

GUJARAT TECHNOLOGICAL UNIVERSITY

B.Pharm
SEMESTER: VIII

Subject Name: Pharmaceutical Technology II

Subject Code: 2280002

Teaching Scheme				Evaluation Scheme			
Theory	Tutorial	Practical	Total	Theory		Practical	
				External	Internal	External	Internal
3	0	3	6	80	20	80	20

No	Course Content	Hrs
1	Tablet (a) Definition, Advantages and disadvantages, Introduction to types of tablets, formulation of different types of tablets; excipients, granulation techniques, Directly compressible excipients, machinery for large scale granulation and compression, physics of tablet making, compression and compaction, In process controls, processing problems and remedies, (b) Evaluation (Pharmacopoeial and nonpharmacopoeial test) and equipments. Brief outline on manufacturing method and evaluation of mouth dissolving tablets, buccal tablets, floating tablets, tablets of colon drug delivery, matrix tablets. (c) Coating of Tablets: Objectives, types of coating, film forming materials, formulations of coating solution, equipments for coating, coating process, evaluation of coated tablets, coating defects, specialized coating processes. (d) Pharmaceutical Tablet Compression Tooling: Terminology, tablet design, specification and information required, use and care of the tooling, problem solving.	15
2	Capsules Hard Capsules: Definitions, advantages, disadvantages, Ideal requirements, Production of Hard capsules (Gelatin and nongelatin e.g. vegetable), Capsule storage, size of capsules, formulation and methods of capsule filling, problems and remedies, quality control, climatic control in capsule department, I.P capsules. Soft Gelatin Capsules: Formulation of shell and capsule coat, quality control with special emphasis on current dissolution testing. Microcapsules/Microspheres: Importance of microcapsule and microsphere in pharmacy, methods of preparation: Phase separation, coacervation, multiorifice centrifugal methods, spray congealing, polymerization, complex emulsion, Air suspension technique, coating pan and other techniques, evaluation of microcapsules, Applications of biodegradable and nonbiodegradable polymers in Microcapsules/Microspheres.	10
3	Extrusion and Pelletization : Factors affecting pellet properties, Cold extrusion, Melt extrusion, Applications of extrusion in pharmacy (including preparation of solid solution), selective equipments used for extrusion and pelletization, Use of polyethylene oxide and Eudragit in melt extrusion, Use of MCC in pelletization	7
4	Supercritical fluids : Introduction to supercritical fluids, Pharmaceutical applications of supercritical fluids in extraction, size reduction, preparation of inclusion complexes, preparation of solid dispersions, etc., Equipments for SCF processing.	8

	Pharmaceutical Packaging: Definition, Packaging components, types, specifications and methods of evaluation, stability aspects of packing. Primary and secondary packaging, packaging materials, containers and closures; and tamper-evident packaging, packaging equipments. Regulatory requirements in pharmaceutical packaging.	5
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Practical – 22800P2

	Practical 3 hrs/week
1.	Filling of powder/ granules/ pellets in hard gelatin capsule and its evaluation.
2.	Preparation of gelatin microcapsules by simple coacervation method.
3.	Preparation of pellets by extrusion and spheronization
4.	Formulation and evaluation of controlled release pellets
5.	Preparation and evaluation of tablets employing direct compression
6.	Preparation and evaluation of tablets employing wet granulation.
7.	Preparation and evaluation of tablets employing dry granulation (slugging).
8.	Preparation and evaluation of Soluble Aspirin Tablet.
9.	Preparation and evaluation of Paracetamol tablet or any NSAID tablet.
10.	Preparation and evaluation of any calcium supplement tablet (eg ca lactate, CaCO ₃ , DCP etc)
11.	Preparation and evaluation of any antibiotic tablet.
12.	Preparation and evaluation of iron supplement tablet (eg FeSO ₄)
13.	Preparation and evaluation of Chewable Antacid tablet.
14.	Preparation and evaluation of Fast Dispersible tablet using Effervescent agent.
15.	Preparation and evaluation of Fast Dispersible tablet using superdisintegrant.

References Books:

1. The Theory and Practice of Industrial Pharmacy by L Lachman, H Lieberman and J Kanig
2. Pharmaceutical Dosage Forms and Drug Delivery Systems by Ansel & others.
3. Pharmaceutics: The Science of Dosage Form Design by Michael E. Aulton
4. Gennaro, Alfonso R., Remington: The Science and Practice of Pharmacy, Vol-I & II, Lippincott Williams & Wilkins, New York.
5. Pharmaceutical Dosage Forms: Tablets: Vol.1, Vol. 2 and Vol.3, Ed. by Lieberman, Leon Lachman and Joseph B. Schwartz, Marcel Dekker Inc., New York
6. Modern Pharmaceutics by Gilbert S. Banker and Christopher T. Rhodes, Marcel Dekker, Inc., New York.
7. Latest editions of IP, BP, USP.