# SYLLABUS

# FOR

# M.A./M.SC. IN ECONOMICS

## (IN NEP STRUCTUREwith effect from the Academic Session 2026-27)

**Two-Year PG Syllabus in Economics**

**(NEP 2020 Framework)**

**Approved in the PG BOS meeting held on 07.05.2026**

## DEPARTMENT OF ECONOMICS


## WEST BENGAL STATE UNIVERSITY

**Berunanpukuria, P.O. - Malikapur, Barasat, North 24 Parganas, Kolkata- 700126**

# PREFACE

The **Board of Studies in Economics, West Bengal State University**, presents the revised postgraduate curriculum for the **Master of Science (M.Sc.) Programme in Economics**, designed in response to the evolving academic and policy framework of higher education in India.

The curriculum has been developed in alignment with the broad principles of the **National Education Policy (NEP) 2020**, the **National Higher Education Qualifications Framework (NHEQF)**, and the academic reforms adopted by the University to strengthen postgraduate teaching, research, interdisciplinary learning, skill development, and academic flexibility.

Economics as a discipline has undergone significant transformation in recent decades with increasing integration of theoretical economics, quantitative methods, econometrics, data analytics, public policy, financial economics, environmental economics, and applied development studies. The revised syllabus seeks to reflect these developments while preserving the analytical rigour and intellectual foundations of postgraduate economic education.

The programme is designed to provide students with strong academic grounding in **microeconomic theory, macroeconomic theory, econometrics and quantitative methods, development economics, international economics, public economics, financial economics, growth economics, industrial organization, environmental economics, research methodology, and applied economic research**.

To enrich learning and enhance employability, the curriculum also incorporates **discipline-specific electives, skill enhancement components, research methodology training, seminar presentation, viva-voce, data analysis using R/Python, and field-based project/dissertation work**.

Special emphasis has been placed on developing **research orientation, analytical reasoning, empirical competence, policy understanding, computational skills, field exposure, and academic communication**, while preparing students for **doctoral studies, teaching, public policy analysis, competitive examinations, and professional careers in academia, research institutions, financial organizations, development agencies, and allied sectors**.

The syllabus seeks to maintain academic continuity with undergraduate economics education while providing the advanced conceptual, methodological, and research foundations expected at the postgraduate level.

The Board acknowledges the valuable contributions of subject experts, faculty members, and academic stakeholders in the preparation and revision of this curriculum. It is hoped that this programme will help students develop into competent economists, researchers, educators, policy analysts, and socially responsible professionals.

**PG Board of Studies in Economics**
**West Bengal State University**

# NEP STRUCTURE

## POSTGRADUATE PROGRAMME IN ECONOMICS

## Structure of Two-Year NEP-PG Syllabus in Economics

| Semester | Type of Course | Name of the course | Credits | Marks | Total |
|---|---|---|---|---|---|
| Semester I | Departmental 1 (Core) | Microeconomics (ECO2PCOR01T) | 4 | 50 | Marks:300<br>Credits:22 |
| | Departmental 2 (Core) | Quantitative Economics (ECO2PCOR02T) | 4 | 50 | |
| | Departmental 3 (Core) | Development Economics (ECO2PCOR03T) | 4 | 50 | |
| | Departmental 4 (Core) | International Economics (ECO2PCOR04T) | 4 | 50 | |
| | Departmental 5 (Core) | Indian Economic Issues (ECO2PCOR05T) | 4 | 50 | |
| | AEC | Research Methodology (ECO2PAEC01M) | 2 | 50 | |
| Semester II | Departmental 6 (Core) | Macroeconomics (ECO2PCOR06T) | 4 | 50 | Marks:250<br>Credits: 20 |
| | Departmental 7 (Core) | Quantitative Research Techniques ((ECO2PCOR07T) | 4 | 50 | |
| | Departmental 8 (Core) | Econometrics (ECO2PCOR08T) | 4 | 50 | |
| | Departmental 9 (Core)) | Ecology and Environment (ECO2PCOR09T) | 4 | 50 | |
| | Departmental 10 (DSE) | Game theory with application/Advanced Quantitative Techniques (ECO2PDSE01T ) | 4 | 50 | |
| Semester III | Departmental 11 (Core) | Advanced Microeconomics (ECO2PCOR10T) | 4 | 50 | Marks:300<br>Credits:22 |
| | Departmental 12 (Core) | Advanced Macroeconomics (ECO2PCOR11T) | 4 | 50 | |
| | Departmental 13 (Core) | Advanced Econometrics I (ECO2PCOR12T) | 4 | 50 | |
| | Departmental 14 (Core) | Industrial Organization (ECO2PCOR13T) | 4 | 50 | |
| | Departmental 15 (DSE) | History of Economic Thought /Agricultural Economics (ECO2PDSE02T) | 4 | 50 | |
| | SEC | Introduction to R and PYTHON (ECO2PSEC01M) | 2 | 50 | |

