

## PROJECT MANAGEMENT & OPTIMIZATION

<b>Course Code</b>	19ME2701B	<b>Year</b>	IV	<b>Semester</b>	I
<b>Course Category</b>	Inter Disciplinary Elective-II	<b>Branch</b>	EEE	<b>Course Type</b>	Theory
<b>Credits</b>	3	<b>L-T-P</b>	3-0-0	<b>Prerequisites</b>	Industrial Engineering and Management
<b>Continuous Internal Evaluation</b>	30	<b>Semester End Evaluation</b>	70	<b>Total Marks</b>	100

<b>Course Outcomes</b>	
Upon successful completion of the course, the student will be able to	
<b>CO1</b>	Explain basics of project management
<b>CO2</b>	Analyze activities involved in project.(L3)
<b>CO3</b>	Describe various project cost management techniques(L2)
<b>CO4</b>	Apply various Linear programming techniques and sequencing methods
<b>CO5</b>	select transportation and assignment technique to minimize the cost

<b>Contribution of Course Outcomes towards achievement of Program Outcomes &amp; Strength of correlations (H: High, M: Medium, L:Low)</b>														
	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2
<b>CO1</b>	2	2	3			2		2			3	2	2	3
<b>CO2</b>	2	2	3	2	2				2		3	2	2	3
<b>CO3</b>	2	2	3			3		2			3	2	2	3
<b>CO4</b>	2	2	3			3		2			3	2	2	3
<b>CO5</b>	2	2	3			3		2			3	2	2	3

<b>Syllabus</b>		
<b>Unit No</b>	<b>Contents</b>	<b>Mapped CO</b>
<b>Unit-I</b>	<b>Concepts of project management:</b> 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	<b>CO1</b>
<b>Unit-II</b>	<b>NW analysis:</b> 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	<b>CO2</b>

<b>Unit-III</b>	<b>Project duration and control:</b> 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 work completed (AC); schedule and cost variances (SV, CV) forecasting final project costs.	<b>CO2</b>
<b>Unit-IV</b>	<b>LINEAR PROGRAMMING:</b> Linear Programming Problem Formulation, Graphical solution Simplex method, artificial variables techniques-Two-phase method, Big-M method, Duality Principle <b>SEQUENCING:</b> Introduction, sequencing of n jobs through two machines, n jobs through three machines –two jobs through ‘m’ machines	<b>CO3</b>
<b>Unit-V</b>	<b>TRANSPORTATION PROBLEM:</b> Formulation, Optimal solution, U-V method, unbalanced transportation problems, Degeneracy. <b>ASSIGNMENT PROBLEM:</b> Formulation, Optimal solution, Variants of Assignment Problem-Traveling Salesman problem.	<b>CO4</b>

<b>Learning Resource</b>	
<b>Text books:</b>	
<ol style="list-style-type: none"> <li>1. Prasanna Chandra, Projects Planning, Implementation and Control, Tata McGraw Hill Publishing Company Limited, New Delhi, 1995.</li> <li>2. Operations Research, by S.D.Sharma, Kedarnath &amp; Ramnath publications (15<sup>th</sup> edition),2013</li> </ol>	
<b>Reference books</b>	
<ol style="list-style-type: none"> <li>1. Project Management Institute (PMI), A Guide to the Project Management of Knowledge Newton Square, PA, 1996</li> <li>2. J.R. Meredith and S.J. Mantel, Project Management: A Managerial Approach. John Wiley and Sons, New York, 1995.</li> <li>3. L.S. Srinath, PERT &amp; CPM Principles &amp; Applications, 3rd edition, East west Press,2001.</li> <li>4. Operations Research, (2nd edition) by R.Pannerselvam, 2009,PHI Publications, Noida</li> </ol>	
<b>e- Resources &amp; other digital material</b>	
1. <a href="https://nptel.ac.in/courses/105/106/105106149/">https://nptel.ac.in/courses/105/106/105106149/</a>	
2. <a href="https://nptel.ac.in/courses/110/104/110104073/">https://nptel.ac.in/courses/110/104/110104073/</a>	
3. <a href="https://nptel.ac.in/noc/courses/noc16/SEM2/noc16-ce06/">https://nptel.ac.in/noc/courses/noc16/SEM2/noc16-ce06/</a>	
4. <a href="https://nptel.ac.in/courses/112/106/112106134/">https://nptel.ac.in/courses/112/106/112106134/</a>	