



MADRAS CHRISTIAN COLLEGE

(AUTONOMOUS)

UGC - COLLEGE WITH POTENTIAL FOR EXCELLENCE

DEPARTMENT OF ECONOMICS

B.A. ECONOMICS

II YEAR

SYLLABUS REVISION

(2020-21)

B.A. ECONOMICS COURSE STRUCTURE

EFFECTIVE FROM ACADEMIC YEAR: 2019-2020

Under Choice-Based Credit System

B.A. ECONOMICS COURSE STRUCTURE

EFFECTIVE FROM ACADEMIC YEAR: 2019-2020

Under Choice-Based Credit System

Sl No.	Course Category	Subject Name	Hours	ESE	CA	Credits
1	Part-I	Language -I	4	50	50	3
2	Part-II	English -I	4	50	50	3
3	Part-III. a Major-1	Micro Economic Theory - I	5	50	50	5
4	Part-III. a Major-2	Linear Algebra for Economics	5	50	50	5
5	Part- III. b Allied-I	Indian Economy : Structure	6	50	50	5
6	Part IV. a	General Course :Principles of Economics / BT /AT	4	50	50	2
7	Part-IV. d	Value Education: Social Ethics	2	50	50	1
Total			30			24
Semester II						
Sl No.	Course Category	Subject Name	Hours	ESE	CA	Credits
8	Part-I	Language -II	4	50	50	3
9	Part-II	English -II	4	50	50	3
10	Part-III. a Major-3	Micro Economic Theory - II	5	50	50	5
11	Part-III. a Major-4	Calculus for Economics	5	50	50	5
12	Part- III. b Allied-I	Introduction to Game Theory	6	50	50	5
13	Part IV. a	General Course :Principles of Economics / BT /AT	4	50	50	2
14	Part-IV. d	Value Education: Social Studies/ Gender studies /Christian Studies	2	50	50	1
Total			30			24

Sl. No.	Course Category	Subject Name	Hours	ESE	CA	Credits
Semester III						
Sl. No.	Course Category	Subject Name	Hours	ESE	CA	Credits
15	Part-I	Language -III	4	50	50	3
16	Part-II	English -III	4	50	50	3
17	Part-III. A Major-5	Macroeconomic Theory – I	5	50	50	5
18	Part-III. A Major-6	Development of Economic Ideas	5	50	50	5
19	Part- III. B Allied-II	International Business	6	50	50	5
20	Part IV. B	Personality development (Skill Based)	2	50	50	-
21	Part-IV. C	Environmental Studies	4	50	50	2
	Total		30			23
Semester IV						
Sl. No.	Course Category	Subject Name	Hours	ESE	CA	Credits
22	Part-I	Language -IV	4	50	50	3
23	Part-II	English -IV	4	50	50	3
24	Part-III .a Major-7	Macroeconomic Theory – II	5	50	50	5
25	Part-III .a Major-8	Statistics for Economics	5	50	50	5
26	Part-III .b Allied-II	Agricultural Economics	6	50	50	5
27	Part IV. B	Personality development (Skill Based)	2	50	50	3
28	Part-IV. B	Interdisciplinary: Economics of Education and Health	4	50	50	3
	Total		30			27

PROGRAMME OUTCOMES

P.O. NO.	PROGRAMME OUTCOMES
	<i>Students of B.A. Economics will be able to:</i>
P.O - 1	Understand how individuals and firms form their decisions on the principle of constraint optimization and maximization of welfare.
P.O.- 2	Understand the behavior of Indian and the world economy
P.O.- 3	Determine economic variables such as inflation, unemployment, poverty, GDP, Balance of payments using statistical methods
P.O.- 4	Analyze macroeconomic policies including fiscal and monetary policies of India and other nations
P.O.- 5	Analyze the implications of macroeconomic decisions of nations on other economies in the globalized world.
P.O.- 6	Appreciate how the banking and financial system of the country is intrinsically linked to the macroeconomic performance of the nation

