Department of Economics
University of Kalyani

Undergraduate Syllabus for B.Sc (Major) in Economics under NEP 2020

*This **B.Sc. (Major) in Economics** syllabus (**w.e.f. Academic Session 2023-24**) is designed by the **Undergraduate Board of Studies (UGBOS), Department of Economics, University of Kalyani**, in alignment with the **UGC Curriculum and Credit Framework** under the **National Education Policy (NEP) 2020**.*

CONTENT

Program **Objectives, Program Outcomes (POs), and Program Specific Outcomes (PSOs) for UG Program of BSc (Major) in Economics**

Objectives

The UG Program of BSc (Major) in Economics aims to:

1. Develop a comprehensive understanding of economic theories, principles, and their practical applications.
2. Equip students with quantitative, statistical, and computational skills for economic analysis.
3. Foster critical thinking and problem-solving abilities in economic decision-making.
4. Enhance knowledge of Indian and global economic systems, trade, and financial markets.
5. Promote ethical reasoning, sustainable development, and inclusive economic policies.

Program Outcomes (POs)

Upon completing the UG Program of BSc (Major) in Economics, students will be able to:

1. **Develop a strong foundation** in economic theories, principles, and real-world applications.
2. **Apply mathematical, statistical, and econometric tools** to analyze economic problems effectively.
3. **Assess economic issues and policies** using logical reasoning and empirical evidence.
4. **Utilize computer applications and statistical techniques** for data collection, processing, and interpretation.
5. **Understand Indian and global economic policies** related to trade, finance, and development.
6. **Communicate economic ideas effectively** through reports, graphical presentations, and policy discussions.
7. **Apply economic principles for sustainable development** while ensuring ethical governance and inclusive growth.

Program Specific Outcomes (PSOs)

PSO 1: Strong Theoretical Foundation – A deep understanding of **Microeconomics, Macroeconomics, Development Economics, and Public Economics**.

PSO 2: Quantitative Proficiency – Mastery over **Mathematical Economics, Statistics for Economics, and Econometrics** for economic modeling and analysis.

PSO 3: Policy and Applied Economics – Ability to critically analyze **Indian Economic Policies, International Economics, and Public Finance**.

PSO 4: Research and Data Analytics – Hands-on expertise in using **MS Excel, statistical software, and econometric techniques** for research-based economic analysis.

PSO 5: Real-World Applications – Practical exposure to **Money, Banking, Finance, Economic History, and Environmental Economics** with contemporary policy insights.

University of Kalyani

B.Sc. (Major) in Economics – Semester-wise Course Structure

(As per NEP Curriculum, University of Kalyani)

Semester-wise Course Structure with Credits & Marks Distribution

Semester I				
Paper	**Course Code**	**Course Title**	**Credits**	**Marks (Theory + Internal Assessment)**
1	**MAC 1**	Introductory Microeconomics	**6**	60 + 15 = **75**
2	**MIC 11**	Principles of Microeconomics (Minor Course 1)	**4**	40 + 10 = **50**
3	**MDC 1**	Multidisciplinary Course 1: Basic Economics	**3**	35 + 10 = **45**
4	**SEC 1**	Basic Mathematics	**3**	35 + 10 = **45**
5	**VAC 1**	Value Added Course from University Listed Course	**4**	40 + 10 = **50**
Total Credits:			**20**	**265**
Semester II				
Paper	**Course Code**	**Course Title**	**Credits**	**Marks (Theory + Internal Assessment)**
6	**MAC 2**	Introductory Macroeconomics	**6**	60 + 15 = **75**
7	**MIC 12**	Principles of Microeconomics (Minor Course 2)	**4**	40 + 10 = **50**
8	**MDC 2**	Multidisciplinary Course 2: Basic Economics	**3**	35 + 10 = **45**
9	**AEC 1**	Ability Enhancement Course	**4**	40 + 10 = **50**
10	**SEC 2**	Basic Statistics	**3**	35 + 10 = **45**
Total Credits:			**20**	**265**
Semester III				
Paper	**Course Code**	**Course Title**	**Credits**	**Marks (Theory + Internal Assessment)**
11	**MAC 3**	Mathematical Economics	**6**	60 + 15 = **75**

12	**MIC 21**	Principles of Macroeconomics (Minor Course 1)	**4**	40 + 10 = **50**
13	**MDC 3**	Multidisciplinary Course 3: Basic Economics	**3**	35 + 10 = **45**
14	**SEC 3**	Computer Applications in Economics	**3**	35(Practical) + 10 (IA) = **45**
15	**VAC 2**	Value Added Course	**4**	40 + 10 = **50**
Total Credits:			**20**	**265**
Semester IV				
Paper	**Course Code**	**Course Title**	**Credits**	**Marks (Theory + Internal Assessment)**
16	**MAC 4**	Intermediate Microeconomics	**6**	60 + 15 = **75**
17	**MAC 5**	Indian Economics I	**6**	60 + 15 = **75**
18	**MIC 22**	Principles of Macroeconomics (Minor Course 2)	**4**	40 + 10 = **50**
19	**AEC 2**	Ability Enhancement Course 2	**4**	40 + 10 = **50**
Total Credits:			**20**	**250**
Semester V				
Paper	**Course Code**	**Course Title**	**Credits**	**Marks (Theory + Internal Assessment)**
20	**MAC 6**	Intermediate Macroeconomics	**6**	60 + 15 = **75**
21	**MAC 7**	Statistics for Economics	**6**	60 + 15 = **75**
22	**MIC 31**	Development Economics (Minor Course 1)	**4**	40 + 10 = **50**
23	**MIC 32**	Development Economics (Minor Course 2)	**4**	40 + 10 = **50**
Total Credits:			**20**	**250**
Semester VI				
Paper	**Course Code**	**Course Title**	**Credits**	**Marks (Theory + Internal Assessment)**
24	**MAC 8**	Development Economics	**6**	60 + 15 = **75**

25	**MAC 9**	Public Economics	**6**	60 + 15 = **75**
26	**MAC 10**	International Economics	**6**	60 + 15 = **75**
		Outreach/Internship	**2**	
Total Credits:			**20**	**225**
Semester VII				
Paper	**Course Code**	**Course Title**	**Credits**	**Marks (Theory + Internal Assessment)**
27	**MAC 11**	Advanced Microeconomics	**6**	60 + 15 = **75**
28	**MAC 12**	Advanced Macroeconomics	**6**	60 + 15 = **75**
29	**MAC 13**	Econometrics-I	**6**	60 + 15 = **75**
30	**MIC 41**	Indian Economics (Minor Course 1)	**4**	40 + 10 = **50**
31	**MIC 42**	Indian Economics (Minor Course 2)	**4**	40 + 10 = **50**
Total Credits:			**26**	**325**
Semester VIII				
Paper	**Course Code**	**Course Title**	**Credits**	**Marks (Theory + Internal Assessment)**
32	**MAC 14**	History of Economic Ideas	**4**	40 + 10 = **50**
33	**MAC 15**	Econometrics II	**4**	40 + 10 = **50**
34	**MAC 16**	Indian Economics II	**4**	40 + 10 = **50**
For UG Honours Without Research:				
Paper	**Course Code**	**Course Title**	**Credits**	**Marks (Theory + Internal Assessment)**
35	**MAC 17**	Financial Economics	**6**	60 + 15 = **75**
36	**MAC 18**	Environmental Economics	**6**	60 + 15 = **75**
Total Credits:			**24**	**300**
For UG Honours With Research:				
Paper	**Course Code**	**Course Title**	**Credits**	**Marks**
Research			**12**	**150**

Project/ Dissertation				
Total Credits:			**24**	**300**

Total for UG Honours without Research: **170 Credits**
Total for UG Honours with Research: **170 Credits**

Overall Credit Distribution:

Programme	Major	Minor	MDC	AECC	SEC	VAC	Research	Total Credits
UG Honours Without Research	102 + 2	32	9	8	9	8	0	**170**
UG Honours With Research	90 + 2	32	9	8	9	8	12	**170**

Content of the papers

(Economics Major, Minor, Multidisciplinary and Skill Enhancement courses)

Semester 1

Paper 1: MAC 1 (Major Course 1): Introductory Microeconomics – 6 credits

Course Objectives:

This course introduces fundamental microeconomic concepts, including scarcity, choice, and market interactions. It covers consumer behaviour, demand-supply mechanisms, elasticity, production, and cost theories to develop analytical skills for understanding real-world economic issues.

Course Outcomes (COs):

Upon successful completion of the course, students will be able to:

1. Explain key microeconomic concepts such as scarcity, opportunity cost, and market equilibrium.
2. Analyze demand and supply dynamics, including price determination and elasticity.
3. Apply consumer choice theories to understand decision-making behavior.
4. Evaluate production functions and cost structures in different timeframes.
5. Utilize microeconomic tools to assess market outcomes and firm strategies.

COURSE CONTENT:

Unit 1: Exploring the subject matter of Economics (15 Lecture Hours)

Why study economics? Scope and method of economics; Wants, Scarcity, Competing Ends and Choice - Defining Economics, the economic themes: scarcity and efficiency; fundamental questions of Economics-what to produce, how to produce and how to distribute output; marginal benefits and marginal costs; opportunity cost (private and social); the basic competitive model. Microeconomics and Macroeconomics, Normative Economics and Positive Economics. Definition of market, Competitive vs Non-competitive markets (concepts only)

Unit 2: Supply and Demand: How Markets Work (25 Lecture Hours)

Elementary theory of demand: determinants of household demand, market demand, shifts and changes in the demand curve

Elementary theory of supply: factors influencing supply, individual and market supply curve, and shifts in the supply curve

The elementary theory of market price: determination of equilibrium price in a competitive market; the effect of shifts in demand and supply; the excess demand function: Existence, uniqueness, and stability of equilibrium; consumer surplus and producer surplus

Concepts of Elasticity, Method of Calculation- Arc Elasticity, Point Elasticity-definition, Demand and supply -types of elasticity and factors affecting elasticity, Demand Elasticity, Long run and Short-run elasticities of Demand and Supply, Income and Cross Price Elasticity

Unit 3: Consumer Theory (25 Lecture Hours)

Utility in Cardinal Approach- Utility and choice, Total Utility and Marginal Utility, Utility and choice-maximization, theory of demand; Ordinal utility: Assumptions on preference ordering, different utility functions and their properties- quasi-linear, perfect substitute and perfect complements, indifference curve, marginal rate of substitution and convexity of IC, budget constraint, consumer's equilibrium, price consumption curve, income consumption curve; compensating and equivalent variation, Slutsky equation

Unit 4: Production and Costs (25 Lecture Hours)

Concept of production function; returns to factor and returns to scale, isoquants and diminishing rate of factor substitution – elasticity of substitution –fixed proportion, perfect substitute, Cobb-Douglas Production Function, CES Production Function, General concept of homogeneous and homothetic production function and their properties; production with one and more variable inputs; isocost line and firm's equilibrium and expansion paths; short run and long run costs; cost curves in the short run and long run: relation between short run and long run costs.

Suggested Readings:

1. N. Gregory Mankiw, Economics: Principles and Applications, Indian edition by South Western, a part of Cengage Learning, Cengage Learning India Private Limited, 4th Edition, 2007
2. Pyndick and Rubinfeld, Microeconomics, 8th edition Pearson Education, Prentice Hall, 2013
3. Karl E. Case and Ray C. Fair, Principles of Economics, Pearson Education Inc., 8th Edition, 2007
4. Samuelson and Nordhaus, Economics, Mc-Graw Hill, 19th Edition, 2010
5. Joseph E. Stiglitz and Carl E. Walsh, Economics, W.W. Norton and Company Inc., New York, International Student Edition, 4th Edition, 2007
6. Lipsey and Chrystal, An Introduction to Positive Economics, Weidenfeld & Nicolson; Latest edition
7. Hal R. Varian, Intermediate Microeconomics, A Modern Approach, W.W. Norton and Company/Affiliated East-West Press (India), 8th Edition, 2010. The workbook by Varian and Bergstrom may be used for problems
8. C. Snyder and W. Nicholson, Fundamentals of Microeconomics, Cengage Learning (India), 2010

Paper 2: MIC 11 (Paper 1, Minor Course 1): Principles of Microeconomics-I – 4 credits

Course Objectives:

This course introduces fundamental microeconomic principles, focusing on consumer behaviour, market interactions, and production decisions. It aims to develop students' understanding of demand-supply mechanisms, elasticity, and firm behaviour in a competitive market.

Course Outcomes (COs):

Students will be able to:

1. Explain the basic economic problem of scarcity and choice using the production possibility frontier.
2. Analyze market equilibrium, shifts in demand and supply, and their impact on consumer and producer surplus.
3. Apply utility theories to understand consumer choices and derive individual and market demand curves.
4. Evaluate firm behavior in production and cost minimization decisions under different time horizons.
5. Assess the characteristics of perfect competition and its implications for firm and industry equilibrium.

COURSE CONTENT:

Unit 1: Introduction (14 Lecture Hours)

Problem of scarcity and choice: scarcity, choice and opportunity cost; production possibility frontier; economic systems.

Demand and supply: law of demand, determinants of demand, shifts of demand versus movements along a demand curve, market demand, law of supply, determinants of supply, shifts of supply versus movements along a supply curve, market supply, market equilibrium.

Consumer surplus - using the demand curve to measure consumer surplus, producer surplus.

Elasticity: price elasticity of demand, calculating elasticity, determinants of price elasticity, income elasticity, elasticity of supply and its determinants

Unit 2: Consumer Theory (18 Lecture Hours)

Utility in Cardinal Approach- Utility and choice, Total Utility and Marginal Utility, Utility and choice-maximization; Ordinal utility, indifference curve, marginal rate of substitution and

convexity of IC, budget constraint, income and substitution effects; derivation of demand curve from indifference curve and budget constraint.

Unit 3: Production and Cost (16 Lecture Hours)

Behaviour of profit maximising firms, production process, production functions, law of variable proportions, choice of technology, isoquant and iso-cost lines, cost minimizing equilibrium condition.

Costs: costs in the short run, costs in the long run, the relation between short run and long run costs.

Unit 4: Perfect Competition (12 Lecture Hours)

Assumptions: theory of a firm under perfect competition, demand and revenue; marginal cost curve and supply decision of the firm, equilibrium of the firm in the short run and long run; long run industry supply curve: increasing, decreasing and constant cost industries.

Suggested Readings:

1. G. Mankiw, Principles of Microeconomics, Cengage,

2. Case, Karl E. & Ray C. Fair, Principles of Economics, Pearson Education, Inc., 8th edition, 2007.

3. Samuelson, P. & Nordhaus, Economics, Mc-Graw Hill, 19th Edition, 2010

4. Lipsey and Chrystal, An Introduction to Positive Economics, Weidenfeld & Nicolson; Latest edition.

Paper 3: MDC 1 (Multidisciplinary Course 1): Basic Economics - 3 credits

Course Objectives:

This course provides a foundational understanding of both microeconomic and macroeconomic concepts, including market mechanisms, production decisions, national income accounting, and monetary economics. It aims to equip students with basic economic principles applicable to real-world scenarios.

Course Outcomes (COs):

Students will be able to:

1. Explain fundamental economic problems, including scarcity, opportunity cost, and the central problems of an economy.
2. Analyze demand and supply dynamics, price determination, and consumer behaviour.
3. Describe production and cost functions, market structures, and firm decision-making processes.
4. Evaluate key macroeconomic aggregates, methods of national income estimation, and the role of monetary policy.
5. Assess inflation, unemployment, and their interrelationship, along with strategies to combat economic fluctuations.

COURSE CONTENT:

Unit 1: Introduction to Micro and Macro Economics (2 Lecture Hours)

1.1` Problem of scarcity and choice: scarcity, choice and opportunity cost

1.2 Meaning of microeconomics and macroeconomics; positive and normative economics

1.3. What is an economy? Central problems of an economy - what, how, and for whom to produce.

Unit 2: Utility, Demand and Supply: How Markets Work. (10 Lecture Hours)

2.1 Meaning of Utility, Marginal Utility, Law of Diminishing Marginal Utility

2.2. Elementary theory of demand: determinants of household demand, market demand, and shifts in the market demand curve

2.3. Elementary theory of supply: factors influencing supply, derivation of the supply curve, and shifts in the supply curve

2.4. The elementary theory of market price: determination of equilibrium price in a competitive market;

Unit 3: Producer Behaviour and Supply (6 Lecture Hours)

3.1. Meaning of Production Function – Short-Run and Long-Run Total Product, Average Product and Marginal Product - meaning and their relationships. Returns to a Factor

3.2. Meaning of Cost function – Short run costs - Total Cost, Total Fixed Cost, Total Variable Cost; Average Cost; Average Fixed Cost, Average Variable Cost and Marginal Cost - meaning and their relationships.

