

Branch Name:	Mechanical Engineering (Production Technology)
Semester/Year:	Semester II / First Year
Subject Title:	Production & Operation Management
Subject Code:	1ET2090203
Pre-requisite:	Basics of Operation Management

Course Objective:

1. This course provides the knowledge and practice regarding Production Planning and Controlled by Operation Research techniques.
2. This course gives practice through various Management and Operation Tools for Improving Quality and Quantity.

Teaching Scheme (Hours per week)				Evaluation Scheme (Marks)				
Lecture (L)	Tutorial (T)	Practical (P)	Credit	Theory (Marks)		Practical (Marks)		Total (Marks)
				University Assessment	Continuous Assessment	University Assessment	Continuous Assessment	
02	00	02	04	60	40	30	20	150

Subject Contents			
Sr. No.	Topic	Total Hours	Weight (%)
01	Operations Management: Introduction, Systems concept, Decisions, Organization, Objectives and Evolution of Operations Management, comparing production of tangible goods and services, Operations Strategy, Type of Production Systems, Role of Production Manager.	04	15
02	Facilities Planning & Production Planning Control: Plant location, Plant layout and Material Handling, Layout analysis, Procedures such as CORELAP, CRAFT etc. Organization & Functions of PPC CAPP, Make or Buy Decision, Forecasting Methods & its relationship with Product Life Cycle, Case Studies.	08	40
03	Aggregate Planning and Master Scheduling: Strategies of Aggregate Planning, Graphic & and Charting methods, Application of LP, Master Scheduling, Job Shop Scheduling an Sequencing Algorithms Gantt Chart, Line Balancing, LOB, Case Studies.	04	15
04	Maintenance Management: Types of maintenance strategies, Breakdown, Preventive and Predictive maintenance, Individual and Group Replacement Policies, Case Studies.	04	15
05	Materials Management: Supply chain, Purchasing, stores and vendor selection, Inventory Models, Selective Inventory Control, MRP, MRP-II, Lot size Techniques, Just - In – Time system of manufacturing, Kaizen, Total Productive Maintenance (TPM), BPR, SCM, ERP etc.& Case Studies.	04	15

	24	100
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Review Presentation: The student is expected to spend minimum 2 hours per week (as mentioned in the teaching and evaluation scheme) to refer at least two peer reviewed journal papers related to this domain/subject. The student is expected to identify issues/challenges and emerging trends in the domain/subject. Student is supposed to explore various video lectures (E.g. NPTEL) available in the domain/subject. Student is required to make a review-presentation on the work carried out for the same.

Recommended sites for journal papers are (1) asmedigitalcollection.asme.org (2) springer.com (3) sciencedirect.com (5) ieeexplore.ieee.org (6) scholar.google.co.in or others of similar repute.

Course Outcome:

The student will be able to

1. Acquire the knowledge and understanding regarding Production planning and Controlled required for industry to analyze the engineering problems.
2. Utilize the operation research techniques as a problem solving techniques.
3. Apply various Management and Operation Tools for Improving Quality and Quantity of Product.

List of References:

1. Hop W, Spearman M; Factory Physics; TMH
2. Charry S.N.; Production & Operations Management; TMH.
3. Chase, Aquilino, Production & Operations Managment, TMH.
4. Eilon S. Production Planning and Control, McMillon Pub.
5. Vollmann; Mfg planning and control for SCM; TMH
6. Nahmias Steven; Production and Operations analysis; TMH
7. Bedi Kaniska; Production and Operations Management; Oxford Pub
8. Dobler & Lee, Purchasing & Materials Management, PHI.
9. Chittle A.K., Gupta R.C. Materials Management, PHI.
10. Monk Joseph; Schaum's outline of Operations Management; McGraw Hill.

List of Tutorial:

1. To study about Concept of Operation Management.
2. To study about Production Planning Controlling Methods.
3. To study about Maintenance Management.
4. To study about Materials Management.
5. To study about QC tools.
6. To study about TQM and TPM.