SEMESTER I

Programme: B.A. Economics**Course: Micro Economic Theory I**

CO No	Course Outcomes Upon completion of this course, students will be able to	POs addressed	CL
CO 1	Understand the basic concepts in Economics	PO 1	U
CO 2	Understand consumer behavior with various demand functions and theories such as Indifference Curve analysis, Revealed Preference Theory, Slutsky's theorem and Elasticity of Demand	PO 1	An
CO 3	Understand the concepts of consumer surplus and producer surplus and apply them where there is a price ceiling	PO 1	C, An
CO 4	Understand Production Function, Cost function and Revenue function	PO 1	U
CO 5	To examine the market structure for various kinds of goods	PO 2	An
CO 6	To know how monopoly price discrimination takes place based on time, place and person	PO 3	U, An

Semester :I
Course Category : Core Course Credits : 5

MICRO ECONOMIC THEORY - I

Module- I

Introduction to Micro Economics – Difference between Micro and Macro Economics – Difference between Partial and general equilibrium – Static, comparative static and dynamic equilibrium – Inductive and deductive approach – positive and normative approach – concepts – scarcity, choice and opportunity cost – allocation of Resources – Firm and industry.

Module- II

- a. Demand analysis – Law of demand, factors determining demand – demand function – demand curve – shift and scope of demand curve – elasticity of demand – types – methods to measure elasticity – factors determining elasticity
- b. Utility – utility in use, utility in exchange- cardinal utility, ordinal utility – Law of diminishing Marginal Utility.
Indifference curve analysis – consumers' equilibrium – Revealed preference theory – Inverse demand function – consumer surplus-Application of consumer surplus- Deadweight loss – Slutsky's decomposition of Price effect for Normal, Inferior and Giffen goods.

Module – III

Production analysis – Factors of Production – Law of variable proportions – Law of Returns to scale – Isoquants – Producer's equilibrium- Cobb- Douglas production function – Economies and Diseconomies of scale – Supply – Producer's supply –Inverse supply function – Supply factors and constraints.

Module – IV

Cost function – Types of Costs – Accounting and Economic costs, fixed, variable and sunk cost, Imputed cost, implicit and explicit cost – short run and long run costs- relationship between cost function and production function. Revenue function- Relationship between Price, elasticity and Marginal Revenue.

Module – V

Market structure

- a. Perfect competition – Features – Determination of output, Price and Profit under perfect competition.
- b. Monopoly – Features – Determination of price, output and Profits under monopoly- Impacts of taxes on Monopoly price – Monopoly price discrimination – Dumping - Bilateral monopoly
- C. Monopolistic competition – Chamberlin’s large group model – Price and non-price competition

Text Books

- 1) Pindyck. R. S. and D.L. Rubinfeld, Micro Economics fifth edition prentice Hall 2004.
- 2) Hal. R. Varian, Intermediate Micro Economics, A modern approach W.W. Norton and Company / Affiliated East – West Press (India) 8th edition 2010

Reference books

- 1) Gregory Mankiw.N , Principles of Microeconomics,south Western Cengage learning,5th edn
- 2) Case & Fair ,Principles of Economics Myeconlab series 8th Edn
- 3) Koutsoyiannis, Modern Microeconomics,Macmillan Education, 2nd Edn
- 4) Dominick Salvatore, Micro economics Theory and Applications,Oxford University Press,5th Edn
- 5) Cullis &Jones,Public finance and Public choice,Oxford University Press 3rd Edn

Programme: B.A. Economics**Course: Linear Algebra for Economics**

CO-No	Course Outcomes	POs addressed	CL
	<i>Upon completion of this Course, Students of B.A Economics will be able to</i>		
CO-1	Understand and be able to convert economic issues into mathematical problems for solving.	PO-1	A _P
CO-2	Select the appropriate applications of matrix algebra to economic units such as firms, industry and Government.	PO-2	R and A _P
CO-3	Develop model building skills and solve for the economic variables in the model.	PO-1 and PO-3	An and C
CO-4	Calculate optimal solutions in competitive situations using linear systems.	PO 4	An
CO-5	Apply economic models to determine input-output relationships.	PO-5	An and E

Semester I

Course Category : Core Course Credits : 5

LINEAR ALGEBRA FOR ECONOMICS

AIM: In most economic analysis , variables are assumed to be related by sets of simultaneous linear equations. The objective of this paper is to make students understanding the theory and application of Linear Algebra in economic analysis.

