University of Kerala

Discipline	Mathematics				
Course Code	UK3VACMAT201				
Course Title	Project Management and Game Theory				
Type of Course	VAC				
Semester	III				
Academic Level	200-299				
Course Details	Credit	Lecture per week	Tutorial per week	Practical	Total Hours per week
	3	3			3
Pre-requisites	Matrix theory				
Course Summary	After completing the course student get the clear ides of the following, minimizing some measure of performance of a system such as the total completion time for the project, overall cost and so on, types of game theory, Mathematics required for solving game theory, Technique of solving for different types of games.				

Detailed Syllabus

Module	Unit	Contents	Hrs
I		**Critical Path Analysis**	**7**
	1	Network Components and Precedence Relationships	
		Chapter 13: Sections 13.4 of Text [1]	
II		**PERT**	**11**
	2	Project Scheduling with uncertain Activity Time (probability not included)	
	3	Basic Difference Between PERT and CPM	
		Chapter 13: Sections 13.6 and 13.2 of Text [1]	
III		**Games with Saddle Point**	**9**

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Module	Unit	Contents	Hrs
	4	Introduction	
	5	Two Person Zero Sum Games	
		Chapter 12: Sections 12.1, 12,2 and 12.3 of Text [1]	
IV		**Games without Saddle Point**	9
	6	Rules of Dominance	
	7	Solution Methods of Games without Saddle Point (Arithmetic Method, Matrix Method)	
		Chapter 12: Sections 12.5 and 12.6 of Text [1]	
V		**Suggestions for teacher designed module**	9
		For internal assessment examinations only.	
	8	Critical Path Analysis Pure Strategies Solution Methods of Games without Saddle Points (Graphical Method)	
		These topics can be found in Chapter 13 Section 13.5, Chapter 12 Sections 12.3, 12.6	

Text books

Text 1 J K Sharma, *Operations Research - Theory and Applications*, Sixth Edition, 2016.

References

Ref. 1 Hamdy A Taha, *Operations Research an Introduction*, Tenth edition, Pearson, 2016.

Ref. 2 Kanti Swarup, P. K. Gupta, Man Mohan, *Operations Research*, Sultan Chand and Sons, 2005.

Ref. 3 G Srinivasan, *Operations Research*, Principle and Applications, Second Edition, PHI Learning, 2010.

Course Outcomes

CO No.	Upon completion of the course the graduate will be able to	PO/PSO	Cognitive Level	Knowledge Category	Lecture(L) Tutorial (T)	Practical (P)
CO 1	Understant concepts in various Mathematical modelling	PSO1, 2, PO4, 5	U	F, C		
CO 2	Evaluate project completion time in different Network	PSO2, 3, PO1, 2, 3, 5	U, E,	P, F		
CO 3	To find solutions of problems in Game theory	PSO3, 5, PO3	Ap, E	F, P		
CO 4	Apply techniques in Game theory to solve problems Game theory	PSO4, 5	Ap, E	F, P		

(R-Remember, U-Understand, Ap-Apply, An-Analyse, E-Evaluate, C-Create)
(F-Factual, C-Conceptual, P-Procedural, M-Metacognitive)

Mapping of CO with PSOs and POs

	PSO1	PSO2	PSO3	PSO4	PSO5	PSO6	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8
CO1	1	-	-	2	-	-	-	-	-	2	4	-	-	-
CO2	2	-	4	1	-	-	2	2	3	-	1	-	-	-
CO3	-	-	3	-	3	-	-	-	3	-	-	-	-	-
CO4	-	-	3	3	-	-	-	-	-	-	-	-	-	-

(- -Nill, 1-Slightly/Low, 2-Moderate/Medium, 3-Substantial/High)

Assessment Rubrics

- Quiz/Assignment/Discussion/Seminar

- Midterm Exam

- Programming Assignments

- Final Exam

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Mapping of COs to Assessment Rubrics

	Internal Examination	Assignment	Project Evaluation	End Semester Exam
CO1	✓			✓
CO2	✓	✓		✓
CO3	✓			✓
CO4	✓	✓		✓

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