

Subject Code: 1ET4060602	Subject Title: Industrial Management
Pre-Requisite	--

RATIONALE

Technicians of mechanical engineering disciplines are expected to work during most of their career at middle level. They are also expected to deal with workforce and management problems. In the present era of competition, optimum utilization of the resources with achieving higher productivity is essential for any industry to survive. Quality and cost controls are also other important factors which contribute to the day to day supervision issues. This course aims to deal effectively with such issues along with familiarization of acts and laws applied to industries.

COMPETENCY

The course content should be taught and implemented with the aim to develop required skills in the students so that they are able to acquire following competencies.

- **Recognize organization structure, human resource issues in industries and major provisions of factory acts.**
- **Plan, use, monitor and control resources optimally and economically.**

COURSE OUTCOMES

The theory should be taught and practical should be carried out in such a manner that students are able to acquire different learning outcomes in cognitive, psychomotor and affective domain to demonstrate following course outcomes.

- i. Interpret given organization structure, culture, climate and major provisions of factory acts and laws.
- ii. Explain material requirement planning and store keeping procedure.
- iii. Plot and analyze inventory control models and techniques.
- iv. Prepare and analyze CPM and PERT for given activities.
- v. List and explain PPC functions.

TEACHING AND EVALUATION SCHEME:

Teaching Scheme (Hours per week)				Evaluation Scheme (Marks)			
Lecture	Tutorial	Practical	Credit	Theory		Practical	
				University Assessment	Continuous Assessment	University Assessment	Continuous assessment
3	-	-	3	60	40	--	--

COURSE DETAILS.

Unit	Topics and Sub-topics	Teaching Hours	Weightage %
1	Introduction 1.1 System- concept, definition, types, parameters, variables and behavior. 1.2 Management – definition and functions. 1.3 Organization structure: i. Definition. ii. Goals. iii. Factors considered in formulating structure. iv. Types.	06	15

	v. Advantages and disadvantages. vi. Applications. 1.4 Concept, meaning and importance of division of labor, scalar & functional processes, span of control, delegation of authority, centralization and decentralization in industrial management. 1.5 Organizational culture and climate – meaning, differences and factors affecting them. 1.6 Moral-factors affecting moral. 1.7 Relationship between moral and productivity. 1.8 Job satisfaction- factors influencing job satisfaction. 1.9 Important provisions of factory act and labor laws.		
2	Critical Path Method (CPM) and Programme Evaluation Review Technique (PERT). 2.1 CPM & PERT-meaning, features, difference, applications. 2.2 Understand different terms used in network diagram. 2.3 Draw network diagram for a real life project containing 10-15 activities, computation of LPO and EPO.(Take minimum three examples). 2.4 Determination of critical path on network. 2.5 Floats, its types and determination of floats. 2.6 Crashing of network, updating and its applications.	10	25
3	Materials Management 3.1 Material management-definition, functions, importance, relationship with other departments. 3.2 Purchase - objectives, purchasing systems, purchase procedure, terms and forms used in purchase department. 3.3 Storekeeping- functions, classification of stores as centralized and decentralized with their advantages, disadvantages and application in actual practice. 3.4 Functions of store, types of records maintained by store, various types and applications of storage equipment, need and general methods for codification of stores. 3.5 Inventory control: i. Definition. ii. Objectives. iii. Derivation for expression for Economic Order Quantity (EOQ) and numeric examples. iv. ABC analysis and other modern methods of analysis. v. Various types of inventory models such as Wilson's inventory model, replenishment model and two bin model. (Only sketch and understanding, no derivation.). 3.6 Material Requirement Planning (MRP)- concept, applications and brief details about software packages available in market.	08	20
4	Production planning and Control (PPC) 4.1 Types and examples of production. 4.2 PPC : i. Need and importance. ii. Functions. iii. Forms used and their importance. iv. General approach for each type of production. 4.3 Scheduling- meaning and need for productivity and utilisation.	10	20

	4.4 Gantt chart- Format and method to prepare. 4.5 Critical ratio scheduling-method and numeric examples. 4.6 Scheduling using Gantt Chart (for at least 5-7 components having 5-6 machining operations, with processes, setting and operation time for each component and process, resources available, quantity and other necessary data), At least two examples. 4.7 Bottlenecking- meaning, effect and ways to reduce.		
5	Value Analysis (VA) and Cost Control 5.1 VA-definition, terms used, process and importance. 5.2 VA flow diagram. 5.3 DARSIRI method of VA. 5.4 Case study of VA-at least two. 5.5 Waste-types, sources and ways to reduce them. 5.6 Cost control-methods and important guide lines.	04	10
6	Recent Trends in IM 6.1 ERP (Enterprise resource planning) - concept, features and applications. 6.2 Important features of MS Project. 6.3 Logistics- concept, need and benefits. 6.4 Just in Time (JIT)-concept and benefits. 6.5 Supply chain management-concept and benefits.	04	10

SUGGESTED LEARNING RESOURCES

A. List of Books:

Sr. No.	Title of Book	Author
1.	CPM & PERT principles and Applications.	L.S.Srinath.
2.	Modern Production Management.	Buffa.
3.	Materials Management.	N. Nair.
4.	Industrial Engineering & Management.	O. P. Khanna.
5.	Value Analysis.	Mikes.

B. List of Software/Learning Websites.

- www.youtube.com/watch?v=SF53ZZsP4ik
- www.youtube.com/watch?v=iPZlQ3Zx5zc
- web.stanford.edu/class/cee320/CEE320B/CPM.pdf
- www.criticaltools.com/pertchartexpertsoftware.htm
- en.wikipedia.org/wiki/Program_evaluation_and_review_technique
- www.netmba.com/operations/project/pert/