Module-I: Vector Algebra

vectors – Field – Vector addition and multiplication by scalars - inner product of two vectors – Geometric interpretation – Vector Spaces - Linear dependence and Independence – Basis – Span – Orthogonality – Properties of Vector Space.

Module-II : Matrix Algebra

Introduction to matrix, Types , Matrix operation- addition, subtraction, matrix multiplication, Elementary Transformation – row and column , Augmented matrix – Normal form of a matrix – Row Echolen - Properties of transpose, Determinants, Minors, cofactors, adjoint, inverse, Solving simultaneous linear equations in matrix form, Gaussian method , Inverse method and Cramer's rule. Application in to Economics : IS – LM analysis – Market Equilibrium (Two products and Three products markets only).

Module III : Input –Output Analysis

Rank of a matrix , Characteristic Equation , Eigen values , Cayley – Hamilton Theorem. Input – Output model – Technological Coefficient matrix , Open and Closed Input Output models – Hawkin – Simon Conditions – Solution to Open Input –Output model .

Module IV : Linear Programming

Mathematical Formulation , Graphic solutions , Extreme Point Theorem , Slack and Surplus variables , Simplex method (Two and Three variables only); The Dual – Transformation of primal to Dual – The Duality Theorem . Applications – Diet Problem.

Module V : Transportation and Assignment Problem

Mathematical formulation of Transportation Problem , Balanced and Un balanced – Initial Basic Feasible Solution – North West Corner method ; Least Cost method ; Vogel's Approximation Method . Optimum solution by MODI Method. Assignment Problem – structure – optimum solution - Hungarian Assignment method .

Text Books :

1. Seymour Lipschutz & Marc Lipson ' Linear Algebra' Schaum outline series , 2017
2. Hadley, G. 'Linear Algebra', Addison-Wesley, Delhi. 1987
3. Mehta .B.C. & G.M.K. Madhani ' Mathematics For Economists'. Sultan Chand and Sons , 2003

Reference Books

4. Edward T. Dowling, Theory and Problems of Mathematics for Economists, Schaum's Outline Series, McGraw Hill, New York.
5. Alpha C Chiang & Kevin Walnwright , , 'Fundamental Methods of Mathematics Economics', McGraw Hill, New York. 4th Edition 2005
6. Gupta .P.K. & Manmohan ' Problems in Operations Research 'Sultan Chand and Sons , 1992
7. Knut Sydstaeter,& Peter J Hammond, 'Mathematics for Economic Analysis', Pearson edition .2002
8. S. H. Friedberg, A. L. Insel and L. E. Spence, 'Linear Algebra', Prentice Hall of India New Delhi, 2004.

Programme: B.A. Economics**Course: Indian Economy - Structure**

CO No	Course Outcomes	POs addressed	CL
	Upon completion of this course, students will be able to		
CO 1	To enable students to have a knowledge of various issues and components in the economy	PO 2	U
CO 2	Understand the achievements and failures of the economy during Pre-British and Colonialism	PO 2	U
CO 3	Understand the problems facing the economic sectors and focus on few important legislations in Indian economy.	PO 2	U
CO 4	To understand the economic consequences of the British Rule in India.	PO 2	U
CO 5	To understand the course of action, implementation of the schemes and framework of the Indian economy.	PO 2	U and An

Semester – I
Course Category : Allied Course Credits : 5
INDIAN ECONOMY: STRUCTURE

OBJECTIVES:

To understand the various issues and components in the economy, to enable the students to realize the problems facing the economic sectors and focus on few important legislations in Indian economy and to analyze the course of action, implementation of the schemes and framework of the Indian economy.

MODULE I – HISTORICAL OVERVIEW

Overview of Indian economic development in colonial period – industry – decline of handicrafts - agriculture – land tenure systems - effect of railways- drain of resources by Britain - Indian economy at the time of Independence.