Unit 4: Analysis of Market (5 Lecture Hours)

4.1. Revenue – Total Revenue, Average Revenue and Marginal Revenue - meaning and their relationship.

4.2: Definition, Classification based on Nature of Competition, Features of the Market, Role of strategic behaviour

Unit 5: National Income and Related Aggregates (10 Lecture Hours)

5.1. Circular flow of income (two-sector model); Methods of calculating National Income - Value Added or Product method, Expenditure method, Income method.

5.2. Aggregates related to National Income: Gross National Product (GNP), Net National Product (NNP), Gross Domestic Product (GDP) and Net Domestic Product (NDP) - at market price, at factor cost; Real and Nominal GDP, GDP Deflator, GDP and Welfare

5.3. Concept of Equilibrium and Multiplier in Simple Keynesian Model

Unit 6: Money and Banking (6 Lecture Hours)

6.1. Money – Different definitions of Money

6.2. Commercial Bank and its function

6.3. Central bank and its functions (example of the Reserve Bank of India): Bank of issue, Govt. Bank, Banker's Bank, Control of Credit through Bank Rate, Cash Reserve Ratio (CRR), Statutory Liquidity Ratio (SLR), Repo Rate and Reverse Repo Rate, Open Market Operations, Margin requirement.

Unit 7: Inflation and Unemployment (6 Lecture Hours)

7.1. Concept of inflation; Types of inflation; Reasons of Inflation, Methods of combating Inflation

7.2 Concept of Unemployment, different types of unemployment, Relation between inflation and unemployment

Suggested readings:

1. Karl E. Case and Ray C. Fair, Principles of Economics, Pearson Education Inc., 8th Edition, 2007.

2. N. Gregory Mankiw, Economics, Principles and Applications, Indian imprint of South Western Cengage India, Cengage Learning India Private Limited, 4th Edition, 2007

3. Samuelson and Nordhaus, Economics, McGraw-Hill, 19th edition, 2010.

4. Soumyen Sikdar, Principles of Macroeconomics, Oxford University Press, 3rd Edition, 2020.

5. L. M. Bhole and J. Mahukud, Financial Institutions and Markets, Tata McGraw-Hill, 5th edition, 2011.

6. Suraj. B. Gupta - Monetary Economics, Institution, Theory and Policy, S. Chand Publishers, 2010

Paper 4: SEC 1 (Skill Enhancement Course 1): Basic Mathematics – 3 Credits

Course Objectives:

This course provides students with fundamental mathematical tools essential for economic analysis. It aims to develop their skills in functions, calculus, and linear algebra to facilitate better comprehension of economic theories and applications.

Course Outcomes (COs):

Students will be able to:

1. Understand the basic concepts of functions, limits, and continuity and their role in economic modeling.
2. Apply differentiation techniques to analyze economic functions, including marginal analysis and optimization.
3. Utilize integration to solve economic problems related to accumulation and area under curves.
4. Perform matrix operations and understand determinants, which are crucial for input-output analysis and linear equations.
5. Enhance their analytical and problem-solving skills for further mathematical applications in economics.

COURSE CONTENT:

Unit 1: Basic Concepts of Functions (5 Lecture Hours)

Definition and examples of functions, including graphs; classification of functions; function types

Reference: R.G.D. Allen – Mathematical Analysis for Economics (Chapter II)

Unit 2: Limits and Continuity of Functions (8 Lecture Hours)

Concept of limit with examples, definition of the limit of a single-valued function; properties of limit; concept of continuity of functions with examples

Reference: R.G.D. Allen – Mathematical Analysis for Economics (Chapter IV)

Unit 3: Derivatives (16 Lecture Hours)

Concept of derivatives with examples, Derivatives and tangents to curves; Second order derivatives; power function and its derivative, rules for the evaluation of derivatives, function of

a function rule, inverse function rule; the evaluation of second order derivatives, partial and total derivatives, L'Hospital's rule.

Reference: R.G.D. Allen – Mathematical Analysis for Economics (Chapters VI and VII)

Unit 4: Integrals of functions of one variable (8 Lecture Hours)

Definition of indefinite integral, basic rules of integration, concept of definite integral including examples

Reference: R.G.D. Allen – Mathematical Analysis for Economics (Chapter XV)

Unit 5: Matrix and Determinants (8 Lecture Hours)

Concepts of matrix, matrix operations and different laws; concepts of identity matrix and null matrix

Concepts of determinants and basic properties

Reference: Alpha C. Chiang, Fundamental Methods of Mathematical Economics, Third Edition, (Chapter 4)

Suggested Readings:

1. R. G. D. Allen, Mathematical Analysis for Economics, Macmillan and Company Limited.
2. Alpha C. Chiang, Fundamental Methods of Mathematical Economics, Third Edition, McGraw-Hill.
3. G. C. Archibald and Richard G. Lipsey, An Introduction to A Mathematical Treatment of Economics, Weidenfeld & Nicolson; Latest edition.
4. Arnab Chakraborty, Differential Calculus (A Course in +2 Level Mathematics), Levant Books, ISBN-13 978-9384106942

Paper 5: VAC 1 (Value Added Course 1) – 4 Credits

From the University Listed Courses

Semester II

Paper 6: MAC 2 (Major Course 2): Introductory Macroeconomics – 6 credits

Course Objectives:

This course introduces students to key macroeconomic concepts such as national income accounting, income determination, money, inflation, and unemployment. It aims to develop an understanding of macroeconomic aggregates and their interrelationships in both closed and open economies.

Course Outcomes (COs):

Students will be able to:

1. Understand the concepts of national income, circular flow of income, and economic growth.
2. Analyze the Keynesian framework of income determination and the role of multipliers.
3. Examine the role of money, its demand and supply, and the functioning of the monetary system.
4. Identify the causes and effects of inflation and evaluate policies to control it.
5. Interpret different types of unemployment and their impact on the economy.

COURSE CONTENT:

Unit 1: National Income Accounting (20 Lecture hours)

What is Macroeconomics? Circular flow of income, closed economy. GDP deflator, Concept of Present Discounted Value.

Macroeconomic data- National Income accounting and cost of living; Concept of Growth- role of savings, investment; Open Economy

Unit 2: **Income Determination in the short-run** (20 Lecture hours)

Simple Keynesian System: Multipliers; equilibrium in closed and open economy and stability condition; autonomous expenditure, balanced budget, and net exports; paradox of thrift.

Unit 3: **Money** (30 Lecture hours)

Money demand function, different motives of demand for money; Quantity Theory of Money

Monetary system - definition and functions of money and determinants of money supply – Reserve Bank of India and Commercial Banks and their functions; high-powered money; money multiplier, credit and deposit multiplier.

Unit 4: Inflation (8 Lecture hours)

What is inflation? Types and Causes of inflation; Cost of Inflation; Inflationary Gap; measures to combat inflation.

Unit 5: Unemployment (12 Lecture hours)

Concepts of unemployment (including labour force, labour force participation rate, unemployment rate); various types of unemployment; labour demand curve: labour supply curve (preliminary idea).

Suggested readings:

1. Dornbusch, Fischer and Startz, Macroeconomics, Indian Edition, McGraw-Hill, 12th Edition.
2. Mankiw, N. Gregory, Principles of Macroeconomics, Indian imprint of South Western Cengage India, 8th Edition, 2018.
3. Richard T. Froyen, Macroeconomics; Pearson Education Asia, 10th Edition, 2014.
4. J.R. Hicks, The Social Framework: An Introduction to Economics; Clarendon Press
5. William Branson, Macroeconomic Theory and Policy; Indian Reprint, Affiliated East West Press, 2005
6. Soumyen Sikdar, Principles of Macroeconomics, Oxford University Press, 3rd Edition, 2020
7. Suraj. B. Gupta - Monetary Economics, Institution, Theory and Policy, S. Chand Publishers, 2010

Paper 7: MIC 12 (Paper 1, Minor Course 2): Principles of Microeconomics – 4 credits

Course Objectives:

This course introduces fundamental microeconomic principles, focusing on consumer behaviour, market interactions, and production decisions. It aims to develop students' understanding of demand-supply mechanisms, elasticity, and firm behaviour in a competitive market.

Course Outcomes (COs):

Students will be able to:

1. Explain the basic economic problem of scarcity and choice using the production possibility frontier.

2. Analyze market equilibrium, shifts in demand and supply, and their impact on consumer and producer surplus.

3. Apply utility theories to understand consumer choices and derive individual and market demand curves.

4. Evaluate firm behavior in production and cost minimization decisions under different time horizons.

5. Assess the characteristics of perfect competition and its implications for firm and industry equilibrium.

COURSE CONTENT:

Unit 1: Introduction (14 Lecture Hours)

Problem of scarcity and choice: scarcity, choice and opportunity cost; production possibility frontier; economic systems.

Demand and supply: law of demand, determinants of demand, shifts of demand versus movements along a demand curve, market demand, law of supply, determinants of supply, shifts of supply versus movements along a supply curve, market supply, market equilibrium.

Consumer surplus - using the demand curve to measure consumer surplus, producer surplus.

Elasticity: price elasticity of demand, calculating elasticity, determinants of price elasticity, income elasticity, elasticity of supply and its determinants

Unit 2: Consumer Theory (18 Lecture Hours)

Utility in Cardinal Approach- Utility and choice, Total Utility and Marginal Utility, Utility and choice-maximization; Ordinal utility, indifference curve, marginal rate of substitution and convexity of IC, budget constraint, income and substitution effects; derivation of demand curve from indifference curve and budget constraint.

Unit 3: Production and Cost (16 Lecture Hours)

Behaviour of profit maximising firms, production process, production functions, law of variable proportions, choice of technology, isoquant and iso-cost lines, cost minimizing equilibrium condition.

Costs: costs in the short run, costs in the long run, the relation between short run and long run costs.

Unit 4: Perfect Competition (12 Lecture Hours)

Assumptions: theory of a firm under perfect competition, demand and revenue; marginal cost curve and supply decision of the firm, equilibrium of the firm in the short run and long run; long run industry supply curve: increasing, decreasing and constant cost industries.

Suggested Readings:

1. G. Mankiw, Principles of Microeconomics, Cengage Learning, 7th Edition, 2015

2. Case, Karl E. & Ray C. Fair, Principles of Economics, Pearson Education, Inc., 8th edition, 2007.

3. Samuelson, P. & Nordhaus, Economics, McGraw-Hill, 19th Edition, 2010

4. Lipsey and Chrystal, An Introduction to Positive Economics, Weidenfeld & Nicolson; Latest edition.

Paper 8: MDC 2 (Multidisciplinary Course 2): Basic Economics - 3 credits

Course Objectives:

This course provides a foundational understanding of both microeconomic and macroeconomic concepts, including market mechanisms, production decisions, national income accounting, and monetary economics. It aims to equip students with basic economic principles applicable to real-world scenarios.

Course Outcomes (COs):

Students will be able to:

1. Explain fundamental economic problems, including scarcity, opportunity cost, and the central problems of an economy.
2. Analyze demand and supply dynamics, price determination, and consumer behaviour.
3. Describe production and cost functions, market structures, and firm decision-making processes.
4. Calculate key macroeconomic aggregates, evaluate the methods of national income estimation and the role of monetary policy.
5. Assess inflation, unemployment, and their interrelationship, and evaluate the strategies to combat economic fluctuations.

COURSE CONTENT:

Unit 1: Introduction to Micro and Macro Economics (2 Lecture Hours)

1.1` Problem of scarcity and choice: scarcity, choice and opportunity cost

1.2 Meaning of microeconomics and macroeconomics; positive and normative economics

1.3. What is an economy? Central problems of an economy - what, how, and for whom to produce.

Unit 2: Utility, Demand and Supply: How Markets Work. (10 Lecture Hours)

2.1 Meaning of Utility, Marginal Utility, Law of Diminishing Marginal Utility

2.2. Elementary theory of demand: determinants of household demand, market demand, and shifts in the market demand curve

2.3. Elementary theory of supply: factors influencing supply, derivation of the supply curve, and shifts in the supply curve

2.4. The elementary theory of market price: determination of equilibrium price in a competitive market;

Unit 3: Producer Behaviour and Supply (6 Lecture Hours)

3.1. Meaning of Production Function – Short-Run and Long-Run Total Product, Average Product and Marginal Product - meaning and their relationships. Returns to a Factor

3.2. Meaning of Cost function – Short run costs - Total Cost, Total Fixed Cost, Total Variable Cost; Average Cost; Average Fixed Cost, Average Variable Cost and Marginal Cost - meaning and their relationships.

Unit 4: Analysis of Market (5 Lecture Hours)

4.1. Revenue – Total Revenue, Average Revenue and Marginal Revenue - meaning and their relationship.

4.2: Definition, Classification based on Nature of Competition, Features of the Market, Role of strategic behaviour

Unit 5: National Income and Related Aggregates (10 Lecture Hours)

5.1. Circular flow of income (two-sector model); Methods of calculating National Income - Value Added or Product method, Expenditure method, Income method.

5.2. Aggregates related to National Income: Gross National Product (GNP), Net National Product (NNP), Gross Domestic Product (GDP) and Net Domestic Product (NDP) - at market price, at factor cost; Real and Nominal GDP, GDP Deflator, GDP and Welfare

5.3. Concept of Equilibrium and Multiplier in Simple Keynesian Model

Unit 6: Money and Banking (6 Lecture Hours)

6.1. Money – Different definitions of Money

6.2. Commercial Bank and its function

6.3. Central bank and its functions (example of the Reserve Bank of India): Bank of issue,

Govt. Bank, Banker's Bank, Control of Credit through Bank Rate, Cash Reserve Ratio

(CRR), Statutory Liquidity Ratio (SLR), Repo Rate and Reverse Repo Rate, Open Market Operations, Margin requirement.

Unit 7: Inflation and Unemployment (6 Lecture Hours)

7.1. Concept of inflation; Types of inflation; Reasons of Inflation, Methods of combating Inflation

7.2 Concept of Unemployment, different types of unemployment, Relation between inflation and unemployment

Suggested Readings:

1. Karl E. Case and Ray C. Fair, Principles of Economics, Pearson Education Inc., 8th Edition, 2007.

2. N. Gregory Mankiw, Economics, Principles and Applications, Indian imprint of South Western Cengage India, Cengage Learning India Private Limited, 4th Edition, 2007

3.Samuelson and Nordhaus, Economics, Mc-Graw Hill, 19th Edition, 2010.

4. Soumyen Sikdar, Principles of Macroeconomics, Oxford University Press, 3rd Edition, 2020.

5. L. M. Bhole and J. Mahukud, Financial Institutions and Markets, Tata McGraw-Hill, 5th edition, 2011.

6. Suraj. B. Gupta - Monetary Economics, Institution, Theory and Policy, S. Chand Publishers, 2010

Paper 9: AEC 1 (Ability Enhancement Course 1):

To be chosen from the University-listed courses

Paper 10: SEC 2 (Skill Enhancement Course 2): Basic Statistics – 3 Credits

Course Objectives:

This course provides students with fundamental statistical concepts and methods essential for economic analysis. It aims to develop skills in data collection, presentation, descriptive statistics, and index number computation, which are crucial for interpreting economic data.

Course Outcomes (COs):

Students will be able to:

1. Understand the basic concepts and scope of statistics in economic analysis.
2. Organize, classify, and present different types of data effectively using tables and graphs.
3. Compute and interpret measures of central tendency, dispersion, skewness, and kurtosis.
4. Analyze bivariate data using correlation techniques.
5. Construct and evaluate different types of index numbers for economic applications.

COURSE CONTENT:

Unit 1: Introduction (5 Lecture hours)

Definition and scope of Statistics; Importance of Statistics in Economics; Concepts of statistical population and sample.

Unit 2: Presentation of Data (7 Lecture hours)

Types of data: quantitative vs. qualitative, cross-sectional vs. time-series, discrete vs. continuous; Scales of measurement: nominal, ordinal, interval, ratio; Collection of primary and secondary data; Construction of tables, frequency distributions, and graphical representation (histograms, polygons, cumulative frequencies, stem and leaf displays).

