Xavier Institute of Management
XIM University

Course Name	Game Theory and Strategy
Programme	MBA-BM
Batch	2024-25
Term	V
Credits	Three
Course Instructor	Prof. Biswa Swarup Misra

1. Course Objective

Have you ever wondered why all the shops selling electronic goods or clothes or branches of different banks are located in close proximity? You would also have often wondered a) Why cartels are difficult to sustain even though it is beneficial for its members? b) Should a company try to outsmart its competitors by cutting prices? c)Should a monopolist spend on advertising his product given that there is no competition from rivals? d)Why factory outlets of branded clothes are often found in city outskirts? You will be able to find an answer to the above questions and many more intriguing issues after completing this course.

The objective of the course is to apply principles of game theory to find answers to the above questions. The course aims at developing competence of students to understand the conduct of firms under different market structures. Our focus will be to study the behaviour of companies in oligopoly markets where only a few players account for the bulk of market share.

The course is broadly divided into two parts. The first part will aim at developing competence of students to understand the solution concepts applied to different kind of games. The Second part will be application of game theory in business. The solution concepts of Game theory will be used to study competition between firms under alternate market scenarios. The application of game theory will also be discussed to select issues like cartels that are recurring themes in modern business.

2. Course Content

- What are the characteristics of different market structures
- The Structure-Conduct- Performance Paradigm to study welfare effects of different market structures
- How Markets are defined
- Meaning and Measurement of Industry Concentration
- How market power is measured,
- What is Game theory
- What is the concept of Nash Equilibrium,
- Understand subgame Perfect Nash Equilibrium

- How quantity and pricing decisions are made under different market Structures,
- Cournot Competition, Bertrand Competition, Bertrand Paradox, Stackleberg Model, Cournot equilibrium with asymmetric costs, Bertrand Model with Multi characteristic differentiation,
- Cournot-Bertrand Model, Coase Conjecture, Product Differentiation, Entry Deterrence and accommodation
- What is Strategic Choice of Capacity
- What is the market share effect and strategic effect and how they decide firms decision to place itself in an industry
- What are Strategic Commitments and taxonomy of strategies,
- Dynamics of Pricing Rivalry-Tit for Tat Pricing and Cooperative Pricing
- What is the optimal advertisement for a monopolist
- How a durable goods monopolist decides its strategy.
- What are Cartels and what is the coordination problem in Cartels.

3.Student Learning Outcomes

CLO-1 Be able to understand the two major approches- SCP and NEIO used in studying firm behviour.
CLO-2 Be able to appreciate the use of game theory to study conduct of firms under varying market structures.
CLO 3:Be able to learn the importance of strategic commitment.
CLO 4: Be able to understand the welfare consequences of market power
CLO5: Be able to appreciate strategies firms adopt either to deter or accommodate entry and the forces governing the same
CLO6 : Be able to understand how cartels work

4.Session Plan

Sessions No	**Topics**	Session Learnings	Reading Materials
1	Introduction and Evolution of Schools of thought on Strategy	What is strategy SLEPT-SWOT-Five Force-Blue Ocean-Resource Based View- Emergent View-Sustainable Competitive advantage	Article on 'Is Your Strategy What You Say It Is?' by Clayton M. Christensen, James Allworth, Karen Dillon Teaching notes
2-4	Approaches to study Industrial Organisation and Characteristics of	S-C-P Framework New Empirical Industrial Economics(NEIO) Characteristics of Different Market Structures-Perfect	Modern Industrial Organisation-Carlton and Perloff

	Different Market Structures and their welfare implications	Competition, Monopoly, Monopolistic Competition and Oligoploy Welfare costs associated with Monopoly, Cournot Model with Symmetric Costs, Comparison of Cournot Symmetric costs with Monopoly and Perfect Competition	Teaching notes
5-9	Game Theoretic Approach to Strategy	Intrduction to Game Theory. Strategies used in Practice · Mix your plays · Look before you leap · Failure to Look Ahead · Superiority of Punishment over reward · To Lead or Follow Examples and Stories in Games · GPA Race · Dating Game · Brinkmanship Game · Why Professors are mean · We can't take the Exam because we had a flat tyre Signalling versus Screening Defining a Game Framework to Define a Game(PAPI Framework) Matrix Representation of Game Types of Games Co-operative versus non-co-operative zero-sum versus non-zero-sum simultaneous or sequential continuous versus discrete pay-offs Prisoners' Dilemma, and Deadlock games Solution methods of games Minimax Theorem for zero sum games Iterated elimination of Dominated strategies(IESDS verus IEWDS); Nash equilibrium. Mixed Strategy Nash Equilibrium Subgame Perfect Nash Equilibrium Exercises on Game Theory	Games of Strategy-Avinash K. Dixit , David H. Reiley Teaching notes
10	Games with Continuous strategies	Solution concept to Games with continuous strategies Difference between simultaneous versus sequential games with continuous strategies	Modern Industrial Organisation-Carlton and Perloff

