MEOE 003 INTRODUCTION TO INDUSTRIAL ENGINEERING

L	T	P	Credit
3	1	0	4

Course Outcomes: At the end of the course, the student will be able to:

MEOE-003.1	***UNDERSTAND [II]*** Understand the concept of production system, productivity, facility and process planning in various industries
MEOE-003.2	***UNDERSTAND[II]*** Apply the various forecasting and project management techniques
MEOE-003.3	***DISCUSS [III]*** Apply the concept of break-even analysis, inventory control and resource utilization using queuing theory
MEOE-003.4	***APPLY [III]*** Apply principles of work study and ergonomics for design of work systems
MEOE-003.5	***UNDERSTAND [II]*** Formulate mathematical models for optimal solution of industrial problems using linear programming approach

Mapping of course outcomes with program outcomes

CO	PO1: Engineering knowledge	PO2 Problem analysis	PO3:Design/development of solutions	PO4:Conduct investigations of complex problems	PO5:Modern tool usage	PO6: The engineer and society	PO7:Environment and sustainability	PO8:Ethics	PO9:Individual and team work	PO10:Communication	PO11:Project management and finance	PO12:Life-long learning
MEOE-003.1	1	-	2	1	-	1	-	-	-	1	1	1
MEOE-003.2	2	3	3	2	2	1	-	-	-	1	1	1
MEOE-003.3	2	3	3	2	3	2	1	1	-	1	1	2
MEOE-003.4	3	2	2	3	3	2	-	-	-	1	2	2
MEOE-003.5	3	3	3	3	3	2	2	2	-	1	3	2

UNIT 1 Overview of industrial engineering

1.1 Types of production systems
1.2 Concept of productivity
1.3 Principle of plant layout design
1.4 Types of plant layout
1.5 Computer aided layout design techniques

UNIT 2 Production Planning and control

2.1 Aggregate production planning
2.2 Materials requirement planning (MRP) and MRP-II

2.3 Routing, scheduling and priority dispatching
2.4 Concept of JIT manufacturing system

UNIT 3 Engineering economy and Inventory control
3.1 Break-even analysis
3.2 Techniques for evaluation of capital investments
3.3 Inventory functions
3.4 ABC analysis
3.5 VED analysis

UNIT 4 Product Design and Development
4.1 Principles of product design
4.2 quality and cost considerations
4.3 product life cycle
4.4 value engineering and analysis
4.5 concurrent engineering

UNIT 5 Material Handling
5.1 Materials handling principles
5.2 Types of material handling systems
5.3 Methods of process planning
5.4 Flexible Manufacturing

Books and References:
1. Industrial Engineering and Production Management by Martand T Telsang S. Chand Publishing
2. Industrial Engineering and Production Management by M. MahajanDhanpatRai& Co. (P) Limited
3. Industrial Engineering and Management by Ravi Shankar, Galgotia Publications Pvt Ltd
4. Production and Operations Management by Adam, B.E. & Ebert, R.J., PHI
5. Product Design and Manufacturing by Chitale A.V. and Gupta R.C., PHI
6. Operations Research Theory & Applications by J K Sharma, Macmillan India Ltd,
7. Production Systems Analysis and Control by J.L.Riggs, John Wiley & Sons
8. Automation, Production Systems & Computer Integrated Manufacturing by Groover, M.P. PHI
9. Operations Research, by A.M. Natarajan, P. Balasubramani, A. Tamilarasi, Pearson Education
10. Operations Research by P. K. Gupta and D. S. Hira, S. Chand & Co.