Unit 3: Descriptive Statistics (10 Lecture hours)

Measures of central tendency: mean, median, mode, geometric mean, harmonic mean, quartiles, deciles, percentiles; Measures of dispersion: range, quartile deviation, mean deviation, standard deviation, coefficient of variation; Graphical representations (Ogives, Box plots); Moments (raw, central, absolute); Measures of skewness and kurtosis: definition, types, calculation, and interpretation.

Unit 4: Bivariate Data Analysis (8 Lecture hours)

Definition and representation (scatter diagram); Karl Pearson's coefficient of correlation; Spearman's rank correlation coefficient; Simple Linear Regression: Regression equations, interpretation of regression coefficients, method of Ordinary Least Squares (OLS), basic properties.

Unit 5: Index Numbers (7 Lecture hours)

Definition of index numbers; Construction of Laspeyres, Paasche, and Fisher's index numbers; Cost of Living Index; Tests of index numbers: Factor Reversal Test and Time Reversal Test.

Unit 6: Time Series Analysis (8 Lecture hours)

Definition and examples of time series data (GDP, Inflation, Exchange Rate); Components of Time Series: Trend, Seasonality, Cyclicality; Measurement of Trend by moving averages and linear curve fitting; Methods of detrending data; Measuring Seasonal Fluctuations.

Suggested readings:

1. P.H. Karmel and M. Polasek (1978), Applied Statistics for Economists, 4th edition, Pitman.

2. M.R. Spiegel, John J Schiller and R. A. Srinivasan (2003), Theory and Problems of Probability and Statistics (Schaum's Outline Series), McGraw-Hill, ISBN: 978-0-07-154425-2

3. Das, N.G, Statistical Methods, Tata McGraw-Hill Education

4. Goon A.M., Gupta and Dasgupta, Fundamentals of Statistics, World Press, ISBN: 978-8-18-756780-6

5. A.L. Nagar and R.K Das, Basic Statistics, OUP, second edition

6. S. C. Gupta and V. K. Kapoor, Elements of Mathematical Statistics, Sultan Chand and Sons.

Semester III

Paper 11: MAC 3 (Major Course 3): Mathematical Economics – 6 credits

Course Objectives:

This course equips students with mathematical tools essential for economic analysis. It focuses on matrix algebra, multivariable functions, optimization techniques, and differential equations, providing a strong foundation for understanding economic theories and applications.

Course Outcomes (COs):

Students will be able to:

1. Apply matrix algebra to solve economic models, including input-output analysis.
2. Analyze functions of several variables using partial differentiation and apply them to economic problems.
3. Solve optimization problems using Lagrange multiplier methods and apply them to consumer and production theory.
4. Understand and solve differential equations relevant to economic dynamics.
5. Interpret phase diagrams and stability conditions in economic models.

COURSE CONTENT:

Unit 1: Applications of Matrix Algebra (12 Lecture Hours)

1.1 Matrix: Its elementary operations, different types of matrices;
1.2 Rank of a matrix;
1.3 Determinants and inverse of a square matrix;
1.4 Solution of a system of linear equations;
1.5 Input Output System (basic preliminaries - closed model, open model, and Hawkins-Simon Condition).

Unit 2: Functions of several variables: (12 Lecture Hours)

2.1 Continuous and differentiable functions;
2.2 Partial derivatives
2.3 Hessian matrix;
2.4 Homogeneous and homothetic functions;
2.5 Euler's theorem; implicit function theorem and its application to comparative static problems;

2.6 Economic applications – theories of consumer behaviour and theory of production.

Unit 3: Multivariable optimization (14 Lecture Hours)

3.1 Optimization of nonlinear functions
3.2 Convex, concave, and quasi-concave functions
3.3 Unconstrained optimization
3.4 Constrained optimization with equality constraints – Lagrangean multiplier method
3.5 Economic applications – consumer behaviour and theory of production.

Unit 4: Economic Dynamics and Integral Calculus (12 Lecture Hours)

4.1 Dynamics and Integration
4.2 Indefinite Integrals
4.3 Definite Integrals
4.4 Improper Integrals
4.5 Some Economic Applications of Integrals
4.6 Domar Growth Model

Unit 5: Differential Equations (10 Lecture Hours)

5.1 Solutions of first-order and second-order differential equations
5.2 Economic application – price dynamics in a single market
5.3 Qualitative graphic solution to 2X2 linear simultaneous differential equation system – phase diagram, fixed point, and stability (concepts only)

Unit 6: Discrete Time – First and Second Order Difference Equations (15 Lecture Hours)

6.1 Discrete Time, Differences, and Difference Equations
6.2 Solving a First-Order Difference Equation
6.3 The Dynamic Stability of the Equilibrium
6.4 The Cobweb Model
6.5 A Market Model with Inventory
6.6 Second Order Linear Difference Equations with Constant Coefficient and Constant Term
6.7 Samuelson Multiplier-Acceleration Interaction Model
6.8 Inflation and Unemployment in Discrete Time

Unit 7: Linear Programming (15 Lecture Hours)

7.1 Simple examples of Linear Programming
7.2 General Formulation of Linear Programme and graphical solution only
7.3 Convex Sets and Linear Programming

7.4 Duality

7.5 Economic interpretation of a dual (Dual programme of the production problem in the case of two-product and two-constraint only)

7.6 Activity Analysis – Micro Level and Macro Level

Suggested Readings:

1. K. Sydsaeter and P. Hammond, Mathematics for Economic Analysis, Pearson Educational Asia: Delhi, 2002
2. Lawrence Blume and Carl Simon, Mathematics for Economists, W.W. Norton and Company, 1994.
3. Alpha Chaing and Kevin Wainwright, Fundamental Methods of Mathematical Economics, 4th Edition, McGraw-Hill, 2005
4. E. Silberberg, The Structure of Economics: A Mathematical Analysis, McGraw-Hill.
5. G. C. Archibald and Richard G. Lipsey, An Introduction to A Mathematical Treatment of Economics, Weidenfeld & Nicolson; 3rd Edition.

Paper 12: MIC 21 (Paper 2, Minor Course 1): Principles of Macroeconomics – 4 credits

Course Objectives:

This course introduces students to key macroeconomic concepts such as national income, money, inflation, and unemployment. It provides an understanding of macroeconomic policies and their role in shaping economic outcomes in both closed and open economies.

Course Outcomes (COs):

Students will be able to:

1. Explain fundamental macroeconomic variables like GDP, inflation, and unemployment.
2. Analyze national income accounting methods and their implications for economic measurement.
3. Understand income determination through aggregate expenditure and multiplier concepts.
4. Examine the role of money, its functions, and its impact on the modern economy.
5. Evaluate the causes and effects of inflation and unemployment and assess policy measures to address them.

COURSE CONTENT:

Unit 1: Introduction (4 Lecture hours)

What is macroeconomics? Macroeconomic issues in an economy- Output, Employment (Unemployment), Inflation (Deflation), Economic Growth, Concept of closed and Open Economy; Monetary and Fiscal Policies.

Unit 2: National Income Accounting (12 Lecture hours)

Concepts of GDP and National Income; measurement of national income and related aggregates; Circular flow of Income; National Income Accounting Identities; Concepts of Per Capita Income, Personal, and Personal Disposable Income, GDP deflator, nominal and real income; Limitations of the concept of GDP.

Unit 3: Determination of National income (12 Lecture hours)

Consumption function; investment function; aggregate expenditure in a SKM in a closed economy; concepts of MPS, APS, MPC, APC; Government expenditure and taxes; concept of multiplier – autonomous investment multiplier, government expenditure multiplier.

Unit 4: Money in a Modern Economy (20 Lecture hours)

Monetary system - definition and functions of money and determinants of money supply - functions of commercial banks, credit creation of commercial banks, functions of the central bank (RBI), credit control measures taken by the central bank (RBI).

Unit 5: Inflation (4 Lecture hours)

Concept of inflation; types and causes of Inflation; Effects of inflation: measures to combat inflation

Unit 6: Unemployment (8 Lecture hours)

Concepts of unemployment (including labour force, labour force participation rate, unemployment rate); different types of unemployment.

Suggested Readings:

1. N. Gregory Mankiw, Principles of Macroeconomics; Indian imprint of South Western Cengage India.
2. Samuelson and Nordhaus, Economics; McGraw-Hill
3. Soumyen Sikdar, Principles of Macroeconomics, 2nd Edition, Oxford University Press, India.
4. Lipsey and Chrystal, An Introduction to Positive Economics, Weidenfeld & Nicolson; Latest edition.

Additional Suggested Readings:

5. Joydeb Sarkhel, Adhunik Arthanitir Bhumika Vol-2 (Samastigata Arthaniti), Book Syndicate (P) Ltd.
6. Debashis Majumder, Samastigata Arthaniti; ABS Publishing House, Kolkata.

Paper 13: MDC 3 (Multidisciplinary Course 3): Basic Economics - 3 credits

Course Objectives:

This course provides a foundational understanding of both microeconomic and macroeconomic concepts, including market mechanisms, production decisions, national income accounting, and monetary economics. It aims to equip students with basic economic principles applicable to real-world scenarios.

Course Outcomes (COs):

Students will be able to:

1. Explain fundamental economic problems, including scarcity, opportunity cost, and the central problems of an economy.

2. Analyze demand and supply dynamics, price determination, and consumer behaviour.

3. Describe production and cost functions, market structures, and firm decision-making processes.

4. Evaluate key macroeconomic aggregates, methods of national income estimation, and the role of monetary policy.

5. Assess inflation, unemployment, and their interrelationship, along with strategies to combat economic fluctuations.

COURSE CONTENT:

Unit 1: Introduction to Micro and Macro Economics (2 Lecture Hours)

1.1` Problem of scarcity and choice: scarcity, choice and opportunity cost

1.2 Meaning of microeconomics and macroeconomics; positive and normative economics

1.3. What is an economy? Central problems of an economy - what, how, and for whom to produce.

Unit 2: Utility, Demand and Supply: How Markets Work. (10 Lecture Hours)

2.1 Meaning of Utility, Marginal Utility, Law of Diminishing Marginal Utility

2.2. Elementary theory of demand: determinants of household demand, market demand, and shifts in the market demand curve

2.3. Elementary theory of supply: factors influencing supply, derivation of the supply curve, and shifts in the supply curve

2.4. The elementary theory of market price: determination of equilibrium price in a competitive market;

Unit 3: Producer Behaviour and Supply (6 Lecture Hours)

3.1. Meaning of Production Function – Short-Run and Long-Run Total Product, Average Product and Marginal Product - meaning and their relationships. Returns to a Factor

3.2. Meaning of Cost function – Short run costs - Total Cost, Total Fixed Cost, Total Variable Cost; Average Cost; Average Fixed Cost, Average Variable Cost and Marginal Cost - meaning and their relationships.

Unit 4: Analysis of Market (5 Lecture Hours)

4.1. Revenue – Total Revenue, Average Revenue and Marginal Revenue - meaning and their relationship.

4.2: Definition, Classification based on Nature of Competition, Features of the Market, Role of strategic behaviour

Unit 5: National Income and Related Aggregates (10 Lecture Hours)

5.1. Circular flow of income (two-sector model); Methods of calculating National Income - Value Added or Product method, Expenditure method, Income method.

5.2. Aggregates related to National Income: Gross National Product (GNP), Net National Product (NNP), Gross Domestic Product (GDP) and Net Domestic Product (NDP) - at market price, at factor cost; Real and Nominal GDP, GDP Deflator, GDP and Welfare

5.3. Concept of Equilibrium and Multiplier in Simple Keynesian Model

Unit 6: Money and Banking (6 Lecture Hours)

6.1. Money – Different definitions of Money

6.2. Commercial Bank and its function

6.3. Central bank and its functions (example of the Reserve Bank of India): Bank of issue,

Govt. Bank, Banker's Bank, Control of Credit through Bank Rate, Cash Reserve Ratio

(CRR), Statutory Liquidity Ratio (SLR), Repo Rate and Reverse Repo Rate, Open Market Operations, Margin requirement.

Unit 7: Inflation and Unemployment (6 Lecture Hours)

7.1. Concept of inflation; Types of inflation; Reasons of Inflation, Methods of combating Inflation

7.2 Concept of Unemployment, different types of unemployment, Relation between inflation and unemployment

Suggested Readings:

1. Karl E. Case and Ray C. Fair, Principles of Economics, Pearson Education Inc., 8th Edition, 2007.

2. N. Gregory Mankiw, Economics, Principles and Applications, Indian imprint of South Western Cengage India, Cengage Learning India Private Limited, 4th Edition, 2007

3.Samuelson and Nordhaus, Economics, Mc-Graw Hill.

4. Soumyen Sikdar, Principles of Macroeconomics, Oxford University Press, 3rd Edition, 2020.

5. L. M. Bhole and J. Mahukud, Financial Institutions and Markets, Tata McGraw-Hill, 5th edition, 2011.

6. Suraj. B. Gupta - Monetary Economics, Institution, Theory and Policy, S. Chand Publishers, 2010

Paper 14: SEC 3 (Skill Enhancement Course 3): Computer Applications in Economics – 3 Credits

Course Objectives:

This course equips students with practical skills in data analysis using MS Excel. It introduces students to key data sources, statistical tools, and visualization techniques to analyze economic data efficiently. The course focuses on hands-on training, and evaluation is based on a practical examination.

Course Outcomes (COs):

Students will be able to:

1. Identify and differentiate between primary and secondary data sources relevant to economic analysis.
2. Perform basic data entry, formatting, and management tasks using MS Excel.
3. Apply Excel functions for statistical and mathematical operations essential for economic data analysis.
4. Conduct descriptive statistical analysis and summarize economic data using Excel tools.
5. Create data visualizations, including charts and pivot tables, to represent economic trends effectively.

COURSE CONTENT:

Unit 1: Introduction to data analysis: (7 Lecture hours)

Data types (primary and secondary) - Overview of data sources (Census, NSSO, etc.) - Importance of Data Analysis in Economics.

Unit 2: Introduction to MS Excel for Data Analysis: (8 Lecture hours)

Overview of MS Excel - Interface, cells, rows, columns - Basic operations: opening, saving, and entering data in Excel - Formatting tools in MS Excel: cell formatting, conditional formatting

Unit 3: Excel Formulas & Functions (Basic): (10 Lecture hours)

Using basic functions: SUM, AVERAGE, MIN, MAX - Conditional functions: IF, COUNTIF, SUMIF- Ranges and cell references - Text functions: CONCATENATE, LEFT, RIGHT.

Unit 4: Descriptive Statistics using Excel (12 Lecture hours)

Calculation of Descriptive Statistics - Mean, Median, Mode - Variance, Standard Deviation - Data sorting, filtering, and conditional formatting for descriptive analysis. Practical Applications: Conducting basic statistical analysis on economic data, such as household incomes, prices, or employment data.

Unit 5: Introduction to Data Visualization in Excel (8 Lecture hours)

Creating bar charts, pie charts, line charts, Scatter plots, Pivot tables, and charts for data visualization.

Suggested Readings:

1. L. Winston Wayne, MICROSOFT EXCEL 2019: DATA ANALYSIS & BUSINESS MODEL, PHI Learning Pvt. Ltd., 2019.
2. K. Berk, Partrick Carey, Data Analysis with Microsoft Excel, Duxbury Press.
3. Bappi Ashraf, Mastering Microsoft Excel, Gyankosh Prokashani, Dhaka, Bangladesh.

Paper 15: VAC 2 (Value Added Course 2) – 4 Credits

To be chosen from the University-listed Courses

Semester IV

Paper 16: MAC 4 (Major Course 4): Intermediate Microeconomics – 6 credits

Course Objectives:

This course introduces students to advanced concepts in microeconomics, focusing on consumer behaviour, market structures, and factor markets. The students will learn key theories such as revealed preference, decision-making under uncertainty, and imperfect market structures to develop analytical skills applicable to real-world economic scenarios.

Course Outcomes (COs):

1. Students will be able to understand the concept of revealed preference, derive demand and indifference curves from consumers' revealed preferences, and evaluate the income and substitution effects for consumers.
2. Students will be able to analyze decision-making under uncertainty, including risk aversion and expected utility.
3. Students will be able to understand different market structures such as perfect competition, monopoly, monopolistic competition, and oligopoly, and evaluate their pricing and output determination mechanisms.
4. Students will be able to analyze factor markets under perfect and imperfect competition, including derived demand, returns to scale, and wage determination.
5. Students will be able to apply theoretical models to real-world market structures and policy interventions, assessing their implications on welfare and efficiency.

