GUJARAT TECHNOLOGICAL UNIVERSITY

B.E. SEMESTER : VIII

PRODUCTION ENGINEERING

Subject Name: **PRODUCTION AND OPERATIONS MANAGEMENT**

Sr. No.	Course Contents	Total Hrs
1.	**Production Planning Control (PPC) and Process Engineering** **Production Planning** Introduction, Function, Pre-requisites and steps in process planning, Factors affecting process planning, Make or buy decision, operation process sheet, plant capacity and machine capacity. **Process Engineering** (a) Preliminary Part Print Analysis: Introduction, Establishing the General Characteristics of work piece, determining the principal Process, Functional surfaces of the work piece, Nature of the work to be Performed, Finishing and identifying operations. (b) Dimensional Analysis: Introduction, types of dimensions, measuring the Geometry of form, Baselines, Direction of specific dimensions. (c) Tolerance Analysis: Causes of work piece variation, Terms used in work piece dimensions, Tolerance stacks. (d) Work piece Control: Introduction, Equilibrium Theories, Concept of location, Geometric Control, Dimensional control, Mechanical control.	**10**
2.	**Production Forecasting** Introduction of production forecasting, The strategic role of forecasting in supply chain, Components of forecasting demand, Time series methods, Forecast accuracy.	**06**
3.	**Scheduling** Introduction, Objectives in scheduling, Loading, Sequencing, Monitoring, Advanced Planning and Scheduling Systems, Theory of Constraints, Employee scheduling	**06**
4.	**Break-Even Analysis** Break-even analysis for process selection, Break-even analysis for process equipment selection	**06**
5.	**Aggregate Operations Planning** Aggregate production planning, Adjusting capacity to meet the demand, Demand management, Hierarchical and collaborative planning, Aggregate planning for services	**08**
6.	**Assembly Line Balancing** Assembly lines, Assembly line balancing, Splitting tasks, Flexible and U-shaped line layouts, Mixed model line balancing, Current thoughts on assembly lines, Computerized assembly line balancing	**06**
7.	**Material Management** Introduction, Importance and objectives, Purchasing and Stores: policies and procedures, Vendor development, selection, analysis and rating, Selective inventory control-ABC, VED, XYZ, HML, FSN. **Inventory Management -** The elements of inventory management, Inventory control systems, Economic order quantity models, Deterministic and probabilistic models, Quantity discounts, Reorder point, Order quantity for a periodic order system	**08**

Reference Books:

1. Operations Management by Roberta S. Russell, Bernard W. Taylor III (4th edition) Pearson PH
2. Operations Management for Competitive Advantage by Chase-Jacobs-Aquilano (10th edition) Tata Macgraw Hill
3. Process Engineering for Manufacturing By Eary and Johson
4. Industrial Engineering and Production Management By M.S.Mahajan
5. Quantitative Analysis by L.C.Jhamb Vol-I, II