MODULE II – STRUCTURE OF INDIAN ECONOMY

Characteristics of Indian Economy – Natural Resources – Land, Water and Forest Resources - Population – Size and Growth rates, Sex Composition – Rural Urban Migration – Occupational Distribution – Problems of Over population – Population Policy – Infrastructural Development - Unemployment and Mass Poverty. Structural change in Indian economy – Sectoral Composition of NI -Dimensions of Indian economy as an emerging economy.

MODULE III – INDIAN ECONOMIC STRATEGY DURING 1950-1991

The arguments for planning in the Indian context - Five Year Plans – goals of Five Year Plans – growth – modernization – self-reliance – equity – role of state – the role of Planning Commission.

MODULE IV – LIBERALIZATION

The crisis of 1991- response to crisis – New Economic Policy – Components of New Economic Policy – liberalization – privatization – globalization policy – replacement of Planning Commission with NITI Ayog.

MODULE V – ECONOMIC GROWTH, AGRICULTURE AND INDUSTRY

Economic growth after liberalization – driving factors of high growth rates- agriculture- Public investment in agriculture – impact of trade liberalization on agriculture – agricultural production since 1991 – Industry – disinvestment and privatization – arguments for and against privatization - de-reservation for small scale industries – FDI – impact on Indian industrial development.

Text Book

Uma Kapila (Ed.) *Indian Economy Since Independence*, 28th Edition, Academic Foundation, New Delhi, 2017.

References

1. Ahluwalia, I. J. and IMD Little (Eds.) (1998), *India's Economic Reforms and Development*, Oxford University Press, New Delhi.
2. Byres, T.J. (Ed.) (1997), *The State, Development Planning and Liberalization in India*, Oxford University Press, New Delhi.
3. Byres, T.J. (Ed.) (1998), *The Indian Economy: Major Debates Since Independence*, Oxford University Press, New Delhi.
4. KausikBasu (Ed.) (2012), *Oxford Companion to Indian Economy*, 3rd Edition, OUP, New Delhi.
5. AshimaGoyal (Ed.) *The Oxford Handbook of the Indian Economy in the 21st Century: Understanding the Inherent Dynamism*, Oxford University Press.
6. Tirthankar Roy *Economic History of India 1857-1947*Oxford University Press, 3rd edition New Delhi 2011

Programme: B.A. Economics

Course: Principles of Economics

CO No	Course Outcomes	POs addressed	CL
	Upon completion of this course, students will be able to		
CO 1	To know the basic knowledge of the subject matter of economics	PO 2	U
CO 2	To analyze the role of money and its trend in fluctuations in the economy	PO 2	An
CO 3	To enable the students to realize the consumer behaviour, individual demand, utility and goals of firms	PO 2	U
CO 4	To understand the course of action, implementation of the schemes and framework of the Indian economy.	PO 2	U
CO 5	To analyze the development strategy and appraise the current Indian economic problems.	PO 2	An

Semester I & II
Course Category : General Course Credit : 5
PRINCIPLES OF ECONOMICS

OBJECTIVES:

To understand the basic knowledge of the subject matter of economics, to enable the students to realize the consumer behaviour, individual demand, utility and goals of firm and to analyze the development strategy and appraise the current Indian economic problems.

MODULE I – INTRODUCTION TO ECONOMICS

The Scope and Method of Economics – The Economic Problem: Scarcity and Choice, Demand, Supply and Market Equilibrium – Demand and Supply Applications - Elasticity

MODULE II – THE MARKET SYSTEM: CHOICES MADE BY HOUSEHOLDS AND FIRMS

Household Behaviour and Consumer Choice - The Production Process: The Behaviour of Profit-Maximizing Firms - Short-Run Costs and Output Decisions ,Long-Run Costs and Output Decisions- Input Demand: The Labour and Land Markets Input Demand: The Capital Market and the Investment Decision -General Equilibrium and the Efficiency of Perfect Competition

MODULE III – MARKET IMPERFECTIONS AND ROLE OF GOVERNMENT

Monopoly and Antitrust Policy – Oligopoly- Monopolistic Competition Externalities, Public Goods and Social Choice – Uncertainty and Asymmetric Information – Income Distribution and Poverty – Public Finance – The Economics of Taxation

MODULE IV – CONCEPT AND PROBLEMS IN MACROECONOMICS

Introduction to Macroeconomics - Measuring National Output and National Income
Unemployment, Inflation, and Long-Run Growth

MODULE V – THE CORE OF MACROECONOMIC THEORY

Aggregate Expenditure and Equilibrium Output - The Government and Fiscal Policy - the Money Supply and the Federal Reserve System - Money Demand and the Equilibrium - Aggregate Demand in the Goods and Money Markets - Aggregate Supply and the Equilibrium Price Level - The Labour Market in the Macro economy.

