

GUJARAT TECHNOLOGICAL UNIVERSITY

M.Pharm

Industrial Pharmacy (21)

SEMESTER: II

Subject Name: PHARMACEUTICAL PRODUCTION TECHNOLOGY

Subject Code: MIP203T

Scope: This course is designed to impart knowledge and skills necessary to train the students to be on par with the routine of Industrial activities in Production.

Objectives: Upon completion of the course student shall be able to understand

1. Handle the scheduled activities in a Pharmaceutical firm.
2. Manage the production of large batches of pharmaceutical formulations.

Sr.	Topic	Hr
1.	Improved Tablet Production: Tablet production process, unit operation improvements, granulation and pelletization equipments, continuous and batch mixing, rapid mixing granulators, rota granulators, spheronizers and marumerisers, and other specialized granulation and drying equipments. Problems encountered. Coating Technology: Process, equipments, particle coating, fluidized bed coating, application techniques. Problems encountered	12
2.	Parenteral Production: Area planning & environmental control, wall and floor treatment, fixtures and machineries, change rooms, personnel flow, utilities & utilities equipment location, engineering and maintenance	12
3.	Lyophilization & Spray drying Technology: Principles, process, freeze-drying and spray drying equipments	12
4.	Capsule Production: Production process, improved capsule manufacturing and filling machines for hard and soft gelatin capsules. Layout and problems encountered Disperse Systems Production: Production processes, applications of mixers, mills, disperse equipments including fine solids dispersion, problems encountered Packaging Technology: Types of packaging materials, machinery, labeling, package printing for different dosage forms	12
5.	Air Handling Systems: Study of AHUs, humidity & temperature control, air filtration systems, dust collectors. Water Treatment Process: Techniques and maintenance – RO, DM, ultra – filtration, WFI	12

REFERENCES:

1. The Theory & Practice of Industrial Pharmacy, L. Lachman, Varghese Publ, Bombay.
2. Modern Pharmaceutics by Banker, Vol 72, Marcel Dekker, NY.
3. Pharmaceutical Dosage Forms, Vol 1, 2, 3 by Lachman, Lieberman, Marcel Dekker, NY.
4. Pharmaceutical Dosage Forms, Parenteral medications, Vol 1, 2 by K.E. Avis, Marcel Dekker, NY.
5. Pharmaceutical Production Facilities, design and applications, by G.C. Cole, Taylor and Francis.
6. Dispersed System Vol 1, 2, 3 by Lachman, Lieberman, Marcel Dekker, NY.
7. Product design and testing of polymeric materials by N.P. Cheremisinoff.
8. Pharmaceutical Project Management, T. Kennedy, Vol 86, Marcel Dekker, NY.
9. Packaging Pharmaceutical and Health Care, H. Lockhard.
10. Quality Control of Packaging Materials in Pharmaceutical Industry, .Kharburn, Marcel Dekker, NY

11. freeze drying/Lyophilization of Pharmaceuticals & Biological Products, L. Ray, Vol 96, Marcel Dekker, NY.
12. tablet Machine Instrumentation In Pharmaceuticals, PR Watt, Ellis Horwoods, UK.