COURSE CONTENT:

Unit 1: Extensions to Theory of Consumer Behaviour (18 Lecture hours)

1.1 Inter-temporal choice (saving and borrowing)

1.2 The Idea of Revealed Preference - From Revealed Preference to Preference - Recovering Preferences, The Weak Axiom of Revealed Preference, Checking WARP, The Strong Axiom of Revealed Preference, How to Check SARP, Index Numbers, Price Indices,

1.3 Choice under uncertainty – utility function and expected utility, risk aversion and risk preference

Unit 2: Market Structure (40 Lecture hours)

2.1 Perfect competition: MR, MC, profit-maximization, Short-run and long run equilibrium; determination of the supply curve of the firm and the industry with external economies and

diseconomies of scale, consumer and producer surplus, welfare and efficiency of competitive equilibrium, government intervention, and dead weight loss

2.2 Monopoly; pricing with market power; degree of monopoly; price discrimination - different degrees; multi-plant monopoly; peak-load pricing; two-part tariff

2.3 Monopolistic competition - short run and long run equilibrium, excess capacity, monopolistic competition

2.4 Oligopoly: Non-collusive (Cournot Equilibrium, Bertrand Equilibrium, Stackelberg Equilibrium, Kinked Demand Curve); concepts of collusion and cartels

Unit 3: Factor Market (20 Lecture hours)

3.1 Input market in perfect competition Derived demand for input, marginal product and marginal revenue product, input demand for competitive firm and competitive industry, returns to scale and product exhaustion. Land Market and rent

3.2 Input Market under Imperfect Competition Monopsony, bilateral monopoly in labour market

Unit 4: Basic Game Theory: (12 Lecture hours)

4.1 Static Games of Complete Information: Solution Concepts Dominant Strategy Equilibrium, Pure Strategy Nash Equilibrium.

4.2 Dynamic Games of Complete Information: Solution Concepts - Subgame Perfect Nash Equilibrium.

Suggested Readings:

1. Hal Varian. Intermediate Microeconomics, W.W. Norton and Company/Affiliated East-West Press (India), 2010.
2. C. Snyder and W. Nicholson, Fundamentals of Microeconomics, Cengage Learning (India), 2010
3. Jean Tirole. Theory of Industrial Organization, MIT Press, 1988
4. Anindya Sen, Microeconomics: Theory and Applications, OUP, 1999
5. Pindyck and Rubinfeld, Microeconomics, Prentice Hall, 8th Edition, 2013
6. R. Gibbons, Game Theory for Applied Economists, Princeton University Press, 1992.
7. S. Tadelis, Game Theory: An Introduction, Princeton University Press, 2013.

Paper 17: MAC 5 (Major Course 5): Indian Economics I – 6 credits

Course Objectives:

This course provides an understanding of the structural transformation and economic development of India since independence. It enables students to analyze key macroeconomic policies, sectoral developments, and the socio-economic challenges faced by the country. By the end of this course, students will be equipped with the knowledge to critically evaluate India's economic growth, policy reforms, and sustainability issues.

Course Outcomes (COs):

After completing this course, students will be able to:

1. Analyze the structure and key features of the Indian economy prior to colonial rule**,** identifying its strengths, weaknesses, and dominant sectors.
2. Comprehend the economic and social conditions of India at the time of independence. Analyze the key features and objectives of India's Five-Year Plans, evaluating their successes, failures, and impact on the country's development trajectory.
3. Understand the fundamental concepts of population studies, including demography, fertility, mortality, migration, and population structure.
4. Understand trends and policies in poverty, inequality & unemployment and their implications for development focusing on entitlements and capabilities.
5. Understand and analyse the current state and challenges of the Indian education system, the impact of monetary and fiscal policies on economic growth, inflation, and employment; Trade policy reforms.
6. Understand the rationale behind the formation of NITI Aayoga, its key objectives and functions of NITI Aayoga in India's development agenda & basic concepts of Sustainable Economic Development.

COURSE CONTENT:

Unit 1: The Indian Economy Before Independence (c. 1757-1947) (25 Lecture hours)

1.1 Pre-Colonial Economic Structure (Brief Overview)

1.2 Impact of Colonial Rule on the Indian Economy; Phases of Colonial Economic Policy; De-industrialization; Commercialization of Agriculture; Land Revenue Systems (brief

description of Permanent Settlement, Ryotwari, and Mahalwari systems); Development of Infrastructure (brief mentioning of Railways, roads, communication (telegraph and post), and irrigation); Industrial Development (brief overview of cotton textiles, jute, iron and steel); Labour Conditions and Trade Union Movements; Foreign Trade; Drain Theory; Economic Nationalism

Unit 2: Development Experience (15 Lecture hours)

2.1 A brief introduction to the state of the Indian economy on the eve of independence

2.2 Indian economic system and common goals of Five-Year Plans, Main features, Achievement and failure of Five-Year Plans

2.3 Sectoral and occupational trends

Unit 3. Population and Human Development (10 Lecture hours)

3.1 Demographic trends and issues; education, health, and malnutrition

Unit 4. Growth and Distribution (10 Lecture hours)

4.1 Trends and policies in poverty, inequality, and unemployment; the relationship between inequality, unemployment, and economic growth, different policies to address these issues, and policy evaluation

Unit 5: Current challenges facing Indian Economy (30 Lecture hours)

5.1 Monetary Policy, Fiscal Policy, and Trade Policy Reforms (brief Concepts of demonetization and GST)

5.2 Formation, Objectives, and Function of NITI Aayog.

5.3 Sustainable Economic Development: Meaning, Effects of Economic Development on Resources and Environment, including global warming

Suggested readings

1. Uma Kapila, Indian Economy since Independence, Academic Foundation, 19th edition (2009)

2. Government of India, Economic Survey of India (latest)

3. Government of India, Five-Year Plan (latest)

4. Tirthankar Roy, Economic History of India 1857-1947, Oxford, ISBN: 978-0-19-807417-5

5. Irfan Habib, A People's History of India 25: Indian Economy Under Early British Rule 1757–1857, ISBN: 978-9-38-238144-0

6. Amiya Kumar Bagchi, Colonialism and Indian Economy, Oxford Collected Essays, ISBN: 978-0-19-806644-6

7. Datt and Sundharam, Indian Economy (Latest Edition), New Delhi S. Chand Publishing

8. S. K. Misra, V. K. Puri and Bharat Garg, Indian Economy (Latest Edition), Himalaya Publishing House

9. Nitin Singhania, Indian Economy, McGraw-Hill

Paper 18: MIC 2.2 (Paper 2, Minor Course 2): Principles of Macroeconomics – 4 credits

Course Objectives:

This course introduces students to key macroeconomic concepts such as national income, money, inflation, and unemployment. It provides an understanding of macroeconomic policies and their role in shaping economic outcomes in both closed and open economies.

Course Outcomes (COs):

Students will be able to:

1. Explain fundamental macroeconomic variables like GDP, inflation, and unemployment.

2. Analyze national income accounting methods and their implications for economic measurement.

3. Understand income determination through aggregate expenditure and multiplier concepts.

4. Examine the role of money, its functions, and its impact on the modern economy.

5. Evaluate the causes and effects of inflation and unemployment and assess policy measures to address them.

COURSE CONTENT:

Unit 1: Introduction (4 Lecture hours)

What is macroeconomics? Macroeconomic issues in an economy- Output, Employment (Unemployment), Inflation (Deflation), Economic Growth, Concept of closed and Open Economy; Monetary and Fiscal Policies.

Unit 2: National Income Accounting (12 Lecture hours)

Concepts of GDP and National Income; measurement of national income and related aggregates; Circular flow of Income; National Income Accounting Identities; Concepts of Per Capita Income, Personal, and Personal Disposable Income, GDP deflator, nominal and real income; Limitations of the concept of GDP.

Unit 3: Determination of National Income (12 Lecture hours)

Consumption function; investment function; aggregate expenditure in a SKM in a closed economy; concepts of MPS, APS, MPC, APC; Government expenditure and taxes; concept of multiplier – autonomous investment multiplier, government expenditure multiplier.

Unit 4: Money in a Modern Economy (20 Lecture hours)

Monetary system - definition and functions of money and determinants of money supply - functions of commercial banks, credit creation of commercial banks, functions of the central bank (RBI), credit control measures taken by the central bank (RBI).

Unit 5: Inflation (4 Lecture hours)

Concept of inflation; types and causes of Inflation; Effects of inflation: measures to combat inflation

Unit 6: Unemployment (8 Lecture hours)

Concepts of unemployment (including labour force, labour force participation rate, unemployment rate); different types of unemployment.

Suggested Readings:

1. N. Gregory Mankiw, Principles of Macroeconomics; Indian imprint of South Western Cengage India.

2. Samuelson and Nordhaus, Economics; McGraw-Hill

3. Soumyen Sikdar, Principles of Macroeconomics, 2nd Edition, Oxford University Press, India.

4. Lipsey and Chrystal, An Introduction to Positive Economics, Weidenfeld & Nicolson; Latest edition.

Additional Suggested Readings:

5. Joydeb Sarkhel, Adhunik Arthanitir Bhumika Vol-2 (Samastigata Arthaniti), Book Syndicate (P) Ltd.

6. Debashis Majumder, Samastigata Arthaniti; ABS Publishing House, Kolkata.

Paper 19: AEC 2 (Ability Enhancement Course 2)

To be chosen from the University-listed courses

Semester V

Paper 20: MAC 6 (Major Course 6): Intermediate Macroeconomics – 6 Credit

Course Objectives:

This course provides insights into macroeconomic theories, models, and policies, covering the IS-LM framework, aggregate supply theories, and macroeconomic schools of thought. Students will learn to analyze economic fluctuations, assess fiscal and monetary policies, and understand key concepts like inflation, unemployment, and money demand.

Course Outcomes (COs):

After completing this course, students will be able to:

1. Apply the IS-LM model to analyze equilibrium, stability, and policy effects on output and interest rates.
2. Explain aggregate supply curves under varying price expectations and wage rigidity.
3. Compare Classical and Keynesian economic perspectives on aggregate demand, money neutrality, and equilibrium.
4. Analyze consumption and investment theories, including the Keynesian function, life-cycle hypothesis, and acceleration principle.
5. Evaluate money demand theories such as the regressive expectations model, Baumol's inventory approach, and Tobin's portfolio choice model.
6. Assess the inflation-unemployment trade-off using the Phillips curve framework, distinguishing short-run and long-run effects.

COURSE CONTENT:

Unit 1: The IS-LM Model (18 Lecture hours)

Derivation of the IS and LM Curves - equilibrium, stability and comparative statics; effects of fiscal and monetary policies. real balance effects.

Unit 2 Employment and Output (18 Lecture hours)

Derivation of aggregate supply curves in relation to price expectation assumption and in the presence and absence of wage rigidity.

Unit 3: Schools of Macroeconomic Thought (22 Lecture hours)

Classical System: Say's law and quantity theory, Classical Aggregate Demand Curve; Interaction between Classical aggregate demand and supply curves; Classical dichotomy and

neutrality of money

Keynesian system: Liquidity Preference Schedule; Derivation of aggregate demand assuming price flexibility - Interaction between Aggregate Demand and Supply Curves in Keynesian system

Keynesian vs classical system

Unit 4: Consumption and Investment Function (10 Lecture hours)

Consumption: Keynesian consumption function; life-cycle and permanent income hypothesis; Dusenberry's relative income hypothesis

Investment: MEC and MEI- Acceleration principle- fixed and variable.

Unit 5: Demand for Money (10 Lecture hours)

Regressive expectations Model; Baumol's inventory theoretic demand for Money; Tobin's portfolio choice model

Restatement of the Quantity Theory of Money

Unit 6: Inflation, Unemployment and Expectations (12 Lecture hours)

Inflation and unemployment trade-off; Short-run and Long-run Phillips curve under adaptive expectations

Suggested Readings:

1. Dornbusch, Fischer and Startz: Macroeconomics; Tata McGraw-Hill Publication.
2. N. Gregory Mankiw: Principles of Macroeconomics; Indian imprint of South Western Cengage India.
3. Richard T. Froyen; Macroeconomics; Pearson Education Asia.
4. J.R. Hicks: The Social Framework: An Introduction to Economics; Clarendon Press
5. William Branson: Macroeconomic Theory and Policy; Indian Reprint, East West Press
6. Soumyen Sikdar: Principles of Macroeconomics; Oxford University Press

Paper 21: MAC 7 (Major Course 7): Statistics for Economics – 6 Credits

Course Objectives:

This course introduces fundamental statistical methods for economic analysis, including probability theory, random variables, probability distributions, sampling techniques, statistical inference, time series analysis, and vital statistics. Students will learn to apply statistical tools to analyze economic data, draw inferences, and interpret trends effectively.

Course Outcomes:

After completing this course, students will be able to:

1. Apply probability theory concepts, including classical and axiomatic probability, Bayes' theorem, and their applications in economics.
2. Analyze random variables and probability distributions (binomial, Poisson, normal) and their relevance in economic studies.
3. Implement various sampling techniques, such as SRS, stratified sampling, and multi-stage sampling, while evaluating sampling and non-sampling errors.
4. Utilize statistical inference methods like point estimation, hypothesis testing, and confidence intervals for economic data analysis.
5. Conduct time series analysis using trend estimation and moving averages and apply vital statistical measures like birth rates, death rates, and life tables in demographic studies.

COURSE CONTENT:

Unit 1: Elementary Probability Theory (20 lecture hours)

Definitions and examples of sample space and events *(*using set theory); Classical Definition of Probability; Axiomatic Definition of Probability and Properties of Probability; Theorem of Total Probability; Basic counting principles in probability.

Definition and examples of conditional probability; Theorem of compound probability; Definition and examples of independent events; Statement and proof of Bayes' theorem; Applications of Bayes' theorem in economics.

Unit 2: Random Variables and Probability Distributions (25 lecture hours)

Definitions and types of Random Variables; Probability mass functions (pmf) and probability density functions (pdf); Distribution functions; Definitions and properties of mean and variance of Random Variables. Joint Distribution Functions of Random Variables (Discrete and Continuous) - Joint pdf (pmf), Marginal pdf (pmf), Conditional pdf (pmf)

Discrete Distributions: Binomial and Poisson- Definition, properties, mean, and variance of Binomial and Poisson distributions.

Continuous Distributions: Normal and Standard Normal Distributions - Definition, properties, mean, and variance of Normal and Standard Normal distributions; Concepts and implications of the Central Limit Theorem and Law of Large Numbers. Statistical concepts of Chi-Square distribution, t- distribution, and F-distribution

Unit 3: Sampling (15 lecture hours)

Definitions and examples of population, sample, parameter, statistic; Concept of Sampling and Random Sampling; Methods of Sampling: SRSWR, SRSWOR, Stratified Sampling, Multi-Staged Sampling; Sampling and Non-Sampling Errors; Sampling Distribution of Sample Mean; Mean and Standard Error both in SRSWR and SRSWOR; Steps involved in conducting a sample survey.

Unit 4: Statistical Inference (20 lecture hours)

Estimation: Parameters and statistics, point estimation, Interval estimation, properties of a good estimator- Unbiasedness, consistency, efficiency, sufficiency; Methods of estimation: Ordinary Least Square; Maximum Likelihood Method.

Hypothesis Testing: Basics of hypothesis testing (Basic Concepts of Null Hypothesis, Alternative Hypothesis, Type I and Type II Errors, Power of a Test, p-value) and distribution of test-statistics; Testing Hypotheses Related to Population Parameters; Methods and applications of hypothesis test; Level of significance; Confidence intervals for mean.

Unit 5: Vital Statistics (10 lecture hours)

Key Demographic Indicators (definitions and numerical exercises) – Crude Birth Rate, Crude Death Rate, Infant Mortality Rate, Maternal Mortality Rate, Sex Ratio, Fertility Rate, Population Growth Rate, Life Expectancy

Suggested Readings:

1. Jay L. Devore, Probability and Statistics for Engineers, Cengage Learning, 2010.
2. P.H. Karmel and M. Polasek, Applied Statistics for Economists, 4th edition, Pitman.
3. M.R. Spiegel, Theory and Problems of Probability and Statistics (Schaum Series).
4. John E. Freund, Mathematical Statistics, Prentice Hall, 1992.

