Course Code	ECO311
Course Name	Game Theory
Credits	4
Course Offered to	UG
Course Description	Game Theory is a fundamental analytical tool in Economics alongwith Price Theory. Game theoretic modeling and strategic analysis as a distinct methodology has been a major intellectual achievement of the past century not only within the Economics discipline but more broadly in the Social Sciences. The course requires and further develops conceptual thinking as well as problem solving abilities of students.

Pre-requisites

Pre-requisite (Mandatory)	Pre-requisite (Desirable)	Pre-requisite(other)
None		

Post Conditions

CO1	CO2	CO3	CO4
Students are able to construct game theoretic models of economic, political and social situations.	Students are able to analyze games strategically using appropriate solution concepts.	Students are able to analyze contractual relationships strategically.	

Weekly Lecture Plan

Week Number	Lecture Topic	COs Met	Assignment/Labs/Tutorial
1	Extensive Form Games, Concept of a Strategy, Normal/Strategic Form Games	CO1	Problem Set 1
2	Beliefs, Mixed Strategies and Expected payoffs, Rationality and Common knowledge: The 'Muddy Children' Puzzle	CO1	Problem Set 2
3	Dominance and Best Response, Rationalizability and Iterated Dominance	CO2	Problem Set 3
4	Rationalizable Strategies in a Location Game Rationalizable Strategies in a Partnership Game	CO2	Problem Set 4
5	Nash Equilibrium, Applications in (i) Cournot Quantity Game (ii) Betrand Pricing Game (iii) Tariff Game (iv) Political Location Game: Median Voter Theorem	CO2	Problem Set 5
6	Mixed Strategy Nash Equilibrium and Application in Bertrand Pricing Game with Capacity Constraints	CO2	Problem Set 6
7	Contract, law and Enforcement in Static Settings	CO3	Problem Set 7
8	Review of the Extensive Form, Sequential Rationality: Conditional Dominance and Sequential Best Response, Iterated Conditional Dominance and Extensive Form Rationalizability	CO1, CO2	Problem Set 8
9	Sequential Rationality: Subgame Perfect Equilibrium, Subgame Perfect Equilibrium in Applications: (i) Stackelberg Quantity Game (ii) Ultimatum Offer Bargaining Game (iii) A Model of Advertising in a Competitive market (iv) A Model of Dynamic Monopoly	CO2	Problem Set 9
10	Bargaining Problems and the Nash Bargaining Solution, Subgame Perfect Equilibria in Ultimatum Offer and Alternating Offer Games	CO2	Problem Set 10
11	Games with Joint Decisions and Negotiation Euilibrium, Hold-up Problem and Contractual Remedies	CO2, CO3	Problem Set 11
12	Bayesian Games and Bayesian Nash Equilibrium, Applications: (i) Cournot Quantity Game (ii) First Price Auction (iii) Second Price Auction (iv) Lemons Problem in Markets (v) Information Aggregation Problem	CO1, CO2	Problem Set 12
13	Student Presentations	CO1, CO2, CO3	

Note: Problem Sets are not graded but are essential for getting practice with the material and for your performance on the exams.

Assessment Plan

Type of Evaluation	% Contribution in Grade
Quizzes (1)	20
Midterm	30
Endterm	30
Group Project	20

Resource Material

Type	Title
Textbook	1.Joel Watson, Strategy: An Introduction to Game Theory, 2nd Ed, Viva-Norton Student Edition.
Textbook	2. Martin J Osborne, An Introduction to Game Theory, South Asia Ed., Oxford University Press