillation process, including (design, operation, advantages, disadvantages and applications). - Industrial equipment for vacuum
- Mass transfer Which contains, definition, Diffusion, Solid-fluid mass transfer, fluid-fluid mass transfer, -Factors influencing Mass-Transfer on unit operation, Design of mass transfer equipments, fluid flow, mechanism of fluid flow, streamline flow, transitional flow, turbulent flow, Reynolds number, Significance of Reynolds Number, Boundary layer