5. Richard J. Larsen and Morris L. Marx, An Introduction to Mathematical Statistics and Its Applications, Prentice Hall, 2011.
6. William G. Cochran, Sampling Techniques, John Wiley, 2007.
7. R.V. Hogg and A.T. Craig, An Introduction to Mathematical Statistics, 3rd Edition, New York, London.
8. A.M. Mood, F.A. Graybill and D.C. Boes, Introduction to the Theory of Statistics, McGraw-Hill, Indian Edition 3rd Edition, 1974, ISBN: 978-0-07-044520-8.
9. Goon A.M., Gupta and Dasgupta, Fundamentals of Statistics, World Press, ISBN: 978-8-18-756780-6
10. Gupta and Kapoor, Fundamentals of Mathematical Statistics, Sultan Chand and Sons.
11. Gupta and Kapoor, Fundamentals of Applied Statistics, Sultan Chand and Sons.
12. Das, N. G, Statistical Methods, McGraw-Hill.
13. A.L. Nagar and R. K Das, Basic Statistics, OUP, 2nd edition
14. Arnab Chakraborty, Probability and Statistics, Levant Books, ISBN: 978-9-38-806964-9
15. Donald T. Rowland, Demographic Methods and Concepts, Oxford

Paper 22: MIC 31 (Paper 3, Minor Course 1): Development Economics – 4 Credits

Course Objectives:

This course introduces the basic ideas of development economics in a simple and accessible way. It helps students understand what development means, the problems developing countries face, how economies grow, and how poverty, inequality, and environmental issues are linked to development. The course also emphasizes the importance of sustainable development and government actions for improving people's lives.

Course Outcomes:

After completing this course, students will be able to:

1. Understand basic concepts of economic development and measures of development.
2. Explain simple models of economic growth and their implications.
3. Identify causes and effects of poverty, inequality, and demographic changes.
4. Discuss the role of gender and population in development.
5. Understand environmental challenges and the idea of sustainable development.
6. Appreciate the role of government and international efforts in promoting development.

COURSE CONTENT

Unit 1: Introduction to Development Economics (14 Lecture Hours)

1.1 Meaning and importance of Development Economics.

1.2 Key development challenges faced by countries.

1.3 Historical background and evolution of development thinking.

1.4 How to measure development: GDP, HDI (Human Development Index), and MPI (Multidimensional Poverty Index).

1.5 International differences in levels of development.

Unit 2: Economic Growth, Poverty, and Inequality (14 Lecture Hours)

2.1 Basic ideas of economic growth: Rostow's Stages of Growth.

2.2 Examples of economic growth across countries.

2.3 Meaning and measurement of poverty: Headcount Ratio, Multidimensional Poverty Index.

2.4 Understanding inequality and its relationship with development.

2.5 Government policies and social programs to reduce poverty.

Unit 3: Population, Gender, and Development (14 Lecture Hours)

3.1 Population growth and its impact on development.

3.2 The concept of Demographic Transition.

3.3 Gender inequality: causes and effects.

3.4 Importance of gender equality in development.

3.5 Measures like GDI (Gender Development Index).

Unit 4: Environment and Sustainable Development (18 Lecture Hours)

4.1 Environmental problems related to development: pollution, deforestation, and climate change.

4.2 Managing common resources (forests, fisheries, water).

4.3 Economic growth and environmental protection.

4.4 The concept of Sustainable Development.

4.5 The Sustainable Development Goals (SDGs).

Suggested readings

1. Gerald M. Meier and James E. Rauch, Leading Issues in Economic Development, Oxford University Press.
2. Dwight H. Perkins, Steven Radelet, and David L. Lindauer, Economics of Development, W.W. Norton & Company.
3. Debraj Ray, Development Economics, Oxford University Press.
4. Amartya Sen, Development as Freedom, Oxford University Press.
5. Partha Dasgupta, Economics: A Very Short Introduction, Oxford University Press.
6. Abhijit Banerjee and Esther Duflo, Poor Economics, Public Affairs.
7. Kaushik Basu, Analytical Development Economics, Oxford University Press.
8. Paul Collier, The Bottom Billion, Oxford University Press.
9. Jeffrey Sachs, The End of Poverty, Penguin Books.

10. A.P. Thirlwall, Growth and Development, ELBS.

11. S. Ghatak, Introduction to Development Economics, Routledge.

12. Michael P. Todaro and Stephen C. Smith, Economic Development, Pearson Education.

Paper 23: MIC 32 (Paper 3, Minor Course 2): Development Economics – 4 Credits

The course content is the same as Paper 22, MIC 31 Development Economics

Semester VI

Paper 24: MAC 8 (Major Course 8): Development Economics – 6 Credits

Course Objectives:

This course provides an in-depth introduction to the key concepts, measures, and theories of economic development. It analyzes various approaches to development, including the income approach, capability approach, and dependency theory. Students will examine structural transformation, the role of capital, labor, population dynamics, and gender in development. The course critically explores development strategies, dualism, poverty, inequality, and environmental sustainability, equipping students to interpret real-world development experiences across countries and regions through theoretical lenses.

Course Outcomes:

After completing this course, students will be able to:

1. Understand and explain core concepts, indicators, and frameworks of economic development.
2. Analyze different models and stages of structural transformation and growth.
3. Assess the role of population dynamics, gender inequality, and migration in shaping development outcomes.
4. Critically evaluate various development strategies to overcome poverty traps and economic dualism.
5. Apply theoretical frameworks to examine issues of poverty, inequality, and environmental sustainability in different contexts.

COURSE CONTENT

Unit 1: Understanding Economic Development (12 Lecture hours)

1.1 Meaning and concept of Economic Development.

1.2 Income Approach and Capability Approach to development.

1.3 Construction and interpretation of Human Development Index (HDI).

1.4 International variations in development measures; comparing development trajectories across nations and regions.

1.5 The Dependency School of Development: core arguments and critiques.

Unit 2: Stages of Development and Structural Change (12 Lecture hours)

2.1 Sectoral Thesis of Fisher and Clark: primary, secondary, and tertiary sectors.

2.2 Stages of Growth: Rostow's Theory of Stages of Economic Growth.

2.3 Structural change and patterns of development.

Unit 3: Population, Gender, and Economic Development (14 Lecture hours)

3.1 Theories of Demographic Transition.

3.2 Malthusian Population Trap and the concept of Optimum Population.

3.3 Low-Level Equilibrium Trap models: Nelson and Leibenstein — assumptions, implications, and criticisms.

3.4 Gender bias and development implications; Measures like GDI (Gender Development Index).

Unit 4: Development Strategies (18 Lecture hours)

4.1 Poverty Trap Model of Nurkse and the Big Push Theory.

4.2 Linkage Effects: Backward and Forward Linkages.

4.3 Theories of Balanced and Unbalanced Growth.

4.4 Role of capital and labor in economic development: significance of the capital-output ratio.

4.5 Role of technology and technical progress in development.

4.6 Concept of Human capital and Role of Education and Health in economic development.

Unit 5: Models of Economic Dualism and Migration (10 Lecture hours)

5.1 Concept of Economic Dualism.

5.2 Lewis Model of Economic Development with Unlimited Supplies of Labor.

5.3 Concept and measurement of disguised unemployment.

5.4 Sen's Model of Choice of Technique.

5.5 Harris-Todaro Model of Rural-Urban Migration.

Unit 6: Poverty, Inequality, and Development (12 Lecture hours)

6.1 Inequality axioms; commonly used measures of inequality.

6.2 Gender inequality and its impact on development.

6.3 Connections between inequality and economic development.

6.4 Poverty measurement: Headcount Index, Multidimensional Poverty Index (MPI).

6.5 Poverty traps and the path dependence of growth.

Unit 7: Environment and Sustainable Development (12 Lecture Hours)

7.1 Environmental problems related to development: pollution, deforestation, climate change.

7.2 Concept of sustainable development.

7.3 Sustainable Development Goals (SDGs).

7.4 Economic growth and Environmental Sustainability.

Suggested readings:

1. Debraj Ray, Development Economics, Oxford University Press, 2009.
2. Partha Dasgupta, Economics: A Very Short Introduction, Oxford University Press, 2007.
3. Kaushik Basu, The Oxford Companion to Economics in India, Oxford University Press, 2007.
4. Kaushik Basu, Analytical Development Economics, Oxford University Press.
5. Amartya Sen, Development as Freedom, Oxford University Press, 2000.
6. Gerald M. Meier and James E. Rauch (eds.), Leading Issues in Development Economics, Oxford University Press.
7. Michael P. Todaro and Stephen C. Smith, Economic Development, Pearson Education, 2009.
8. Yujiro Hayami and Yoshihisa Godo, Development Economics, Oxford University Press.
9. Pranab Bardhan and Christopher Udry, Development Microeconomics, Oxford University Press.
10. A.P. Thirlwall, Economics of Development, Bloomsbury, ISBN: 978-9-35-435413-7

Paper 25: MAC 9 (Major Course 9): Public Economics- 6 Credits

Course Objectives:

This course explores the role of the government in the economy, covering public goods, taxation, public expenditure, and fiscal policy. It provides analytical tools to assess market failures, government interventions, and fiscal structures in India.

Course Outcomes:

After completing this course, students will be able to:

1. Understand the role of the state in addressing market failures and externalities.
2. Analyze public goods, their provision, and related efficiency issues.
3. Examine public expenditure, government budgets, and fiscal multipliers.
4. Evaluate taxation principles, tax incidence, and the effects of public debt.
5. Assess India's fiscal federalism, budgetary deficits, and tax structure.

COURSE CONTENT:

Unit 1: Economic Basis for Government Activity (14 Lecture hours)

1.1 Individuals, Society, and Government; Mixed Economy and Circular Flow of Income, Role of Government; Types of Government Activity, Measuring the Size of the Government Sector

1.2 Efficiency, Markets and Governments – When Does Market Interaction Fail to achieve Efficiency? Equity versus Efficiency - Graphical Analysis; Pareto Efficiency

1.3 Externalities - positive and negative, Internalization of Externalities through taxes and transfers; Property Rights and the Coase Theorem; Application of Coase theorem to Pollution Rights; Case Study – Using markets to Confront Pollution and Climate Change in India

Numerical Exercises - Solving externality problems (Pigouvian tax vs. Coase theorem)

1.5 Objectives of Public Expenditure – Allocation, Distribution and Stabilization

References:

1**.** David N. Hyman, Public Finance: A Contemporary Application of Theory to Policy, South-Western Cengage Learning, 10th Edition, Chapters 1, 2, 3, and Appendix to Chapter 2

2. Using Markets to Confront Pollution and Climate Change in India (2022), EPIC INDIA, June 6, https://epic.uchicago.edu/insights/using-markets-to-confront-pollution-and-climate-change-in-india/

3. Musgrave, Richard A., and Peggy Musgrave: Public Finance in Theory and Practice, McGraw-Hill International Editions, 5th Ed., Chapter 1

Unit 2: Theory of Public Goods (16 Lecture Hours)

2.1 Concepts of rivalry and excludability; Classification of goods based on rivalry and excludability - Pure Public Goods, Pure Private Goods, Price Excludable Public Goods, and Congestible Goods; Provision of Private Goods and Public Goods: Markets and Government;

2.2 Aggregate Demand for a Pure Public Good; Optimal Provision of Public Goods; Voluntary Contribution and Markets - Lindahl Equilibrium;

2.3 Market Failure in case of a Pure Public Good, the Free-rider problem; Compulsory Finance by the Government

References:

1. David N. Hyman, Public Finance: A Contemporary Application of Theory to Policy, South-Western Cengage Learning, 10th Edition, Chapter 4

Unit 3: Public Expenditure and its evaluation: (18 Lecture hours)

3.1 Classification of Public Expenditure, with reference to India

3.2 Major heads of expenditure and receipts of the Union and State budgets on Revenue and Capital accounts; Deficits: Revenue Deficit, Fiscal Deficit, Primary Deficit, Effective Revenue Deficit, Effective Capital Expenditure (definitions)

3.3 Cost-Benefit Analysis- Enumeration and Evaluation of Benefits and Costs; Discounting Future Net Benefits, Social Rate of Discount, Ranking Projects; Case Study (CBA of Aadhaar – only the items of benefits and costs, and why they are selected)

Numerical exercises: Calculating deficits from expenditures and receipts data

References:

1. Economic Survey of India, Statistical Appendix Tables 2.3 (figures not required)

https://www.indiabudget.gov.in

2. A. Ghosh and C. Ghosh (2023), Public Finance, Prentice Hall India Learning Private Limited; 3rd edition, Chapters 1 and 9 (9.2)

3.David N. Hyman, Public Finance: A Contemporary Application of Theory to Policy, South-Western Cengage Learning, 10th Edition, Chapter 6

4. National Institute of Public Finance and Policy (2012), A cost-benefit analysis of Aadhaar, November 9, 2012, https://macrofinance.nipfp.org.in/FILES/uid_cba_paper.pdf

Unit 4: Financing Public Expenditure through Taxation (20 Lecture hours)

4.1 Tax Bases (Definitions only); Classification of Taxes: Direct and Indirect, General and Selective; Specific and Ad valorem tax rates, Tax Rate Structure – Lumpsum, Progressive, Proportional and Regressive; Average and Marginal tax rates

4.2 Principles of Taxation: Benefit Principle; Ability to Pay Principle

4.3 Tax Compliance and Tax Evasion – Reducing Tax Evasion

4.4 Efficiency of Taxation: Impact of a Unit tax on Market Price and efficiency; Excess Burden of Unit Tax, excess burden when demand or supply is perfectly inelastic; efficiency loss ratio of the tax (concept only), Laffer curve and Optimal Taxation

4.5 Incidence and shifting of the Unit tax for perfectly elastic demand and perfectly elastic supply

4.6 Effects of income tax on income distribution, labour supply, and savings

4.7 Indian Tax Structure – Corporate Income Tax, Personal Income Tax, Goods and Services Tax

Numerical Exercises: Calculate the tax buoyancy using the Union Budget data.

References:

1. David N. Hyman, Public Finance: A Contemporary Application of Theory to Policy, South-Western Cengage Learning, 10th Edition, Chapters 10, 11, 13

2. A. Ghosh and C. Ghosh (2023), Public Finance, Prentice Hall India Learning Private Limited; 3rd edition, Chapters 3 (3.4), 6 (6.5), 7, 11

3. Economic Survey of India 2017-18 Chapter 2 https://www.indiabudget.gov.in/budget2018-2019/economicsurvey2017-2018/pdf/032-042_Chapter_02_ENGLISH_Vol_01_2017-18.pdf

Unit 5: Financing Public Expenditure through Public Debt (12 Lecture hours)

5.1 Meaning of Public Debt

5.2 Sources of Public Borrowings: internal and external borrowing

5.3 Effects of Public Debt

5.4 Public Debt in India: Sustainability in the long run, Instruments of Public Debt in India

References:

1. A. Ghosh and C. Ghosh (2023), Public Finance, Prentice Hall India Learning Private Limited; 3rd edition, Chapter 9

2. Reserve Bank of India (2003): A Brief History of Public Debt in India https://www.rbi.org.in/history/Brief_Fun_PublicDebt.html#Public%20Debt

Unit 6: Fiscal Federalism (10 Lecture hours)

Fiscal Federalism in India, Vertical Fiscal Imbalance (definitions and numerical exercises)

References:

1. M. Govinda Rao and Tapas K. Sen (2011): Federalism and Fiscal Reform in India, National Institute of Public Finance and Policy, New Delhi, Working Paper No. 2011-84, February 2011 https://www.nipfp.org.in/publications/working-papers/1400/

2. A. Ghosh and C. Ghosh (2023), Public Finance, Prentice Hall India Learning Private Limited; 3rd edition, Chapter 10

Other suggested readings:

1. Atkinson, A. B. and J. E. Stiglitz (1980), Lectures on Public Economics, McGraw-Hill
2. Brown, C. V. and P. M. Jackson (1991), Public Sector Economics, Wiley-Blackwell; 4th Edition
3. Cullis, John and Philip Jones (1998), Public Finance and Public Choice, Oxford University Press, 2nd edition
4. Gruber, Jonathan (2011), Public Finance and Public Policy, Worth Publishers,
5. Hindriks, Jean and Gareth D. Myles (2006), Intermediate Public Economics, MIT Press, Cambridge, Massachusetts, London England
6. RBI. State Finances, A Study of Budgets https://rbi.org.in/Scripts/PublicationsView.aspx?id=22248

7. Rao, M. (2005), Changing contours of federal fiscal arrangements in India, in Amaresh Bagchi (ed), Readings in Public Finance, OUP

8. Rosen, H, and T. Gayer (2009), Public Finance, 9th ed., McGraw-Hill/Irwin

9. Stiglitz, J. E. and Jay K. Rosengard (2015): Economics of Public Sector, W. W Norton and Company, 4th Edition

Paper 26: MAC 10 (Major Course 10): International Economics- 6 Credits

Course Objectives:

This course provides a comprehensive understanding of international trade theories, trade policies, exchange rate mechanisms, and global trade institutions. It aims to equip students with analytical tools to assess trade patterns, income distribution effects, and policy implications in an open economy.

