ME357 Industrial Engineering										
L	**T**	**P**	Credit	Area		**CWS**	**PRS**	**MTE**	**ETE**	**PRE**
3	0/1	2/0	4	DEC/GEC		15/25	25	20/25	40/50	-

Objective: To enable the students to understand the basics of industrial engineering, work measurement systems, quality engineering. To understand reliability and maintenance, material handling systems and plant layout.

Syllabus		**Contact Hours**
Unit-1	**Introduction:** Introduction, Definition and objectives of Industrial Engineering, Scope of Industrial Engineering, Production systems and their classifications; Productivity-Total and partial productivity, Reasons and remedy for poor productivity	**6**
Unit-2	**Job analysis and Work Measurement Systems:** Work System Design: Taylor's scientific management, Gilbreth's contributions; method study, micro-motion study, principles of motion economy; work measurement - stop watch time study, micro motion and memo motion, work sampling, standard data, PMTS; ergonomics; job evaluation, merit rating, incentive schemes, and wage administration; business process reengineering	**8**
Unit-3	**Production Planning and Control:** Types and characteristics of production systems Objective and functions of Production, Planning & Control, Routing, Scheduling and Operations scheduling, production scheduling, job shop scheduling problems, sequencing problems, scheduling tools and techniques, Loading, Dispatching and its sheets & Gantt charts.	**8**
Unit-4	**Quality Engineering:** Quality concept and costs; statistical quality control, Concept of specification limits, statistical control limits, process capability, Process control and control charts for both attributes and variable data. Acceptance Sampling- Single and double sampling.	**6**
Unit-5	**Reliability and Maintenance:** Reliability, availability and maintainability; distribution of failure and repair times; determination of MTBF and MTTR, reliability models; system reliability determination; Maintenance management and its objectives, Various types of Maintenance Planning, House Keeping, 5S concepts.	**8**
Unit-6	**Material Handling:** Principles, functions, and objectives of Material Handling; Selection and classification of Material Handling Equipments; Relation of material handling with plant layout	**6**
	Total	**42**

Reference Book:	
1	Industrial Engineering and Management; B. Kumar, Khanna Publication, ISBN-8174091963, 2011.
2	Introduction to work Study, International Labour Office, Geneva, 3rd edition, Oxford and IBH publishing Co. Pvt. Ltd, New Delhi, ISBN- 8120406028, 2008.
3	Industrial Engineering and Management, Pravin Kumar, Pearson Education, 1st edition, ISBN-9789332543560, 2015.

Course Outcomes

CO1	To identify, formulate, and solve complex engineering problems by applying principles of engineering, science, and mathematics
CO2	Describe the role and responsibilities of management and the organizational Structures
CO3	Explain the leadership qualities and concept of plant layout.
CO4	Elucidate different quality control techniques.
CO5	Explain various operations management Techniques
CO6	Solve operations management and project management problems

CO-PO/PSO Matrix

	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
CO1	3	3	3	2	2	0	0	0	0	0	0	2	2	1	1
CO2	3	3	2	3	1	0	0	0	0	0	0	1	2	1	1
CO3	3	3	3	3	1	0	0	0	0	0	0	2	3	3	2
CO4	3	3	3	3	1	0	0	0	0	0	0	1	3	3	2
CO5	2	2	2	2	2	0	0	0	0	0	0	1	2	2	2