Industrial Management

Course Code	23ME2602	**Year**	III	**Semester**	II
Course Category	OE- II	**Branch**	ME	**Course Type**	Theory
Credits	3	**L-T-P**	3-0-0	**Prerequisites**	
Continuous Internal Evaluation:	30	**Semester End Evaluation:**	70	**Total Marks:**	100

Course Outcomes		
Upon successful completion of the course, the student will be able to		BL
CO1	Understand the concepts and tools of industrial engineering and management.	L2
CO2	Explain the importance of work study, statistical quality control and total quality management techniques in improving productivity.	L2
CO3	Illustrate the concepts of human resources management, value analysis and solve problems on financial management.	L3

Mapping of course outcomes with Program outcomes (CO/ PO/PSO Matrix)
Note: 1- Weak correlation 2-Medium correlation 3-Strong correlation
* - Average value indicates course correlation strength with mapped PO

COs	**PO1**	**PO2**	**PO3**	**PO4**	**PO5**	**PO6**	**PO7**	**PO8**	**PO9**	**PO10**	**PO11**	**PSO1**	**PSO2**
CO1	1					3	3			3			
CO2	1					3	3			3			
CO3	1					3	3			3			
Average	1					3	3			3			

Syllabus		
Unit No.	**Content**	**Mapped CO**
1	**Introduction:** Definition of industrial engineering (I.E), development, applications, role of an industrial engineer, differences between production management and industrial engineering, quantitative tools of IE and productivity measurement. concepts of management, importance, functions of management, scientific management, Taylor's principles, theory X and theory Y, Fayol's principles of management. **Plant Layout:** Factors governing plant location, types of production layouts, advantages and disadvantages of process layout and product layout, applications, quantitative techniques for optimal design of layouts, plant maintenance, preventive and break down maintenance.	CO1
2	**Work Study**: Importance, types of production, applications, work study, method study and time study, work sampling, PMTS, micro-motion study, rating techniques, MTM, work factor system, principles of Ergonomics, flow process charts, string diagrams and Therbligs.	CO1,CO2

3	**Statistical Quality Control:** Quality control, Quality assurance and its importance, SQC, attribute sampling inspection with single and double sampling, Control charts – $\bar{X}$ and R –charts $\bar{X}$ and S charts and their applications, numerical examples. **Total Quality Management**: zero defect concept, quality circles, implementation, applications, ISO quality systems. Six Sigma– definition, basic concepts	CO1, CO2
4	**Financial Management:** Scope and nature of financial management, Sources of finance, Ratio analysis, Management of working capital, estimation of working capital requirements, stock management, Cost accounting and control, budget and budgetary control, **Capital Budgeting** – Nature of Investment Decisions – Investment Evaluation criteria- NPV, IRR, PI, Payback Period, and ARR, numerical problems	CO1, CO3
5	**Human Resource management:** Concept of human resource management, personnel management and industrial relations, functions of personnel management, Job-evaluation, its importance and types, merit rating, quantitative methods, wage incentive plans, and types. **Value Analysis:** Value engineering, implementation procedure, enterprise resource planning and supply chain management.	CO1, CO3

Learning Recourses

Text Books

1. O.P Khanna, Industrial Engineering and Management, Dhanpat Rai Publications (P) Ltd, 2018.
2. Mart and Telsang, Industrial Engineering and Production Management, S.Chand & Company Ltd. New Delhi, 2006.

References

1. Bhattacharya DK, Industrial Management, S.Chand, publishers, 2010.
2. J.G Monks, Operations Management, 3rd Ed.,, McGraw Hill Publishers1987.
3. T.R. Banga, S.C.Sharma, N. K. Agarwal, Industrial Engineering and Management Science, Khanna Publishers, 2008.
4. Koontz O'Donnell, Principles of Management, 4th Ed., McGraw Hill Publishers, 1968.
5. R.C.Gupta, Statistical Quality Control, Khanna Publishers, 1998.
6. NVS Raju, Industrial Engineering and Management, 1st Ed.,, Cengage India Private Limited, 2013.

E-Resources

1. Industrial Engineering – NPTEL (ME15) https://onlinecourses.nptel.ac.in/noc21_me15/preview
2. Production and Operations Management – NPTEL (MG43) https://onlinecourses.nptel.ac.in/noc20_mg43/preview
3. Industrial Engineering Courses – edX https://www.edx.org/learn/industrial-engineering
4. Industrial Engineering Video Lectures – YouTube Playlist https://youtube.com/playlist?list=PL299B5CC87110A6E7
5. Operations Management Video Lectures – YouTube Playlist https://youtube.com/playlist?list=PLbjTnj-5Gkl0z3OHOGK5RB9mvNYvnImW