Industrial Engineering & Management

Course Code	20HS7701F	**Year**	IV	**Semester**	I
Course Category	Humanities and Social Science Electives	**Branch**	Common to All	**Course Type**	Theory
Credits	3	**L-T-P**	3-0-0	**Prerequisites**	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		**Blooms Level**
CO1	Understand the basic concepts of management, organizational structures, leadership, operations management and project management.	L2
CO2	Explain the leadership qualities and concept of plant layout.	L2
CO3	Apply different quality control techniques.	L3
CO4	Illustrate various operations management Techniques	L3
CO5	Solve operations management and project management problems	L3

Contribution of Course outcomes towards achievement of Program outcomes & Strength of correlations (High: 3, Medium: 2, Low: 1)

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

Syllabus		
Unit No.	**Contents**	**Mapped CO**
1	**Introduction**: Definition of Industrial Engineering, Applications, Role of Industrial Engineer, Quantitative tools of IE, Functions of Management, Taylor's Scientific Management, Fayol's Principles of Management, Douglas Mc-Gregor's Theory X and Theory Y, Hertzberg's Two Factor Theory of Motivation, Maslow's Hierarchy of Human Needs. **Organizational Structures**: Basic concepts related to Organization – Depart mentation and Decentralization, Flat and Tall organizations, Organizational chart, Line organization, Line and staff organization, functional organization	CO1

2	**Leadership**: Introduction, Definition, Types of leadership based on authority- their area of applicability and suitability, advantages and limitations, Traits approach to leadership **Plant Location**: Definition, factors affecting the plant location, comparison of rural and urban sites. Plant Layout – definition, objectives, types of production, types of plant layout – various data analyzing forms-travel chart.	CO1, CO2
3	**Inspection and Quality Control** Types of inspections, Statistical Quality Control techniques, variables and attributes, assignable and non-assignable causes. **Control Charts:** variable control charts- X -bar and R charts, Attribute control charts- P-charts and C-charts. **Acceptance sampling**- Single Sampling, Double sampling, Multiple Sampling, OC curves.	CO1, CO3
4	**Work Study**: Definition, objectives, method study - definition, objectives, steps involved- various types of associated charts-out line process charts, flow process charts, two handed process charts and SIMO charts. **Time Study**: definition, time study, steps involved-equipment, different methods of performance rating- allowances, standard time calculation.	CO1, CO4
5	**Project Management**: Network modeling, Probabilistic model- various types of activity times estimation, programme evaluation review techniques (PERT), probability of completing the project, **Deterministic model**- critical path method (CPM), critical path calculation, crashing of simple of networks.	CO1, CO5

Learning Resources
Text Books
1. S.Bhaskar, Management Science, Anuradha Publications 2. O.P. Khanna, Industrial Engineering and Management, Dhanpat Rai 3. T. R. Banga, S. C. Sharma, N. K. Agarwal, Industrial Engineering and Management Science, Khanna Publishers.
Reference Books
1. PannerSelvam, Production and Operations Management, PHI, 2004 2. Ralph M Barnes, Motion and Time Studies, John Wiley and Sons, 2004 3. Chase, Jacobs, Aquilano, Operations Management, TMH 10th Ed., 2003 4. L.S.Srinath, PERT / CPM affiliate East-West Press, New Delhi, 2000 5. Phillip Kotler, Marketing Management, Pearson, 2004 6. S. Bhaskar, Management Science Anuradha Publications
e-Resources
https://nptel.ac.in/courses/112107292