

# **FIN207 Game Theory and Design Thinking**

**Level:** 2

**Credit Units:** 5 Credit Units

**Language:** ENGLISH

**Presentation Pattern:** EVERY SEMESTER

## **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 Fourth edition W. W. Norton & Company  
ISBN-13: 978-039312444

**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 (Daytime Class):**

<b>Components</b>	<b>Description</b>	<b>Weightage Allocation (%)</b>
Overall Continuous Assessment	PRE-COURSE QUIZ 1	2
	PRE-COURSE QUIZ 2	2
	PRE-COURSE QUIZ 3	2
	TUTOR-MARKED ASSIGNMENT 1	18
	GROUP BASED ASSIGNMENT 1	20
	PARTICIPATION 1	6
Overall Examinable Components	Written Exam	50
<b>Total</b>		<b>100</b>