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|---|---|---|---|---|---|
| **Semester** | **Type of Course** | **Name of the course** | **Credits** | **Marks** | **Total** |
| **Semester IV** | **Departmental 16 (Core)** | **Advanced Econometrics II (ECO2PCOR14T)** | **4** | **50** | **Marks: 300 Credits:24** |
| | **Departmental 17 (Core)** | **Public Economics & Social Sector (ECO2PCOR15T)** | **4** | **50** | |
| | **Departmental 18 (Core)** | **Financial Economics (ECO2PCOR16T)** | **4** | **50** | |
| | **Departmental 19 (Core)** | **Growth Economics (ECO2PCOR17T)** | **4** | **50** | |
| | **Departmental 20 (Research)** | **Dissertation/Project Report (ECO2PCOR18M)** | **4** | **50** | |
| | **Departmental 21 (Research)** | **Presentation and Viva-Voce (ECO2PCOR19M)** | **4** | **50** | |

**Note:Total Credits=88, total Marks= 1150**

1. Students of 2-Year and 1-Year PG Programmes may opt for non-credit Value-Added Courses (VAC) to be offered by the University from time to time on Indian Knowledge System/ Gender/ Sustainability/ Educational Issues/ Professional Ethics/ Artificial Intelligence etc. The VAC may also be offered through UGC-approved SWAYAM or MOOC courses. Duration of such a course shall be minimum 30 hours. The main objective of such courses shall be to add value to students' knowledge base and help them acquire life skills and placements.
2. Those who shall join 2-Year PG Programme may exit at the end of 1st year with the award of a Postgraduate Diploma.
3. Pattern for 4-credit theory courses (50 marks): Continuous Assessment (10) + End Semester Examination (40), ensuring comprehensive evaluation of conceptual, analytical, research, and communication skills.

## Programme Framework

| Particular | Details |
|---|---|
| Programme Name | Master of Science (M.Sc.) in Economics |
| Discipline | Economics |
| Programme Level | Postgraduate |
| Duration | 2 Years |
| Semesters | 4 |
| Total Credits | 88 |
| Medium of Instruction | English |
| Evaluation Pattern | Continuous Assessment + End Semester Examination |
| Degree Awarding Body | West Bengal State University |

**Note:***The programme is designed broadly in accordance with the spirit of the National Education Policy (NEP) 2020. The programme integrates theoretical knowledge, quantitative skills, applied analysis, and research-based learning.*

## PROGRAMME EDUCATIONAL OBJECTIVES (PEOs)

After completion of the programme, students are expected to:

**PEO1:** Develop advanced conceptual understanding of economic theory, quantitative methods, and applied economic analysis.

**PEO2:** Demonstrate analytical, computational, and empirical research skills for addressing economic problems.

**PEO3:** Apply economic reasoning to public policy, development challenges, financial systems, and institutional issues.

**PEO4:** Pursue higher studies, academic research, teaching, professional careers, and competitive examinations.

**PEO5:** Demonstrate ethical responsibility, critical thinking, and social sensitivity in economic decision-making and research.

## PROGRAMME OUTCOMES (POs)

Upon completion of the programme, students will be able to:

**PO1: Advanced Economic Knowledge**
Demonstrate advanced knowledge of economic theories, models, and analytical frameworks.

**PO2: Quantitative and Computational Skills**
Apply mathematical, statistical, econometric, and computational tools in economic analysis.

**PO3: Research Competence**
Design and conduct independent empirical research using appropriate methodologies.

**PO4: Policy Analysis and Problem Solving**
Analyze economic issues and formulate evidence-based policy recommendations.

**PO5: Communication and Academic Writing**
Communicate economic ideas effectively through academic writing, presentations, and professional discussion.