Course Outcomes:
After completing this course, students will be able to:

1. Understand the theoretical foundations of international trade and gains from trade.
2. Analyze trade equilibrium, offer curves, and terms of trade.
3. Evaluate the impact of tariffs, quotas, and trade restrictions on welfare.
4. Examine exchange rate determination, foreign exchange markets, and balance of payments.
5. Assess the role of multilateral trade institutions, especially the WTO, in shaping global trade.

COURSE CONTENT:

Unit 1: Introduction (10 Lecture Hours)

1.1 Definition of trade and arbitrage, types of trade (concepts only) - inter-industry, intra-industry, trade in intermediate goods, trade in services - Global Supply Chains, Changing Patterns of Global Trade

1.2 Closed economy with two commodities: Production Possibility Frontier with factor mobility and factor immobility; Community Indifference curves for complements, substitutes, and imperfect substitutes; Equilibrium

1.3 Comparative Advantage and the Gains from Trade (in terms of production possibility curve and community indifference curve), GFT in commodity-endowment model (GFT from Exchange) and in factor endowment model (GFT from Specialization)

References:

1. Nagwa Riad, Luca Errico, Christian Henn, Christian Saborowski, Mika Saito, and Jarkko Turunen (2011), Changing Patterns of Global Trade, IMF Publication Chapter 2 https://www.imf.org/en/Publications/Departmental-Papers-Policy-Papers/Issues/2016/12/31/Changing-Patterns-of-Global-Trade-25104

2. Krugman, Obstfeld, and Melitz, International Economics, Pearson Education, 9th Edition, Chapter 1

3. Rajat Acharyya, International Economics: An Introduction to Theory and Policy, Oxford University Press (2nd edition) Chapter 1 (1.1, 1.2, 1.3), Chapter 2 (2.1, 2.2, 2.3)

Unit 2: Key concepts (6 Lecture hours)

Trade Indifference Curves; Offer curve – derivation, properties, related elasticities, foreign offer curve for a small country; Terms of Trade; International Equilibrium

Reference:
Rajat Acharya, International Economics: An Introduction to Theory and Policy, Oxford University Press (2nd edition), Chapter 4

Unit 3: Classical and Neo-Classical Trade Theories (20 Lecture Hours)

3.1 Technology and Trade (Ricardian Model): Production Possibility Frontier for a one-factor economy, Absolute Advantage versus Comparative Advantage, Relative demand and relative supply, Determination of Equilibrium and terms of trade; Complete and incomplete specialization, Extensions of the Ricardian model: many commodities, many countries (excluding relative wages)

Numerical exercises in a two-country-two-commodity Ricardian Trade model: Find the pattern of trade, terms of trade, and gains from trade given initial autarky conditions

Reference:
Krugman, Obstfeld, and Melitz, International Economics, Pearson Education, 9th Edition, Chapter 3

3.2 Factor Endowment, Trade and Income Distribution (Heckscher-Ohlin-Samuelson Model): Two-commodity, two-factor economy: Factor abundance - physical vs. price definitions of factor abundance, factor intensity ranking, factor intensity reversal, Equilibrium in a closed economy with fixed coefficient and flexible coefficient production functions- diagrammatic illustration, H-O theorem, Rybczynski Theorem, Stolper-Samuelson theorem, Factor Price Equalization theorem and its sources of disruptions (complete specialization; factor intensity reversal; factor immobility; nontraded good), Leontief Paradox. All theorems are to be proved diagrammatically

Numerical exercises on Stolper-Samuelson Theorem and Rybczynski Theorem: Find the effect of a tariff on the factor payments, and the impact of growth in one factor on the output

Reference:
Krugman, Obstfeld, and Melitz, International Economics, Pearson Education, 9th Edition, Chapter 5 and Appendix to Chapter 5

Unit 4: Trade Policy (20 Lecture hours)

4.1 Concepts of Specific tariff and ad valorem tariff; Partial Equilibrium analysis of tariff: Effect of Specific Tariff interventions on welfare in a small country and a large country; General equilibrium analysis of tariff: Tariff and welfare, Maximum Revenue tariff, Optimum Tariff and Tariff Retaliation (using offer curve approach), Case Study: Trade War of 2018;

4.2 Protection - infant industry argument; effective rate of protection in a small economy; Metzler Paradox in a large country; Lerner's Symmetry

4.3 Quantitative Restrictions (Import quota): Scarcity rent and dead-weight losses; TOT effect and welfare under import quota; price equivalence between tariff and import quota; Other Non-tariff barriers (concepts only) – VER, environmental regulations as non-tariff barriers

4.4 Export Subsidy - TOT deterioration and welfare loss for a small country

4.5 Concepts of Dumping and Countervailing Duties

Numerical exercises: Calculate (i) the deadweight loss due to a specific tariff in a partial equilibrium in a small country, (ii) the Effective Rate of Protection

References:

1. Krugman, Obstfeld, and Melitz, International Economics, Pearson Education, 9th Edition, Chapter 9

2. Thomas Pugel, International Economics, McGraw-Hill Education, 17th Edition (Ch 1: for Case studies on Trade War)

Unit 5: International Finance and Exchange Rates (24 Lecture hours)

5.1 Balance of Payments: Concepts and Accounting (explain using Indian BoP data), Current Account (balance of trade and balance on invisibles account), Capital Account (balance of short-term and long-term asset transactions), Concept of balance of payments equilibrium, accommodating and autonomous transactions, and movements of monetary instruments; India's Balance of Payments as per the IMF Balance of Payments Manual 6- the items in a tabular form; Numerical exercises: Categorising the type of transaction, Calculating Trade Balance, Current Account Balance, Financial Account Balance

References:

1. Krugman, Obstfeld, and Melitz, International Economics, Pearson Education, 9th Edition, Chapter 13, BoP Accounts only

2. Rajat Acharya, International Economics: An Introduction to Theory and Policy, Oxford University Press (2nd edition), Chapter 20 (20.1, 20.2, 20.3)

3. Economic Survey of India, Statistical Appendix Table 5.2 and Table 5.3B

https://www.indiabudget.gov.in/economicsurvey/

5.2 Exchange Rate and Foreign Exchange Market: Exchange Rate Regimes - Fixed vs Flexible Exchange Rate; Bilateral Nominal and Real Exchange Rate, Nominal and Real Effective Exchange Rates (NEER and REER), Direct vs Indirect quote – (concepts only); Purchasing Power Parity and Exchange Rate; Currency convertibility on current account and capital account – (concepts only); Case Study**:** India's BoP Crisis, 1997 Asian Crisis

References:

1. Krugman, Obstfeld, and Melitz, International Economics, Pearson Education, 9th Edition, Chapter 14

2. Rajat Acharya, International Economics: An Introduction to Theory and Policy, Oxford University Press (2nd edition), Chapter 22 (22.1.3, 22.3, 22.4)

3. RBI Bulletin (Jan 21, 2021): Effective Exchange Rate Indices of the Indian Rupee – (Introduction only) https://www.rbi.org.in/scripts/BS_ViewBulletin.aspx?Id=20020

4. Tim Callen, Purchasing Power Parity: Weights Matter, in IMF Finance & Development Back to Basics https://www.imf.org/en/Publications/fandd/issues/Series/Back-to-Basics/Purchasing-Power-Parity-PPP

5. Manuel Guitian (1996), Concepts and Degrees of Currency Convertibility, IMF eLibrary, November 1996. https://www.elibrary.imf.org/display/book/9781557755643/C03.xml

6. IMF Staff Publication (1998), The Asian Crisis: Causes and Cures, in Finance and Development, June 1998, Volume 35, No 2, IMF https://www.imf.org/external/pubs/ft/fandd/1998/06/imfstaff.htm

7. Economic Survey of India 1991-92: The Payments Crisis https://www.indiabudget.gov.in/budget_archive/es1991-92_A/esmain.htm

Unit 6: Multilateral Trade Agreements and International Institutions (10 Lecture hours)

6.1 WTO: Objectives of WTO, Concepts of Most Favoured Nation, National Treatment, WTO Agreements – GATT – concept of binding tariff; GATS – modes of supplying services; Intellectual Property and TRIPS; Permissible Barriers to Trade – SPS, TBT; Case Study: Brexit

6.2 IMF: Objectives and Mode of Operation, Special Drawing Rights (concept only)

6.3 IBRD: Objectives and Mode of Operation

References:

1. Rajat Acharya, International Economics: An Introduction to Theory and Policy, Oxford University Press (2nd edition), Chapter 19 (19.1.2, 19.3, 19.4.1, 19.4.2)

2. https://www.imf.org/en/About/Factsheets/IMF-at-a-Glance

3. https://www.worldbank.org/en/news/feature/2012/07/26/getting_to_know_theworldbank

4. Thomas Pugel: *International Economics*, McGraw-Hill Education, 17th Edition (Ch 1: for Case study on Brexit)

Semester VII

Paper 27: MAC 11 (Major Course 11): Advanced Microeconomics: General Equilibrium & Asymmetric Information – 6 Credits

Course Objectives:

This course aims to extend students' understanding of economic analysis beyond partial equilibrium by introducing general equilibrium theory. It covers exchange economies, production economies, welfare economics, and market imperfections caused by asymmetric information. Students will learn about equilibrium conditions, Pareto efficiency, welfare optimization, and the consequences of market failures.

Course Outcomes:

After completing this course, students will be able to:

1. Differentiate between partial and general equilibrium approaches and understand the role of Walras' Law in equilibrium analysis.
2. Analyze the exchange economy using concepts such as competitive allocation, Pareto efficiency, contract curve, and the core allocation framework.
3. Examine the two-sector production economy and understand efficiency in resource allocation using production possibility curves and comparative advantage.
4. Evaluate welfare maximization conditions under perfect competition and analyze the implications of market failures, externalities, and the Coase theorem.
5. Understand market imperfections due to asymmetric information, including adverse selection, moral hazard, and agency problems, and their effects on economic outcomes.

COURSE CONTENT:

Unit 1: General Equilibrium: Preliminaries (15 Lecture hours)

Partial Equilibrium vs. General Equilibrium techniques; Inter-relationship amongst markets; characteristics and assumptions of competitive General equilibrium; Walrus Law and its implications.

Unit 2: Exchange Economy (20 lecture hours)

Exchange and competitive allocation of goods among individuals; concept of Pareto efficiency, contract curve and Pareto set; concept of Core (diagrammatic illustration) and Core allocation; Condition of Pareto optimality; utility possibility frontier, concept of Core (diagrammatic illustration); Social Indifference curves

Unit 3: Two-sector production economy (15 lecture hours)

Efficiency in Resource Allocation -Input efficiency, Production Possibility Curve and its properties, Pareto efficiency, Comparative Advantage-Gains from Trade

Unit 4: Welfare (20 lecture hours)

Marginal conditions for social welfare, Welfare maximization and perfect competition, grand utility possibility frontier, point of constrained bliss- efficiency, input-output distributions and welfare; Theory of Second Best and Optimal interventions to attain Pareto optimality. market failure (imperfect competition, externalities – public good), property rights and Coase theorem.

Unit 5: Asymmetric information (20 lecture hours)

The Market for Lemons – Quality Choice-adverse selection, moral hazards, agency problems-Incentives –Signaling-Asymmetric Information –Monitoring costs-

References:

1. Hal Varian, Intermediate Microeconomics: A Modern Approach, WW Norton and Co, Indian edition abcibook, (2020) ISBN: 978-1-32-403443-8
2. Pindyck, Rubinfeld, and Sreejata Banerjee, Microeconomics, Pearson Education, 9th Edition, ISBN: 978-9-35-606012-8
3. Ferguson and Gould, Microeconomic Theory, Richard D. Irwin Inc 6th edition, ISBN: 978-0-25-601637-6

Paper 28: MAC 12 (Major Course 12): Advanced Macroeconomics – 6 credits

Course Objectives:

This course aims to provide students with a comprehensive understanding of economic growth models and cyclical fluctuations. It covers foundational growth theories, neoclassical growth models, and business cycles to help students analyze long-term economic development and short-term economic fluctuations.

Course Outcomes:

After completing this course, students will be able to:

1. Understand the key stylized facts of economic growth and analyze the basic assumptions of one-sector growth models.
2. Explain the Harrod-Domar Growth Model and its implications for economic development and capital accumulation.
3. Analyze the neoclassical growth model, including steady-state growth, the role of technical progress, and Phelps' Golden Rule of Capital Accumulation.
4. Understand the nature of cyclical fluctuations in an economy and evaluate the role of the multiplier and accelerator in generating business cycles.
5. Examine Samuelson's and Hicks' models of cyclical fluctuations and their implications for macroeconomic stability.

COURSE CONTENT:

Unit 1 Introduction to Growth Models (10 Lecture hours)

Stylized Facts of Growth- Basic Assumptions of One-Sector Growth Models - Harrod-Domar Growth Model

Unit 2 The Basic Neoclassical Growth Model (25 Lecture hours)

Neoclassical Production Function and Long-run Steady State Growth - Neoclassical Growth Model with Technical Progress - Phelps' Golden Rule of Capital Accumulation

Unit 3 Cyclical Fluctuations (15 Lecture hours)

Cyclical Fluctuations in Economics - Role of Multiplier and Accelerator in Cyclical Fluctuations- Samuelson's and Hicks' Models of Cyclical Fluctuations

Unit 4 Open Economy Macroeconomics (40 Lecture hours)

Open Economy Multipliers without and with repercussion effects – Fixed and Flexible Exchange rate – Devaluation - Money Supply in Open Economy – Mundell-Flemming model – Determination of exchange rate

Suggested Readings:

1. Snowdon and Vane (ed), A Macroeconomics Reader, Routledge, Taylor and Francis Group.
2. R. Barro. Macroeconomics, 5th edition, The MIT Press, 1989
3. W.H. Branson. Macroeconomics, Harper and Row, 3rd edition, 1989
4. A.K. Sen (ed). Growth Economics, Penguin, 1970
5. Alpha Chiang and Kevin Wainwright, Fundamental Methods of Mathematical Economics, 4th Edition, McGraw-Hill, 2005
6. Batiz and Batiz, International Finance and Open Economy Macroeconomics

Paper 29: MAC 13 (Major Course 13): Econometrics-I – 6 Credits

Course Objectives:

This course introduces students to the fundamental concepts of econometrics, including the formulation of econometric models, probability and statistical inference, and simple linear regression analysis. It emphasizes both theoretical understanding and practical applications in economic data analysis.

Course Outcomes:

After completing this course, students will be able to:

1. Understand the nature and scope of econometrics, different types of economic data, and the methodology of econometric modeling.
2. Apply probability concepts and statistical distributions to econometric problems and conduct hypothesis testing.
3. Estimate and interpret simple linear regression models, understand the assumptions of the OLS method, and conduct statistical inference.
4. Analyze residuals and diagnose common problems in regression models, such as heteroskedasticity and autocorrelation.
5. Use econometric techniques to test economic theories and make predictions based on empirical data.

COURSE CONTENT:

Unit 1: Nature and Scope of Econometrics (20 Lecture hours)

Economic and Econometric Models; Methodology of Econometrics - Concept of stochastic relation; Structure of Economic Data – Cross Section, Time Series, Panel or Longitudinal; Sources of Data; Test of Economic Theory - Causality and the notion of ceteris paribus

Unit 2: Statistical Concepts (25 Lecture hours)

2.1 Probability and Distribution (10 Lecture Hours)

Basic Results in Probability (examples of random phenomena, probability space, properties of probabilities, conditional probability, independence) - Discrete random variables and probability distributions - Binomial, Poisson, (only statement of functional forms and discussion of genesis to understand the parameters intuitively, no formal derivation of moments) – Continuous Random Variable, Normal Probability Distribution and related distributions ($\chi 2$, t, F) - Mathematical Expectation, Mean and Variance - Joint Probabilities, Covariance and Correlation

2.2 Inference (15 Lecture hours)

Properties of Estimator; Interval Estimation –Testing of Hypotheses, relationship between confidence interval procedures and tests of hypotheses.