Text Book

Gregory Mankiw N., "Principles of Economics" 7th Edition Cengage Learners, Stamford, December 2013.

References

1. Karl E Case, Ray C Fair and Sharon M Oster, "Principles of Economics" 10th Edition, Prentice Hall,
2. William J Baumol and Alan S Blinder, "Economics Principles and Policy" 11th Edition, South –Western Cengage Learning
3. Samuelson, Paul A. and William D. Nordhaus, Economics , Ed. 6 Tata McGraw Hill Publishing Co. Ltd. New Delhi 2000.
4. Koutsoyiannis, A. Modern Micro Economics, Macmillan Publishers, New Delhi – 2012.
5. Donnich Salvatore, Principles of Economics, 2nd Edition, Longman Publishers, London, 2012.
6. Stonier, Alfred W and Douglas C Hague, A Test Book of Economic Theory, Longman, London, 2000.

SEMESTER II

Programme: B.A. Economics**Course: Micro Economic Theory II**

CO No	Course Outcomes Upon completion of this course, students will be able to	POs addressed	CL
CO 1	How the oligopoly market structure works and to trace the development of oligopoly models from the classical school to the modern school.	PO 1	An
CO 2	Know how price and output are determined in monopolistic competition and in bilateral monopoly	PO 1	U
CO 3	Apply the marginal productivity theory of factor pricing for all factors	PO 1	Ap
CO 4	Examine the connection between product market and labour market at different market conditions	PO 1	C
CO 5	Generalize the micro economic principles for macroeconomic general equilibrium models using optimality conditions and to identify the difficulties	PO 1	E

Semester :II
Course Category : Core Course Credits : 5

MICRO ECONOMIC THEORY II

Module – I Market Structure- Oligopoly

- a. Non-collusive oligopoly – Cournot, Bertrand, Chamberlin, Sweezy, Edgeworth and Stackel – berg models.
- b. Collusive oligopoly – cartels – OPEC Cartel, Gold Cartel- Price Leaderships – Low Cost and Dominant Price Leadership

Module -II Factor pricing theories

Demand for and supply of factors – Characteristics of factors –a)Land- Pricing of land – Ricardo's theory of rent, Quasi rent-Economic rent –b)Labour-Factor markets with monopsony power-Factor market with monopoly market- Pricing of Labour – Marginalistic pricing principle for wages – c)Interest-Theories of Interest – Loanable funds theory – Abstinence theory – Liquidity preference theory – NPV criteria for capital investment-d)Profits-Theories of Profit – Innovation theory – Risk bearing theory – theory of uncertainty.

Module -III General equilibrium

Walrasian theory – 2x2x2 model – Edgeworth Box diagrams-Pareto optimality conditions for allocation of resources – Euler's Product exhaustion theorem – Factor Prices and Income distribution.

Module- IV Welfare criteria

Classical -Neo Classical welfare criteria – Pigou's welfare criteria-Pareto's criteria – Kaldor Hicks' compensation criteria – Bergson Samuelson's social welfare function -Arrow's Impossibility theorem –Second best solution- Value judgment.

Module V Markets with asymmetric information

Market signaling-Adverse selection-Moral hazard-The principal- agent problem-Managerial incentives in integrated firm-Asymmetric information in labour

TEXT BOOKS

1. Pindyck. R. S. and D.L. Rubinfeld, Micro Economics fifth edition prentice Hall 2004.
2. Hal. R. Varian, Intermediate Micro Economics, A modern approach W.W. Norton and Company / Affiliated East – West Press (India) 8th edition 2010

