# INDUSTRIAL MANAGEMENT
## (Open Elective-II)

| Course Code | 23ME2602 | Year | III | Semester | II |
|---|---|---|---|---|---|
| Course Category | Open Elective - II | Offering Branch | ME | Course Type | Theory |
| Credits | 3 | L-T-P | 3-0-0 | Pre requisites | Nil |
| 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

| | Statement | BTL |
|---|---|---|
| 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 |

**Contribution of Course Outcomes towards achievement of Program Outcomes& Strength of correlations (H: High (3), M: Medium (2), L:Low (1))**

| | PO1 | PO2 | PO3 | PO4 | PO5 | PO6 | PO7 | PO8 | PO9 | PO10 | PO11 | PSO1 | PSO2 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| CO1 | 1 | | | | | 3 | 3 | | | 3 | | 2 | 3 |
| CO2 | 1 | | | | | 3 | 3 | | | 3 | | 2 | 3 |
| CO3 | 1 | | | | | 3 | 3 | | | 3 | | 2 | 3 |

| SYLLABUS | | |
|---|---|---|
| **Unit** | **Content** | **Mapped CO** |
| I | **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.<br>**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** |
| II | **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** |
| III | **STATISTICAL QUALITY CONTROL:** Quality control, Quality assurance and its importance, SQC, attribute sampling inspection with single and double sampling, Control charts – $X$ and R –charts $\bar{X}$ and $S$ charts and their applications, numerical examples.<br>**TOTAL QUALITY MANAGEMENT**: zero defect concept, quality circles, implementation, applications, ISO quality systems. Six Sigma–definition, basic concepts | **CO1 CO2** |

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|---|---|---|
| **IV** | **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,<br>**CAPITAL BUDGETING** – Nature of Investment Decisions – Investment Evaluation criteria- NPV, IRR, PI, Payback Period, and ARR, numerical problems | **CO1**<br>**CO3** |
| **V** | **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.<br>**VALUE ANALYSIS:** Value engineering, implementation procedure, enterprise resource planning and supply chain management. | **CO1**<br>**CO3** |

**Learning Recourse(s)**

**Text Book(s)**

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

**Reference books**

1. Industrial Management – D. K. Bhattacharya, S. Chand Publishers, 2010.
2. Operations Management – J. G. Monks, 3rd Edition, McGraw-Hill Publishers, 1987.
3. Industrial Engineering and Management Science – T. R. Banga, S. C. Sharma, and N. K. Agarwal, Khanna Publishers, 2008.
4. Principles of Management – Koontz and O'Donnell, 4th Edition, McGraw-Hill Publishers, 1968.
5. Statistical Quality Control – R. C. Gupta, Khanna Publishers, 1998.
6. Industrial Engineering and Management – N. V. S. Raju, 1st Edition, Cengage India Private Limited, 2013

**Online Learning Sources**

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-t5Gkl0z3OHOGK5RB9mvNYvnImW