

GUJARAT TECHNOLOGICAL UNIVERSITY

MECHANICAL (PRODUCTION ENGINEERING) (28)

PRODUCTION & OPERATION MANAGEMENT

SUBJECT CODE: 2722810

SEMESTER: II

Type of course: MAJOR ELECTIVE - III

Prerequisite: NIL

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

Teaching and Examination Scheme:

Teaching Scheme			Credits C	Examination Marks						Total Marks
L	T	P		Theory Marks		Practical Marks				
			ESE (E)	PA (M)	ESE (V)		PA (I)			
					ESE	OEP	PA	RP		
3	2#	0	4	70	30	30	0	10	10	150

Content:

Sr. No.	Content	Total Hrs	% Weightage
1	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.	07	20
2	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.	07	20
3	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.	06	18
4	Maintenance Management: Types of maintenance strategies, Breakdown, Preventive and Predictive maintenance, Individual and Group Replacement Policies, Case Studies.	06	18
5	Materials Management as part of 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.	08	24

Reference Books:

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 Outcome:

After learning the course the students should 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. Gives practice through various Management and Operation Tools for Improving Quality and Quantity.

List of Tutorials:

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

List of Open Source Software/learning website:

- I. <http://nptel.ac.in/courses/110106045/>
- II. <http://www.newagepublishers.com/samplechapter/001233.pdf>
- III. <http://onlinelibrary.wiley.com/doi/10.1111/poms.12315/pdf>

Review Presentation (RP): The concerned faculty member shall provide the list of peer reviewed Journals and Tier-I and Tier-II Conferences relating to the subject (or relating to the area of thesis for seminar) to the students in the beginning of the semester. The same list will be uploaded on GTU website during the first two weeks of the start of the semester. Every student or a group of students shall critically study 2 papers, integrate the details and make presentation in the last two weeks of the semester. The GTU marks entry portal will allow entry of marks only after uploading of the best 3 presentations. A unique id number will be generated only after uploading the presentations. Thereafter the entry of marks will be allowed. The best 3 presentations of each college will be uploaded on GTU website.