

FIN207 Game Theory and Design Thinking

Level: 2

Credit Units: 5 Credit Units

Language: ENGLISH

Presentation Pattern: EVERY JULY

Synopsis:

FIN207 Game Theory and Design Thinking gives an introduction to the fundamental principles and key issues in game theory and how design thinking can be couched in terms of reverse game theory. Students will learn various classic games and understand how to analyse and design games with desirable outcomes. Topics covered include normal/extensive forms, strategies/payoffs, solutions/equilibria, the Prisoner's Dilemma and the basics of mechanism design. The course aims to equip students with the concepts and intuition to appreciate, understand and reason about the agent-based interactions behind blockchain implementations.

Topics:

- Games of strategy
- Classification of games
- Games as models of multi-agent systems
- Normal and extensive forms
- Strategies and payoffs
- Solutions and equilibria
- Prisoners' Dilemma
- Mechanism design
- Information revelation
- Moral hazard
- Applications in AI
- Applications in blockchain

Textbooks:

Dixit, A., Skeath S. & Reiley D.: Games of Strategy, 5th edition 5th edition W. W. Norton & Company
ISBN-13: 9780393422207

Learning Outcome:

- Outline key notions of game theory
- Demonstrate understanding of reverse game theory
- Interpret games as models of multi-agent systems
- Analyse solutions in game theory
- Use computing technology to implement game theory models
- Present applications of game theory to AI and blockchain

Assessment Strategies - Regular Semester (Evening Class):

Components	Description	Weightage Allocation (%)
Overall Continuous Assessment	PARTICIPATION 1	10
	CLASS TEST 1	10
	GROUP BASED ASSIGNMENT 1	20
Overall Examinable Components	Written Exam	60
Total		100

*The information listed is subject to review and change.