

Branch Name:	Mechanical Engineering (Production Technology)
Program Code:	ET209
Course Name:	Production & Operation Management
Course Code:	2ET2090203T
Pre-requisite Course:	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 and Examination Scheme:

Credit	Teaching Scheme Hours per week				Evaluation Scheme (Marks)								
					Theory (Marks)				Practical (Marks)				Total (Marks)
	SEE		CCA		SEE		CCA						
	L	T	P	Total	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	
3	3	-	-	3	24	60	16	40	-	-	-	-	100

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

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.

List of References:

1. Hop W, Spearman M; Factory Physics; TMH
2. Charry S.N.; Production & Operations Management; TMH.
3. Chase, Acquilino, Production & Operations Management, 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.

Course Learning Outcomes (CLO): On completion of this course, the students will be able to:

CLO	Description	Bloom's Taxonomy Level
CLO1	Acquire the knowledge and understanding regarding Production planning and controlled required for industry to analyze the engineering problems.	1 Remembering 2 Understanding
CLO2	Utilize the operation research techniques as a problem-solving technique.	3 Applying
CLO3	Apply various Management and Operation Tools for Improving Quality and Quantity of Product.	3 Applying
CLO4	Apply the concept of operations management in manufacturing and service sector and will be able to plan and implement production and service-related decisions.	3 Applying 4 Analyze
CLO5	Able to plan production schedules and plan resources (material and machine) required for production.	5 Evaluating
CLO6	Able to apply the concepts of purchase, stores and inventory management and analyze and evaluate material requirement decisions	6 Creating

Mapping of CLOs with POs & PSOs:

Course Learning Outcomes	Program Outcomes (POs)												Program Specific Outcomes (PSOs)	
	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2
CLO1	M			H								L		M
CLO2			M		H						M		M	
CLO3		H					H							L
CLO4		M			M							M		M
CLO5	M			H			M				M		H	
CLO6		M			M				M		M		M	

H: High, M: Medium, L: Low