		The pricing problem of Lemonade stands- Second mover Advantage equilibrium	
11-12	Oligopoly Models	Comparison between perfect competition, Monopoly, Cournot and Bertrand Model Cournot Limit Theorem Cournot Model- Asymmetric costs Leader-Follower (Stackleberg) Model First Mover Advantage Comparison of Cournot versus Stackleberg models Cournot-Bertrand Model	Modern Industrial Organisation- Carlton and Perloff
13	Is there any competion for a monoploist	Durable Goods Monopolist Model	Teaching Notes
14-15	Product differentiation	Market Share Effect versus Strategic Effect Minimal versus Maximal Product Differentiation	Teaching Notes
16	Cartel as a stragtey to limit competition	Coordination Problem in Cartels Cartel Dilemma Strategies to Protect Cartel Market Division, Most Favoured Customer clause, Meet the Competition Clause	Modern Industrial Organisation- Carlton and Perloff
16	Advertisement as a startegy	How important is advertisement for firms Adverting intensity across time and industries Purpose of Advertisement- Shift versus rotation of demand curve Advertising Typology- Informative, Persuasive and Subjective Differentiation Types of Goods - Search, Experience and Credence Fit between types of good and kind of advertising Mass marketing versus niche segment adverting Predatory versus cooperative advertising Dorfman and Steiner condition for optimal advertising for a Monopolist	Teaching Notes
17	Entry Deterring Strategies	Taxonomy (Top dog, Fat Cat, Mad Dog, Puppy Dog etc)	Economics of Strategy -

		Strategic Substitutes versus Strategic compliments Tough versus soft commitments Role of Fixed costs in entry deterrence Optimal capacity for entry deterrence.	Besanko, Dranove and Schaeffer
18	Strategic Entry Barrier	Tit for tat Pricing Cooperative pricing	Economics of Strategy - Besanko, Dranove and Schaeffer
19	Behavioral Game Thoery	Dictator Game Ultimaturm Game	
20	Summing up		

5. Readings and References

Economics of Strategy - Besanko, Dranove and Schaeffer -6th Edition
Introduction to Industrial Organisation -Cabral
Managerial Economics and Business Strategy - Baye
Industrial Organisation - A Strategic Approach - Church and Ware
Modern Industrial Organisation- Carlton and Perloff
Industrial Organisation- Competition, Strategy and Policy- Lipczynski, Wilson and Goddard
Industrial Economics- Economic Analysis and Policy -Martin

Games of Strategy-Avinash K. Dixit , David H. Reiley

Is Your Strategy What You Say It Is? by Clayton M. Christensen, James Allworth, Karen Dillon, HBR Article Aug 1, 2013

6. Assessment Scheme

Component	**Weightage (%)**	**Assessment of Course Leaning Outcome(s)**
Quiz	15	CLO 1, CLO 2
Mid Term	25%	CLO 1, CLO 2, CLO 3 and CLO 4
End-term	40%	CLO 4, CLO 5 and CLO 6
Assignment	10%	CLO 4, CLO 5 and CLO 6
Classroom Participation	10%	

7. Academic Discipline and Integrity

- Students are expected to come to class on time.
- Studnets are expected to come to the class prepared after doing the necessaary preparatory studies
- Late coming will award no attendance and sometimes barring from the class, if the reason for coming late is found not satisfactory.
- Utmost care will be taken to *maintain* class decorum, *follow* the exact evaluation norms, *conduct* fair examinations, fair and transparent evaluation of examination papers, etc.

8. Mapping Course Leaning Outcomes (CLO) with the Program Learning Goals (PLG)

PLG#	Program Learning Goals	Trait	Addressed by Course	
			Yes	No
PLG 1	Functional and Business Skills	The students will demonstrate understanding of elements of all functional areas		√
PLG 2	Analytical Skills	The students will use analytical techniques to identify a business problem, and suggest a solution	√	
PLG 3	Collaboration and Teamwork Attributes	The students will exhibit voluntary cooperation and effective teamwork in a group setting	√	
PLG 4	Ethical Responsibility	The students will understand the ethical complexities of conducting business. The students will adopt techniques in scenarios involving ethical dilemma and offer resolution		√
PLG 5	Communication	The students will produce reasonably good quality business documents. The students will become effective and confident communicators		√