PROJECT MANAGEMENT & OPTIMIZATION

Course Code	19ME2701B	Year	IV	Semester	I
Course Category	Inter Disciplinary Elective-II	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	Level
After successful completion of the course, the student will be able to	
CO1	Explain basics of project management	L2
CO2	Analyze activities involved in project.	L3
CO3	Describe various project cost management techniques	L2
CO4	Apply various Linear programming techniques and sequencing methods	L3
CO5	select transportation and assignment technique to minimize the cost	L3

Contribution of Course Outcomes towards achievement of Program Outcomes & Strength of correlations (3-High, 2: Medium, 1: Low)													
	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2
CO1	2	2	3			2		2			3	2	2	3
CO2	2	2	3	2	2				2		3	2	2	3
CO3	2	2	3			3		2			3	2	2	3
CO4	2	2	3			3		2			3	2	2	3
CO5	2	2	3			3		2			3	2	2	3

Syllabus		
Unit No.	Contents	Mapped COs
I	**Concepts of project management:** Meaning, definition and characteristics of a project, technical and socio-cultural dimensions; project life cycle phases, project planning and graphic presentation; work breakdown structure, manageable tasks; size of network; blow down NW; identity and logic dummy activity; Fulkerson rule for numbering NW; time-scaled NW	CO1
II	**NW analysis:** Network modelling, 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	CO2
III	**Project duration and control:** Importance and options to accelerate project completion; time cost trade off; fixed variable and total costs; use of floats and cost optimization; project performance measures; project monitoring info and reports; project control process; Gant chart and control chart; cost-schedule S-graph; planned cost of work schedule (PV), budgeted/ earned cost of work completed (EV) and actual cost of	CO3

	work completed (AC); schedule and cost variances (SV, CV) forecasting final project costs.	
IV	**LINEAR PROGRAMMING:** Linear Programming Problem Formulation, Graphical solution Simplex method, artificial variables techniques-Two–phase method, Big-M method, Duality Principle **SEQUENCING**: Introduction, sequencing of n jobs through two machines, n jobs through three machines –two jobs through 'm' machines	CO4
V	**TRANSPORTATION PROBLEM:** Formulation, Optimal solution, U-V method, unbalanced transportation problems, Degeneracy. **ASSIGNMENT PROBLEM:** Formulation, Optimal solution, Variants of Assignment Problem-Traveling Salesman problem.	CO5

Learning Recourse(s)
Text Book(s)
1. Prasanna Chandra, Projects Planning, Implementation and Control, Tata McGraw Hill Publishing Company Limited, New Delhi, 1995.   2. Operations Research, by S.D.Sharma, Kedarnath & Ramnath publications (15th edition),2013
Reference books
1. Project Management Institute (PMI), A Guide to the Project Management of Knowledge Newton Square, PA, 1996   2. J.R. Meredith and S.J. Mantel, Project Management: A Managerial Approach. John Wiley and Sons, New York, 1995.   3. L.S. Srinath, PERT & CPM Principles & Applications, 3rd edition, East west Press,2001.   4. Operations Research, (2nd edition) by R.Pannerselvam, 2009,PHI Publications, Noida
e- Resources & other digital material
1. https://nptel.ac.in/courses/105/106/105106149/   2. https://nptel.ac.in/courses/110/104/110104073/   3. https://nptel.ac.in/noc/courses/noc16/SEM2/noc16-ce06/   4. https://nptel.ac.in/courses/112/106/112106134/