NPTEL Video Course - Computer Science and Engineering - NOC:Introduction to Game Theory and Mechanism Design

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Co-ordinating Institute - IIT - Bombay

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - Introduction: Game Theory
Lecture 2 - Introduction: Mechanism Design
Lecture 3 - The game of chess
Lecture 4 - Proof of the chess theorem
Lecture 5 - Normal form games
Lecture 6 - Dominance
Lecture 7 - Nash equilibrium
Lecture 8 - Maxmin strategies
Lecture 9 - Elimination of dominated strategies
Lecture 10 - Preservation of PSNE
Lecture 11 - Matrix games
Lecture 12 - Relation between Maxmin and PSNE in matrix
Lecture 13 - Mixed strategies
Lecture 14 - Mixed strategy Nash equilibrium (MSNE)
Lecture 15 - Find MSNE
Lecture 16 - MSNE characterization theorem proof
Lecture 17 - Algorithm to find MSNE
Lecture 18 - Correlated equilibrium (CE)
Lecture 19 - Computing correlated equilibrium
Lecture 20 - Extensive form games
Lecture 21 - Subgame perfection
Lecture 22 - Limitations of SPNE
Lecture 23 - Imperfect Information Extensive Form Games (IIEFG)
Lecture 24 - Strategies in IIEFGs
Lecture 25 - Equivalence of Strategies in IIEFGs
Lecture 26 - Perfect Recall
Lecture 27 - Equilibrium in IIEFG
Lecture 28 - Game Theory in Practice: P2P file sharing
Lecture 29 - Bayesian Games

Lecture 30 - Strategy, Utility in Bayesian Games
Lecture 31 - Equilibrium in Bayesian Games
Lecture 32 - Examples of Bayesian Equilibrium
Lecture 33 - Introduction to Mechanism Design
Lecture 34 - Revelation Principle
Lecture 35 - Introduction to Arrow's Impossibility Result
Lecture 36 - Proof of Arrow's Result
Lecture 37 - Introduction to the Social Choice Setup
Lecture 38 - Introduction to Gibbard-Satterthwaite Theorem
Lecture 39 - Proof of Gibbard-Satterthwaite Theorem
Lecture 40 - Domain Restriction
Lecture 41 - Median Voting Rule
Lecture 42 - Median Voter Theorem - Part 1
Lecture 43 - Median Voter Theorem - Part 2
Lecture 44 - The Task Sharing Domain
Lecture 45 - The Uniform Rule
Lecture 46 - Mechanism Design with Transfers
Lecture 47 - Examples of Quasi-linear Preferences
Lecture 48 - Pareto Optimality and Groves Payments
Lecture 49 - Introduction to VCG Mechanism
Lecture 50 - VCG in Combinatorial Allocations
Lecture 51 - Applications to Internet Advertising
Lecture 52 - Slot Allocation and Payments in Position
Lecture 53 - Pros and Cons of VCG Mechanism
Lecture 54 - Affine Maximizers
Lecture 55 - Single Object Allocation
Lecture 56 - Myerson's Lemma
Lecture 57 - Illustration of Myerson's Lemma
Lecture 58 - Optimal Mechanism Design
Lecture 59 - Single Agent Optimal Mechanism Design
Lecture 60 - Multiple Agent Optimal Mechanism Design
Lecture 61 - Examples of Optimal Mechanisms
Lecture 62 - Endnotes and Summary