PVP 19

PROJECT MANAGEMENT & OPTIMIZATION

Course Code	19ME2701B	**Year**	IV	**Semester**	I
Course Category	IDE-2	**Branch**	Common to all	**Course Type**	Theory
Credits	3	**L-T-P**	3-0-0	**Prerequisites**	Industrial Engineering and Management
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		
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 (H: High, M: Medium, L: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
Average* (Rounded to nearest integer)	2	2	3	2	2	3		2	2		3	2	2	3

Syllabus

Unit No	Contents	Mapped CO
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 work completed (AC); schedule and cost variances (SV, CV) forecasting final project costs.	CO2
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	CO3
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.	CO4

Learning Resource
Text books:
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 (15^{th}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
5. https://nptel.ac.in/courses/105/106/105106149/
6. https://nptel.ac.in/courses/110/104/110104073/
7. https://nptel.ac.in/noc/courses/noc16/SEM2/noc16-ce06/
8. https://nptel.ac.in/courses/112/106/112106134/