Reference books

3. Gregory Mankiw.N , Principles of Microeconomics,south Western Cengage learning,5th edn
4. Case &Fair ,Principles of Economics Myeconlab series 8th Edn
5. Koutsoyiannis, Modern Microeconomics,Macmillan Education, 2nd Edn
6. Dominick Salvatore, Micro economics Theory and Applications,Oxford University Press,5th Edn
7. Cullis &Jones,Public finance and Public choice,Oxford University Press 3rd Edn

Programme: B.A. Economics**Course: Calculus for Economics**

CO-No	Course Outcomes	POs addressed	CL
	<i>Upon completion of this Course, Students of B.A Economics will be able to</i>		
CO-1	Derive functional relationships and make predictions about rational behavior of producers, consumers and so on.	PO-2	A and E
CO-2	Assess the changes in economic variables over time and forecast their effects.	PO-1 and PO-5	U and E
CO-3	Judge the performance of economic units such as firms and industry using derivatives.	PO-3	E
CO-4	Compare and contrast the role of total derivatives and partial derivatives in economics.	PO-3 and PO-4	An
CO-5	Apply the technique of integral calculus and assess Consumer and Producer behavior.	PO-2 and PO-5	E

Semester II

Course Category : Core Course Credits : 5

CALCULUS FOR ECONOMICS

AIM: Calculus provides the language of economics and the means by which economists solve problems. Calculus is especially significant in illustrating key principle of economics. calculus focuses heavily on functions and derivatives. Functions examine the relationship between two or more variables, or entities that take on different values. The objective of this paper is to make students understanding the theory and application of calculus in economic analysis.

Module-I: Basic Algebra ; Graphs and Functions

Definition of a set, Different types of Set, Operations on sets (basic idea only) Concepts of 'range', 'domain' and 'mapping'; The Plane, Cartesian product; Concept of Euclidean Space, Points and lines in Euclidean space. Relations ; functions, one to one and onto function, the inverse function. Types of functions: quadratic, polynomial, power, exponential, logarithmic;. Graphs- line, curves, slopes, tangent; Graphs of linear functions, non-linear functions. Application into Economics : Market Equilibrium , Break Even point .

Module-II :Differentiation – Optimization : Limits and Continuity – Differentiability of a function – slope of a curve – Increasing and decreasing function – Simple rules of differentiation- Application of differentiation in economics –calculation of marginal cost, average cost, marginal revenue, and average revenue from their respective total cost and revenue functions- Elasticity :types of elasticity- calculation of price- income elasticity of demand- substitutes and compliments- Relationship between AR,MR, and price elasticity of demand – relationship between average and marginal cost. Second order derivatives – Convex and Concave functions – Maximization and Minimization of a function – Economic applications – Output, Sales, Revenue maximization - Profit maximization under perfect competition, Monopoly, Discriminating monopoly etc., Cost minimization - Effect of taxation.

Module-III :Partial Differentiation :Partial derivatives – Second order partial derivatives – total and partial differential – total derivatives – implicit function rules - Economic Applications – Marginal Productivity – Partial elasticities , Cross Price Elasticity – Production function – Homogeneous and non – homogeneous – Euler’s Theorem – Cobb-Douglas – CES production function.

Module-IV : Unconstrained and constrained optimization : Optimization with two variables: output, revenue and profit maximization under perfect competition-profit maximization under monopoly-oligopoly and duopoly markets. Constrained optimization :Lagrangian multiplier- The Hessian and Boarded Hessian method of optimisation - Numerical problems of utility , output , sales , revenue and profit maximization under different market conditions.

Module-V : Integral Calculus : Rules of Integration – Integration by substitution – Integration by parts – Define integrals – Properties of Definite integrals – Area under a curve Economic applications – Derivation of total function (Total output ,Revenue, Cost, Utility, etc.,) from the Marginal function – Profit maximisation -Consumer’s surplus and Producer’s surplus.