Unit 3 Simple Linear Regression Model (45 Lecture hours)

Unit 1: Estimation and Inference (30 Lecture hours)

Specifications of the relationship between dependent and independent variables; Concepts of population regression function and sample regression function; Method of Moments

Estimation of model by method of ordinary least squares, Properties of the Least Squares Estimators, Gauss-Markov theorem, Derivation of the sampling distribution of the least square estimators; Interval estimation and hypothesis testing; Analysis of variance for the simple regression Model - Prediction

Extensions of the two variable linear regression models: Regression through origin, scaling and unit of measurement, different functional forms of regression models – semi-log, double-log, reciprocal model

Unit 2: Problems in OLS Methods (15 Lecture hours)

Analysis of Residuals – Heteroskedasticity and Autocorrelation Problems – First Order Autoregressive Process – Consequences of applying OLS under Heteroskedasticity and Autocorrelation – Durbin-Watson Test, Glesjer Test, Goldfeld-Quandt Test.

Reference: G.S. Maddala and Kajal Lahiri, Introduction to Econometrics, Wiley India, 4th Edition

Suggested readings:

1. D. N. Gujarati and D.C. Porter, Essentials of Econometrics, McGraw Hill, 4th International Edition, 2009
2. Christopher Dougherty, Introduction to Econometrics, Oxford University Press, 3rd edition, Indian edition, 2007
3. Jan Kmenta, Elements of Econometrics, Indian Reprint, Khosla Publishing House, 2nd edition, 2008
4. Stock and Watson, Introduction to Econometrics, Pearson
5. Maddala, Introduction to Econometrics, Wiley
6. Wooldridge Jeffrey, Introductory Econometrics – A Modern Approach, Cengage MindTap, ISBN: 978-1-33-767545-1

Paper 30: MIC 41 (Paper 4, Minor Course 1): Indian Economics - 4 Credits

Course Objectives:

The course on Indian Economy helps us to understand the development process going on within the Indian economy and how macroeconomic policies, including fiscal, monetary, and trade policies, influence the basic problem of scarcity in the Indian Economy. It also examines sector-specific trends in key indicators and their implications in the post-Independence period. After completing the course, the learner will be able to know the current issues and problems facing the Indian economy.

Course Outcome: Upon successful completion of this course, students will be able to:

1. Critically analyze the fundamental characteristics and structure of the Indian economy; Understand the rationale, objectives, strategies, and achievements of India's Five-Year Plans.
2. Understand the fundamentals of Indian agriculture: Its role in India's economy, and the challenges and opportunities it faces; Evaluate agricultural policies and performance.
3. Understand the role of industry in India, analyze industrial production trends, critically assess small-scale industries, evaluate the public sector, privatization, and their performance, analyze foreign investment, and examine industrial relations - trade unions in India.
4. Analyze India's foreign trade, critically assess trade policies; evaluate India's role in the WTO, and analyze emerging trends in international trade.
5. Define and classify the diverse range of activities within the service sector in the Indian economy; Analyze the significant contribution of the service sector to India's economic growth, GDP, and employment generation; Evaluate the impact of key government policies and initiatives aimed at fostering growth and development within the Indian service sector.
6. The rationale behind the formation of NITI Aayog, its key objectives, and functions of NITI Aayog in India's development agenda**.**

COURSE CONTENT:

Unit 1. Indian economic system and common goals of Five-Year Plans (12 Lecture hours)

Main features, Achievement and failure of policies

Unit 2. Agriculture: Policies and Performance (15 Lecture hours)

Production and productivity: Factors of Production, Land Use Patterns (land reforms)

Productivity Trends (Analysis of agricultural productivity trends)

Agricultural Credit: Sources - institutional finance and non-institutional finance; Credit Policy of Government

Labour: Composition of agricultural labor force; Labor Reforms

Regional Variations in Indian Agriculture: Green Revolution and its Impact on different regions of India.

Markets and Pricing: Structure of agricultural markets, regulated and unregulated markets, , price fluctuations, price support mechanisms, and price controls.

Unit 3. Industry: Policies and Performance (15 Lecture hours)

Production trends: Importance of industry in India's economy, employment, and exports. sectoral composition and contribution to GDP. Evolution of Indian industrial policies since independence including industrial licensing, reservations, and subsidies;

Small-scale industries: Definition and Characteristics, their role; Government Support, Challenges and Opportunities;

Public sector: Importance of public sector enterprises in India's economy, Privatization and Disinvestment.

Foreign Investment: Definition, types, and benefits of FDI in India. Impact of FDI; Emerging Trends in Indian Industry

Special economic zones (SEZs); Make in India Initiative, Digital India, Sustainability, and Corporate Social Responsibility (Concepts only)

Unit 4. Foreign Trade: Trends and Policies (8 Lecture hours)

Evolution of India's foreign trade since independence.

Export and Import Structure: Composition of India's exports and imports, key commodities, and sectors.; Export Promotion Strategies. Import Substitution and Trade Policy Reforms:

India and the World Trade Organization: Understanding the objectives and functions of the WTO, India's Role in WTO

Unit 5. The Service Sector: Policies and Performance (7 Lecture hours)

Composition and contribution to the early Indian economy. Early Policy Approaches (1951-1990) – Role of the state in key service industries; 1991 Reforms and the Service Sector Boom-Impact of liberalization, deregulation, and privatization on service industries -Opening up of sectors like finance, telecommunications, and aviation- Policies promoting the

Information Technology (IT) and IT-enabled Services (ITES). Tourism policies and their outcomes

Unit 6. Formation, Objectives, and Functions of NITI Aayog (3 Lecture hours)

Suggested readings:

1. Uma Kapila, Indian Economy since Independence, Academic Foundation, 19th edition (2009).

2. Government of India, Economic Survey (latest)

3. Government of India, Five Year Plan (latest)

4. Datt and Sundharam, Indian Economy (Latest Edition), New Delhi S. Chand Publishing

5. S. K. Misra, V. K. Puri and Bharat Garg, Indian Economy (Latest Edition), Himalaya Publishing House

Paper 31: MIC 42 (Paper 4, Minor Course 2): Indian Economics - 4 Credits

The Course content is the same as Paper 30, MIC 41 (Paper 4, Minor Course 1): Indian Economics - 4 Credits

Semester VIII

Paper 32: MAC 14 (Major Course 14): History of Economic Ideas - 4 Credits

Course Objective:

The basic objective of this paper is to familiarize the post-graduate students with the evolution of economic ideas since ancient days to the present, along with acquainting them with different schools of thought in Economics.

Course Outcome

1. Develops understanding about evolution of economic ideas overtime
2. Enables to understand the contributions of Key thinkers to economic theories
3. Helps to understand the historical and intellectual contexts in which economic ideas emerged and evolved
4. Develops knowledge about fundamental economic concepts and systems.

COURSE CONTENT:

Unit 1: Nature and Significance of History of Economic Ideas (4 Lecture hours)

1.1 Approaches to History of Economic Ideas

1.2 Significance of History of Economic Ideas

Unit 2: Ancient Period (6 Lecture hours)

2.1 An Introduction to the Ancient Period

2.2 Greek Economic Thought – Plato and Aristotle

Unit 3: Pre-classical Economic Ideas (12 Lecture hours)

3.1 William Petty

3.2 Richard Cantillon

3.3 Mercantilism

3.4 Physiocracy

Unit 4: Advent of classical economic ideas (10 Lecture hours)

4.1 Adam Smith

4.2 David Ricardo

4.3 Thomas Malthus

Unit 5: Socialist Economic Ideas (12 Lecture hours)

5.1 Early socialist thinkers – Robert Owen, Joseph Proudhon

5.2 Karl Marx – Orthodox Marxian School

5.3 Recent trends in socialist economic ideas – Class Focused Marxist Approach

Unit 6: Emergence and evolution of neoclassical economic ideas (8 Lecture Hours)

6.1 Augustine Cournot

6.2 Leon Walras

6.3 Alfred Marshall

6.4 A.C. Pigou

Unit 7: Keynesian Economic Ideas (8 Lecture hours)

7.1 Influences of Keynes

7.2 Keynes versus Classical Economic Ideas

References:

1. William J. Barber, A History of Economic Thought, (2009), Wesleyan Univ Press, 1st edition, ISBN: 978-0-81-956938-7
2. Ernesto Screpanti and Stefano Zamagni, An Outline of the History of Economic Thought, Oxford University Press
3. Heinz D. Kurz, Economic Thought: A Brief History, (2017), Columbia University Press
4. Robert L. Heilbroner, Worldly Philosophers, (2000), Penguin Random House
5. Gianni Vaggi and Peter Groenewegen, A Concise History of Economic Thought: From Mercantilism to Monetarism, (2003) Palgrave Macmillan
6. Ingrid Hahne Rima, Development of Economic Analysis, (1991), 6th Edition, Routledge, ISBN: 978-0-25-608631-7
7. Phyllis Deane, The Evolution of Economic Ideas, (1978), Cambridge University Press

Paper 33: MAC 15 (Major Course 15): Econometrics-II – 4 Credits

Course Objectives:

This course deepens students' understanding of econometric theory and applications, focusing on multiple regression, simultaneous equation models, and time series analysis. It aims to develop the technical skills required to handle real-world economic data, diagnose model problems, and draw meaningful inferences for research and policy analysis.

Course Outcomes:

Upon successful completion of this course, students will be able to:

1. Formulate and estimate multiple linear regression models, interpreting results and performing diagnostic tests.
2. Understand and estimate systems of simultaneous equations, addressing identification issues using appropriate methods.
3. Analyze and forecast time series data, understanding concepts like stationarity, cointegration, and ARIMA modeling.
4. Apply econometric tools to empirical economic problems and evaluate the reliability and validity of results.

COURSE CONTENT

Unit 1: Multiple Linear Regression Analysis (24 Lecture hours)

1.1 Specification and Estimation - Formulation of the multiple linear regression model; Estimation of parameters through Ordinary Least Squares (OLS).

1.2 Properties of OLS Estimators - Unbiasedness, efficiency, and consistency of OLS estimators.

1.3 Goodness of Fit - Interpretation and use of R-squared and adjusted R-squared measures.

1.4 Statistical Inference in Regression - Hypothesis testing for individual coefficients and overall model significance; Testing linear restrictions using F-tests.

1.5 Chow Test - Detection of structural breaks and model stability.

1.6 Dummy Variables - Incorporating qualitative factors into regression models; interaction terms and structural break dummies.

1.7 Regression Diagnostics **-** Identification and remedies for heteroskedasticity, multicollinearity, and autocorrelation.

1.8 Model Misspecification and Validation - Issues of omitted variables, outliers, measurement errors; Ensuring internal and external validity of regression models.

Unit 2: Simultaneous Equation Models (16 Lecture hours)

2.1 Structure of Simultaneous Equation Systems - Understanding structural, reduced, and final form equations; Problem of simultaneity bias.

2.2 Identification Problem - Rank and order conditions for identification of structural equations.

2.3 Estimation Techniques - Indirect Least Squares (ILS); Two-Stage Least Squares (2SLS); Instrumental Variable (IV) regression: concepts and applications.

Unit 3: Time Series Econometrics (20 Lecture hours)

3.1 Stochastic vs. Deterministic Processes - Nature and examples of stochastic and deterministic components in time series data.

3.2 Different Time Series Processes: White Noise, Random Walk (RWM), Autoregressive (AR) and Moving Average (MA) Models - Concepts and structures of AR and MA models;

3.3 Stationarity and Non-Stationarity - Concept of stationary and non-stationary time series; Importance of stationarity in time series analysis; Unit root tests for stationarity: Augmented Dickey-Fuller (ADF) test.

3.4 ARMA Models and the Box-Jenkins Methodology - Combining AR and MA components into ARMA models; Steps in the Box-Jenkins approach: model identification; autocorrelations and correlogram, estimation, diagnostic checking; Model selection criteria and practical applications.

Suggested readings:

1. Stock, J.H., & Watson, M.W. (2011), Introduction to Econometrics (3rd ed.). Addison Wesley.
2. Gujarati, D.N., Porter, D.C., & Pal, M. (2017), Basic Econometrics (6th ed.). McGraw-Hill Education.
3. Wooldridge, J.M. (2006), Introductory Econometrics: A Modern Approach (3rd ed.). South-Western Cengage Learning.

Paper 34: MAC 16 (Major Course 16): Indian Economics II - 4 Credits

Course Objectives:

This course provides a detailed analysis of the key sectors of the Indian economy, focusing on agriculture, industry, and foreign trade. It aims to familiarize students with the policies, performance, and challenges in these sectors, equipping them with analytical skills to evaluate India's economic progress and policy interventions.

Course Outcomes:

After completing this course, students will be able to:

1. Understand the fundamentals of Indian agriculture: Discuss the role of agriculture in India's economy, and the challenges and opportunities it faces. Evaluate agricultural policies and performance and assess government policies related to agriculture, their impact on production, and the overall performance of the sector.
2. Understand the role of industry in India, analyze industrial production trends, critically assess small-scale industries, evaluate the public sector: discuss the role of public sector enterprises in India, privatization, and their performance., analyze foreign investment: understand the concept of FDI, examine industrial relations: trade unions in India.
3. Analyze India's foreign trade, critically assess trade policies: evaluate India's role in the WTO and analyze emerging trends in international trade.
4. Define and classify the diverse range of activities within the service sector in the Indian economy; Analyze the significant contribution of the service sector to India's economic growth, GDP, and employment generation; Evaluate the impact of key government policies and initiatives aimed at fostering growth and development within the Indian service sector.

COURSE CONTENT:

Unit 1. Agriculture: Policies and Performance (17 Lecture Hours)

1.1 Production and productivity**:** Factors of Production (Land, labour, capital, and technology in agriculture.) Land Use Patterns (Cropping patterns, land tenure systems, and land reforms)

1.2 Productivity Trends (Analysis of agricultural productivity trends over time and across regions.)

1.3 Technological Advancements

1.4 Credit: Sources of agricultural credit, institutional finance (e.g., banks, cooperatives), and non-institutional finance. Credit Policy (Government policies related to agricultural credit, issues of debt burden on farmers, indebtedness, and farmer suicides)

1.5 Labour: Composition of agricultural labour force, Labor Reforms

1.6 Regional Variations in Indian Agriculture: Regional disparities in agriculture, irrigation, and infrastructure development under the perspective of the Green Revolution

1.7 Markets and Pricing**:** Structure of agricultural markets, regulated and unregulated markets, and market imperfections.**,** price fluctuations, price support mechanisms, and price controls.

1.8 Role of cooperatives

Unit 2. Industry: Policies and Performance (18 Lecture hours)

2.1 Production trends; Importance of industry in India's economy, employment, and exports; industrial growth rates; sectoral composition, and contribution to GDP; Evolution of Indian industrial policies since independence including industrial licensing, reservations, and subsidies

2.2 Small-scale industries - Definition and Characteristics, their role in employment and exports. Government Support, Challenges and Opportunities;

2.3 Public sector - Importance of public sector enterprises in India's economy, Privatization and Disinvestment: Performance Evaluation (profitability, and efficiency)

2.4 Foreign Investment: Definition, types; benefits of FDI in India; FDI Policy; Impact of FDI

2.5 Emerging Trends in Indian Industry

2.6 Special economic zones (SEZs). Make in India Initiative, Digital India, Sustainability and Corporate Social Responsibility:

Unit 3. Foreign Trade: Trends and Policies (15 Lecture hours)

3.1 Evolution of India's foreign trade since -independence

3.2 Major Trading Partners: Analysis of India's major trading partners and trade patterns.

3.3 Export and Import Structure; Composition of India's exports and imports (key commodities, and sectors); Export Promotion Strategies; Import Substitution and Trade Policy Reforms

3.4 India and the World Trade Organisation. Understanding the objectives and functions of the WTO, India's Role in WTO

3.5 Emerging Trends in International Trade **-** Regional Trade Agreements, Global Value Chains, E-commerce

4. **The Service Sector: Policies and Performance** (10 Lecture hours)

4.1 Composition and contribution to the early Indian economy, early Policy Approaches (1951-1990) **-** Role of the state in key service industries (transport, communication, finance)

4.2 The Era of Liberalization and Expansion - 1991 Reforms and the Service Sector Boom **-** Impact of liberalization, deregulation, and privatization on service industries - Opening up of sectors like insurance, finance, telecommunications, and aviation - Policies promoting Information Technology (IT) and IT-enabled Services (ITES)

4.3 Tourism policies and their outcomes

Suggested readings:

1. Uma Kapila, Indian Economy since Independence, Academic Foundation, 19th edition (2009).

2. Government of India, Economic Survey (latest)

3. Government of India, Five-Year Plan (latest)

4. Datt and Sundharam, Indian Economy (Latest Edition), New Delhi S. Chand Publishing

5. S. K. Misra, V. K. Puri and Bharat Garg, Indian Economy (Latest Edition), Himalaya Publishing House

6. Nitin Singhania, Indian Economy, McGraw-Hill

7. Ministry of Tourism, Government of India publications and reports. (For specific information on tourism policies and their impact).

