

Gujarat Technological University

M. Pharm. Syllabus

Semester I

Paper code: 910208

Subject of Specialization paper –II

Industrial Pharmacy Paper-II

Theory

(Four hours per week, 6 Credits)

Course Content:

Hours

- 1) **Pilot plant and manufacturing scale up technique:** **15**
Significance, and general requirements, scale up study of some important dosage forms such as tablets, capsules, semi solids, liquids orals and injectables; discussion on important parameters such as formula, equipments, product uniformity, stability, and challenges.
- 2) **Production, Planning, Control and Documentation:** **15**
Production scheduling and forecasting; vendor development capacity assessment (Plant, machines, raw materials, human resources); production management, production organization, objectives and policies
Guide to pharmaceutical manufacturing practices and facilities; implications of reducing costs; documentation.
- 3) **Inventory Management, Material Management and Maintenance Management:** **20**
Costs in inventory, inventory categories-special considerations, selective inventory control, recorder quality methods and EOQ, inventory models, safety stock-stock out, lead time-recorder time methods, modern inventory management systems, inventory evaluation. Material- quality and quantity, value analysis, purchasing-centralized and salvaging and disposal of scrap and surplus Selection of material handling systems, maintenance of material-handling equipment, unit-load, pelletization and containerization, types of material handling systems. Classification of maintenance, corrective (breakdown) maintenance, scheduled maintenance, preventive maintenance, predictive maintenance.
- 4) **Industrial hazards, safety, pollution and effective treatment:** **10**
Introduction, Factory act and rules, fundamentals of accident prevention, organizing for safety, electrical hazards, industrial chemical and their health hazards, Material handling, Fire prevention and control. Physicochemical measurements of effluents, BOD, COD, Determination of some contaminates Effluent treatment of some characteristic effluent.

Reference Books:

1. Michael Levin, "Pharmaceutical Process Scale up", Second edition, Marcel Dekker Inc., Volume 157.
2. Joseph F. despautz," Automation and Validation of Information in Pharmaceutical Processing", Marcel Dekker Inc., Volume 90.
3. L.C. Jhamb, "Industrial Management", Everest Publications.
4. C.V.S. Subramanyam, "Pharmaceutical Production and Management",
5. Leon Lachman, "Theory and Principles of Industrial Pharmacy", Third edition.
6. G.S, Banker & C.T. Rhodes, "Modern Pharmaceutics", Drugs and Pharm. Sci. Series, Vol. 7, Maracel Dekker Inc., N.Y.
7. **Remingtons** "Pharmaceutical Sciences"
8. Bentley's **Pharmaceutics**.
9. Pilot plants model and scale-up methods, **by Johnstone and Thring**.
10. How to practice GMPs **by P.P.Sharma**.
11. Chemical Engineering Plant Design **by Vibrant**.
12. Pharmaceutical Facility management **by J.P.S. kohli**