

Course Code	Course Title	L	T	P	C
BHUM209L	Game Theory	3	0	0	3
Pre-requisite	NIL	Syllabus version			
		1.0			
Course Objectives					
1. To provide game theory fundamentals so as to apply the same in their professional life 2. To make the students understand the strategic interactions between players using game theory 3. To provide tools of game theory to apply in different decision making situations					
Course Outcomes					
Upon successful completion of the course students will be able to 1. Describe and apply knowledge of strategic games with perfect information. 2. Identify Nash equilibrium in games. 3. Describe mixed strategy games. 4. Analyze extensive games with perfect information. 5. Describe extensive games with imperfect information. 6. Apply bargaining in Game theory setting.					
Module:1 Games with Perfect Information					5 hours
Strategic Games and Examples. Nash Equilibrium, Strict and Nonstrict Nash Equilibria, Best Response Functions, Dominated Actions - Strict and Weak Domination, Symmetric Games.					
Module:2 Nash Equilibrium					6 hours
Cournot's Model of Oligopoly - Bertrand's Model of Oligopoly, Electoral Competition, Median Voter Theorem and Auctions.					
Module:3 Mixed Strategy Equilibrium					5 hours
Randomization and Expected Payoffs, Mixed Strategy Nash Equilibrium and Properties, Dominated Actions – Strict and Weak Domination.					
Module:4 Extensive Games with Perfect Information					7 hours
Strategies and Outcomes, Nash Equilibrium, Subgame Perfect Equilibrium, Backward Induction, The Ultimatum game, The Holdup game and Stackelberg's Model of duopoly, Properties of Subgame perfect equilibrium.					
Module:5 Extensive Games with Imperfect Information					6 hours
Strategies and Nash Equilibrium, Beliefs and Sequential equilibrium, Sequential Rationality, Signaling Games, Separating and Pooling Equilibrium.					
Module:6 Repeated Games					7 hours
Finitely and Infinitely Repeated Prisoner's dilemma, Grim Trigger and Tit-for-tat Strategies, Nash Equilibria of General Infinitely Repeated Games, Finitely Repeated Games.					
Module:7 Bargaining					7 hours
Bargaining as an Extensive Game, Nash's axiomatic Model, Bargaining Solution, Pareto Efficiency and Symmetry, Nash Bargaining Solution.					
Module:8 Contemporary Issues					2 hours
Total Lecture Hours					45 hours
Text Book (s)					
1.	Avinash Dixit, Susan Skeath and David McAdams (2020), Games of Strategy. W.W.Nortonand Co, Fifth Edition.				

2.	Bernhard Von Stengel (2021), Game Theory Basics. Cambridge University Press, 1 st Edition.		
Reference Books			
1.	Drew Fudenberg and Jean Tirole (1991), Game Theory. MIT Press, 1 st Edition.		
2.	Osborne, Martin J (2012), An Introduction to Game Theory. Oxford University Press, 1 st Edition.		
Mode of Evaluation: CAT, Quiz, Assignment and FAT			
Recommended by Board of Studies		23-02-2023	
Approved by Academic Council	No. 69	Date	16-03-2023