8. Department of Telecommunications, Government of India publications and reports. (For details on telecom sector policies).

9. NASSCOM (National Association of Software and Service Companies) reports and publications. (For information on the IT and ITES sector and related policies).

For UG Students without Research

Paper 35: MAC 17 (Major Course 17): Financial Economics - 6 Credits

Course Objective: *The basic objective of this paper is to equip the undergraduate students with the basics of financial economics as practiced today in real life which may enhance their employability. The course aims to equip the students with fundamental theories and practices related to finance, which will be illustrated in class with real-life examples*.

Course outcome:

1. Develops the theoretical foundation of financial economics
2. Helps to evaluate the link between the financial system and the real economy
3. Develops an understanding of Financial Markets
4. Enables the learner to assess the importance of risk in the economy
5. Equips the learner to apply the concept of time value of money in real life
6. Enables the learner to evaluate the firm's investment decisions
7. Develops problem-solving skills related to financial economics

COURSE CONTENT:

Unit 1: Introduction to Corporate Finance (5 Lecture hours)

1.1 The Balance Sheet Model of a Firm

1.2 Capital Structure – Corporate Securities as Contingent Claims on the Total Value of the Firm

1.3 The Corporate Firm – Sole Proprietorship, Partnership and Corporation – Goals of the Corporate Firm

1.4 Financial Markets

Reference:

Ross, Westerfield, and Jaffe, Corporate Finance, Tata McGraw-Hill (7th Ed), Chapter 1 (Introduction to Corporate Finance), pp.2-20.

Unit 2: Accounting Statements and Cash Flows (10 Lecture Hours)

2.1 The Balance Sheet – The Income Statement – Net Working Capital – Financial Cash Flow – The Accounting Statement of Cash Flows

2.2 Modifying Accounting Data for Managerial Decisions – Operating Assets and Operating Capital, NOPAT, Free Cash Flow (FCF), Evaluating FCF, NOPAT and Operating Capital, Market Value Added (MVA) and Economic Value Added (EVA)

2.3 Financial Statement Analysis

Reference:

1. Ross, Westerfield, and Jaffe, Corporate Finance, Chapter 2 (Accounting Statements and Cash Flow), pp. 21-41.
2. Ehrhardt, Michael C. and Eugene F. Brigham (2004), Corporate Finance – A Focused Approach, Thomson–South–Western, Chapter 9 (Financial Statements, Cash Flow, and Taxes); pp. 348-357 (For 2.2).

Unit 3: Time Value of Money (3 Lecture hours)

3.1 Future Value (of a Single Amount and Annuity)

3.2 Present Value (of a Single Amount and Annuity)

3.3 Perpetuity

Reference:

1. Chandra, Prasanna (2001), Fundamentals of Financial Management, Tata-McGraw-Hill 3rd Ed, Chapter 3 (Time Value of Money)

Unit 4: Risk and Return (2 Lecture Hours)

4.1 Risk and Return of a Single Asset

4.2 Portfolio Risk and Return

Reference:

1. Chandra, Prasanna (2001): Fundamentals of Financial Management, Chapter 4 (Risk and Return)

Unit 5: Portfolio Analysis (8 Lecture hours)

5.1 The Portfolio Selection Problem

5.2 The Efficient Set Theorem – Efficiency Frontier

5.3 Portfolio Diversification – The Markowitz Model

5.4 Risk-Free Borrowing and Lending

Reference:

1. Sharpe, William F., Gordon J. Alexander and Jeffery V. Bailey (1999): Investments, Prentice Hall India (Eastern Economy Edition), Fifth Edition; Chapter 7 (The Portfolio Selection Problem) for 5.1; Chapter 8 (Portfolio Analysis) for 5.2 and 5.3; and Chapter 9 (Risk-free Lending and Borrowing) for 5.4.

Unit 6: Valuation of Securities (20 Lecture hours)

6.1 Basic Valuation Model – Bond Valuation – Equity Valuation

6.2 Dividend Capitalisation Approach

6.3 Other Approaches of Equity Valuation

6.4 Capital Asset Pricing Model (CAPM)

6.5 Arbitrage Pricing Theory

References:

1. Chandra, Prasanna (2001): Fundamentals of Financial Management, Chapter 5 (Valuation of Securities) for 6.1, 6.2, and 6.3
2. Sharpe, William F., Gordon J. Alexander and Jeffery V. Bailey (1999): Investments, Prentice Hall India (Eastern Economy Edition), Fifth Edition; Chapter 10 (Capital Asset Pricing Model) for 6.4, Chapter 12 (Arbitrage Pricing Theory) for 6.5

Unit 7: Basics of Capital Budgeting (6 Lecture Hours)

7.1 Capital Budgeting Process – Costs and Benefits

7.2 Different Investment Criteria - Net Present Value, Benefit Cost Ratio, Internal Rate of Return, Payback Period, Accounting Rate of Return

Reference:

1. Chandra, Prasanna (2001): Fundamentals of Financial Management, Chapter 6 (Basics of Capital Budgeting)

Unit 8: Cost of Capital (7 Lecture Hours)

8.1 Basic Concepts

8.2 Determination of Component Costs

8.3 Determination of the Proportions

8.4 Weighted Average Cost of Capital (WACC)

8.5 Weighted Marginal Cost of Capital Schedule

Reference:

1. Chandra, Prasanna (2001), Fundamentals of Financial Management, Chapter 7 (The Cost of Capital)

Unit 9: Risk Analysis in Capital Budgeting (6 Lecture hours)

9.1 Measurement of Risk – Analytical Derivation (Hillier Model)

9.2 Sensitivity Analysis

9.3 Scenario Analysis

9.4 Break-Even Analysis

9.5 Selection of A Project

9.6 Capital Budgeting Under Constraints

9.7 Decision Tree Analysis

Reference:

1. Chandra, Prasanna (2001): Fundamentals of Financial Management, Chapter 8 (Risk Analysis in Capital Budgeting)

Unit 10: Capital Structure and Cost of Capital (6 Lecture Hours)

10.1 Assumptions and Definitions - Net Income Approach - Net Operating Income Approach - Traditional Position – Modigliani and Miller Position

10.2 Taxation and Capital Structure

10.3 Other Imperfections in Capital Structure

Reference:

1. Chandra, Prasanna (2001): Fundamentals of Financial Management, Chapter 10 (Capital Structure and Cost of Capital)

Unit 11: Dividend Policy and Share Valuation (5 Lecture Hours)

11.1 Traditional Position

11.2 Walter Model

11.3 Gordon Model

11.4 Miller and Modigliani Position

Reference:

1. Chandra, Prasanna (2001): Fundamentals of Financial Management, Chapter 12 (Dividend Policy and Share Valuation)

Unit 12: Efficient Capital Markets (6 Lecture Hours)

12.1 Market Efficiency – Different Types of Efficiency – The Evidence

12.2 The Behavioural Challenge to Market Efficiency

12.3 Empirical Challenges to Market Efficiency

12.4 Implications for Corporate Finance

Reference:

1. Ross, Stephen A., Randolph W. Westerfield and Jeffrey Jaffe (2004), Corporate Finance, Chapter 13 (Corporate-Financing Decisions and Efficient Capital Markets); pp. 349-383.

Unit 13: Introduction to Derivatives (6 Lecture Hours)

13.1 What are Derivatives? Exchange Traded Derivatives and Over-the-Counter (OTC) Derivatives; Some examples of derivatives

13.2 Futures Contracts and the History of Futures Markets

13.3 Options Contracts and the History of Option Markets

13.4 Hedging – using futures and options

13.5 Speculation – using futures and options

13.6 Arbitrage

Reference:

1. Hull, John C. (1995), Introduction to Futures and Options Markets, (Eastern Economy Edition-Second Edition), Prentice Hall India; Chapter 1 (Introduction), pp. 1-16.

Suggested readings:

1. Ross, Stephen A., Randolph W. Westerfield and Jeffrey Jaffe (2004), Corporate Finance, Tata-McGraw-Hill, Seventh Edition
2. Brealey, Richard A., Stewart C. Myers, Franklin Allen and Pitabas Mohanty (2007), Principles of Corporate Finance, Eighth Edition, Tata-McGraw Hill (Special Indian Edition)
3. Sharpe, William F., Gordon J. Alexander and Jeffery V. Bailey (1999), Investments, Prentice Hall India (Eastern Economy Edition), Fifth Edition

4. Ehrhardt, Michael C. and Eugene F. Brigham (2004), Corporate Finance – A Focused Approach, Thomson-South-Western
5. Chandra, Prasanna (2001), Fundamentals of Financial Management, Tata McGraw-Hill
6. Hull, John C. (1995), Introduction to Futures and Options Markets, (Eastern Economy Edition-Second Edition), Prentice Hall India

Paper 36: MAC 18 (Major Course 18): Environmental Economics – 6 Credit

Course Objectives:

This course introduces students to the economic dimensions of environmental issues, including pollution, resource depletion, and sustainable development. It explores market failures, policy solutions, and international environmental agreements while equipping students with the tools for economic valuation of environmental resources.

Course Outcomes: After completing this course, students will be able to:

1. Understand the interlinkages between the economy and the environment, including ecological and resource economics.
2. Analyze pollution as an externality and evaluate various pollution control mechanisms, including market-based and regulatory approaches.
3. Assess the effectiveness of environmental policies such as Pigouvian taxes, pollution permits, and command-and-control measures.
4. Examine international environmental challenges, trade-related environmental concerns, and major international agreements.
5. Explore methods for valuing environmental goods and services, including contingent valuation, travel cost, and hedonic pricing.
6. Evaluate sustainability concepts, the Environmental Kuznets Curve, and the Sustainable Development Goals (SDGs).

COURSE CONTENT:

Unit 1. The Economy and the Environment (10 Lecture hours)

1.1 Emergence of Environmental Economics - Ecological Economics and Resource Economics (Concepts only)

1.2 Inter-linkages between the economy and environment – Material Balance Principle (Concepts only)

1.3 The Costs of Environmental Pollution and Resource Degradation

Unit 2. Pollution Control (15 Lecture hours)

2.1 Pollution as an externality -Pareto optimality and market failure in the presence of externalities

2.2 Efficient level of Pollution-Static Model of Optimal Pollution

2.3 Property Rights and Coase Theorem - Limitation of mutual bargaining.

Unit 3. The Design and Implementation of Environmental Policy (20 Lecture hours)

3.1 Pigouvian Fees – Single Polluter, Multiple Polluters, Fees vs Subsidies

3.2 Regulating Pollution: Command and Control, Pollution tax vs Standards

3.3 The Basic Theory of Tradable Pollution Permits

Unit 4. International Environmental Problems (15 Lectures hours)

4.1Trans boundary Pollution – Transboundary Pollution as a Problem of International Externalities

4.2 International Trade and Environment - Pollution Haven Hypothesis - Revealed Comparative Advantage and Environmental Regulation

4.3 International Environmental Agreements – Basic idea about Montreal-Kyoto Protocol, Paris Agreement, and Talks on Climate Change

Unit 5. Valuation of Environment (18 Lecture hours)

5.1 Concepts of Economic value of environment (Use and non-use value, Option value, Existence value)

5.2 Concepts of Willingness to Pay (WTP) and Willingness to Accept (WTA), Difference between the two concepts

5.3 Direct and Indirect Methods of Valuation – Contingent valuation, Travel Cost, hedonic Pricing (basic concepts only)

Unit 6. Sustainable Development (12 Lecture hours)

6.1 Economic Growth and Environment - Environmental Kuznets Curve (concepts only)

6.2 Concepts and Measurement of Sustainability – Weak and Strong Sustainability

6.3 Sustainable Development Goals (SDGs)

Reference:

1. Hanley N, Shogren J.F. & White B., Environmental Economics in Theory and Practice, Macmillan

2. Kolstad, Charles D., Environmental Economics, Oxford University Press

3. Bhattacharya, R. N. (2002): Environmental Economics: An Indian Perspective, Oxford University Press, New Delhi

4. Study materials available at **eGyanKosh - a National Digital Repository https://egyankosh.ac.in/)**

For UG Honours with Research

Research Project/Dissertation for B.Sc. (Major) in Economics- 12 Credits

Course Description:

*The Research Project/Dissertation is a crucial component of the **UG Honours with Research** program in Economics. This course is designed to equip students with the ability to conduct independent research on contemporary economic issues. Through this process, students will develop critical thinking, analytical skills, and the ability to apply economic theories and quantitative methods to real-world problems.*

Course Objectives:

1. To introduce students to the fundamentals of economic research methodology.
2. To develop skills in data collection, empirical analysis, and academic writing.
3. To encourage independent thinking and problem-solving in economic research.
4. To enable students to critically analyze economic literature and present coherent arguments.
5. To provide hands-on experience with statistical tools and research software.

Expected Outcomes:

Upon successful completion, students will be able to:

1. Conduct independent economic research using appropriate methodologies.
2. Analyze economic data and interpret findings effectively.
3. Present research outcomes in a structured and professional manner.
4. Develop critical perspectives on economic issues and policy implications.

COURSE STRUCTURE:

1. **Selection of Research Topic** – Identifying an area of interest and formulating research questions.
2. **Review of Literature** – Studying relevant academic papers and understanding the research gap.
3. **Research Methodology** – Learning about qualitative and quantitative methods, data sources, and ethical considerations in research.
4. **Data Collection and Analysis** – Using primary or secondary data, applying statistical/econometric techniques, and interpreting results.

5. **Findings and Discussion** – Presenting key insights and policy implications.
6. **Conclusion and Recommendations** – Summarizing the research outcomes and suggesting future research directions.
7. **Report Writing and Presentation** – Structuring the dissertation in a standard academic format and presenting findings to faculty.

Evaluation Criteria:

- Research Proposal and Literature Review (20%)
- Data Collection and Methodology (20%)
- Analysis and Interpretation (30%)
- Report Writing (20%)
- Presentation and Viva Voce (10%)

Outreach/Internship (2 Credits) – B.Sc. (Major) in Economics

Course Description:

The **Outreach/Internship** program is an essential experiential learning component of the **B.Sc. (Major) in Economics** curriculum. It provides students with the opportunity to apply their theoretical knowledge in real-world economic settings. This course is designed to bridge the gap between classroom learning and professional experience by engaging students in field-based projects, research internships, policy work, or community outreach programs.

Course Objectives:

1. To provide hands-on experience in economic research, policy analysis, financial markets, or community development.
2. To expose students to real-world economic challenges and problem-solving approaches.
3. To develop analytical, teamwork, and communication skills in a professional setting.
4. To enhance students' employability by fostering practical skills relevant to industry and academia.
5. To encourage engagement with socio-economic issues through outreach and fieldwork.

Course Structure: Students may undertake an internship in any of the following areas:

1. **Economic Research Internship** – Working with research organizations, universities, think tanks, or data analysis firms.
2. **Financial Sector Internship** – Exposure to banking, stock markets, financial consultancy, or risk analysis.
3. **Government and Policy Internship** – Internship with government agencies, planning bodies, or international organizations.
4. **NGO and Community Outreach** – Engaging in development economics projects, rural studies, or social impact assessments.
5. **Corporate Internship** – Working in business analytics, marketing research, or corporate social responsibility (CSR).
6. **Entrepreneurial and Start-up Internship** – Assisting in economic feasibility studies, market research, or business planning.

Evaluation Criteria:

- Internship Proposal and Plan (20%)

- Work Performance and Contributions (30%)
- Internship Report (30%)
- Presentation and Viva Voce (20%)

Expected Learning Outcomes:

Upon successful completion of the **Outreach/Internship**, students will:

1. Gain firsthand experience in applying economic concepts to practical situations.
2. Develop analytical and problem-solving skills in a professional or community setting.
3. Enhance their ability to work in teams and communicate economic ideas effectively.
4. Understand the socio-economic dynamics of industries, markets, and policy frameworks.
5. Build professional networks that can facilitate career growth and further studies.