Text Books :

1. Jean E. Weber, ‘Mathematical Analysis, Business and Economics Applications’, Harper International Edition, Cambridge. 4th Edition 1982.
2. Alpha C Chiang & Kevin Walnwright , , ‘Fundamental Methods of Mathematics Economics’, McGraw Hill, New York. 4th Edition 2005
3. Mehta .B.C. & G.M.K. Madnani ‘ Mathematics For Economists’. Sultan Chand and Sons , 2003

Reference Books

4. Mabbet, A.J., Workout Mathematics for Economists, Mac Millan Master Series, London.
5. Edward T. Dowling, Theory and Problems of Mathematics for Economists, Schaum’s Outline Series, McGraw Hill, New York.
6. Laurence D. Hoffmann, Gerald L. Bradley, Calculus for Business and Economics, McGraw Hill, New York.
7. Knut Sydstaeter, & Peter J Hammond, ‘Mathematics for Economic Analysis’, Pearson edition .2002
8. . Renshaw, G ‘Maths for Economics’, Oxford University Press. 4th Edition 2016.

Programme: B.A. Economics

Course: Introduction to Game Theory

CO No	Course Outcomes - Upon completion of this course, students will be able to	POs addressed	CL
CO 1	To understand the importance of strategic interdependence of agents in economic interactions	PO 1	U
CO 2	To apply the game theoretic concepts and tools to evaluate microeconomic theory	PO 1	Ap
CO 3	To understand the equilibrium notion in situations of strategic interactions	PO 1	U
CO 4	To understand and evaluate extensions of Nash equilibrium in game theory situations	PO 1	U and E
CO 5	To apply the insights gained to explain what students observe in the real world situation of strategic interactions	PO 1	Ap

Semester: II

Course category : Allied Course Credits: 5

INTRODUCTION TO GAME THEORY

Objective: Game theory provides a set of tools to study the strategic interactions of agents with at least partial conflict of interest. Such situations are ubiquitous in economics. Game theory can guide us in making better decisions in such situations and helps us to understand observed behavior. This course aims to introduce basic concepts in non-cooperative game theory to students with minimum mathematical background through illustration of its applications by examples.

MODULE 1: Introduction

Preliminary concepts-Decision making under strategic interdependence-Strategies and Payoff functions- types of games- Zero sum games and general sum games- two person and n person games- non-cooperative and cooperative game theory – rationality in game theory – Common knowledge rationality- Game theoretic revolution in economics.

MODULE 2: Games in Normal Form

Classical normal form games- Assumptions – Nash Equilibrium – Principle of dominance- Weak dominance and strong dominance-Best response functions- Finding Nash Equilibria using iterated elimination of dominated strategies and best response functions- Prisoner's Dilemma- Battle of Sexes- Chicken Game- Stag Hunt –Cournot's model of oligopoly-Bertrand's model of Oligopoly

Module 3: Mixed Strategy Nash Equilibrium

Randomization of strategies- von Neumann and Morgenstern (vNM) preferences –expected value of a payoff function – strategic game with vNM preferences – mixed strategy profile –

Mixed strategy Nash Equilibrium – Finding mixed strategy Nash Equilibria – Zero sum games – minimax theorem – value of a zero sum game – Examples of mixed strategy Nash Equilibrium.

Module 4: Games in Extensive Form

Games in extensive form with complete information (GEFCI) – structure of GEFCI – Backward induction – Common Knowledge Rationality – Credible threats and promises-Criticisms of backward induction – Ultimatum game and Centipede game - Sub game perfection – Rubinstein's bargaining model – Repeated games – Iterated Prisoner's Dilemma.

Module 5: Games with Incomplete Information

Random events and incomplete information – Bayesian Games – Bayesian normal form – Bayesian Nash Equilibrium and Rationalizability – Examples- Market for Lemons – Auctions – second price auctions.

Text Books

Watson, Joel (2013) *Strategy: An Introduction to Game Theory*, Third edition, W.W.Norton& Company

Osborne, Martin J (2004) *An Introduction to Game Theory*, Oxford University Press

References

Gintis,Herbert and schecter,Stephen (2016) *Game Theory in Action: An Introduction to Classical and Evolutionary Models*, Princeton University Press

Hargreaves,H.Shaun and Varoufakis,Yanis (2004) *Game Theory: A Critical Text*, Routledge

Dixit, A.K., Susan Skeath and David H Reiley (2015) *Games of Strategy*, Fourth Edition, W.W.Norton & Company.

Gibbons, Robert (1992) *Game Theory for Applied Economists*, Princeton University Press