**PO6: Ethical and Social Responsibility**
Demonstrate ethical research practices and socially responsible economic reasoning.

## PROGRAMME SPECIFIC OUTCOMES (PSOs)

Students completing the M.Sc. Economics programme will be able to:

**PSO1:**Analyze advanced issues in microeconomics, macroeconomics, international economics, development economics, and public economics.

**PSO2:** Apply econometric and quantitative methods for empirical economic research.

**PSO3:** Use software tools such as R/Python and statistical packages for economic data analysis.

**PSO4:** Undertake field-based economic research and dissertation work.

**PSO5:** Apply economic theory to contemporary policy and institutional issues.

## Bloom's Taxonomy Alignment

The postgraduate programme in Economics follows the principles of **Outcome-Based Education (OBE)** and is aligned with **Bloom's Revised Taxonomy** to ensure progressive development of higher-order cognitive competencies.

The curriculum is designed to enable students to achieve learning outcomes across the following domains:

| Bloom Level | Cognitive Skill | PG Economics Focus |
|---|---|---|
| **K1** | **Remember** | **Core concepts, definitions, terminology** |
| **K2** | **Understand** | **Theoretical interpretation and conceptual understanding** |
| **K3** | **Apply** | **Quantitative methods, econometric estimation, analytical problem solving** |
| **K4** | **Analyze** | **Model analysis, policy interpretation, comparative reasoning** |
| **K5** | **Evaluate** | **Critical assessment of theories, policies, empirical findings** |
| **K6** | **Create** | **Research design, dissertation, model formulation, independent inquiry** |

The programme emphasizes higher-order cognitive development (**K3–K6**) appropriate to postgraduate education.

# Semester: I

# MICROECONOMICS (ECO2PCOR01T)

**Type of Course:** Departmental Core Course 1
**Course Credits:** 4 **Full Marks:** 50 **Lecture Hours:** 60

## Course Objectives

This course aims to provide postgraduate students with rigorous analytical foundations in modern microeconomic theory, with emphasis on consumer behaviour, producer theory, market structure, and decision-making under certainty and strategic interaction. The course develops competence in optimization-based economic analysis, duality theory, welfare evaluation, and strategic market behaviour, thereby preparing students for advanced study in microeconomics, industrial organization, and game theory.

## Course Outcomes

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

**CO1:** Analyze consumer behaviour using utility maximization, expenditure minimization, and revealed preference approaches. **(K4)**

**CO2:** Derive and interpret demand functions, indirect utility functions, expenditure functions, and related duality relationships. **(K3/K4)**

**CO3:** Evaluate firm behaviour using production theory, profit maximization, and cost minimization frameworks. **(K5)**

**CO4:** Analyze different market structures including perfect competition, monopoly, monopolistic competition, and oligopoly. **(K4)**

**CO5:** Apply welfare analysis and strategic reasoning in market equilibrium contexts. **(K3/K5)**

**CO6:** Develop analytical foundations for advanced study in microeconomics, industrial organization, and advanced economic theory. **(K6)**

## Course Contents

### Unit I: Theory of Consumer Behaviour (20 Lecture Hours)

Preference relations: introduction and basic properties; preference and utility; existence of utility functions; lexicographic preference relation; Leontief preference relation; utility maximization problem—representation and solution; Walrasian demand function; indirect utility function and its properties; expenditure minimization problem—representation and

solution; Hicksian demand function; expenditure function and its properties; duality theory—relationship between demand, indirect utility, and expenditure functions; important identities including Roy's Identity; money metric utility functions with examples (Cobb–Douglas and CES utility functions); comparative statics; Slutsky equation; properties of demand functions; integrability problem; revealed preference theory—WARP, SARP, and GARP; inverse demand functions; consumer surplus and welfare evaluation of economic changes.

## Unit II: Theory of the Firm (15 Lecture Hours)

**Technology:**
Specification of technology; output set; input requirement set; properties of technology—monotonicity, convexity, and regularity; production technologies—Cobb–Douglas, CES, Translog, and Leontief technologies; returns to scale and scale elasticity; elasticity of factor substitution; homogeneous and homothetic production functions; properties of production functions; multiple product production.

**Profit Theory:**
Profit maximization; properties of profit functions; Hotelling's Lemma; factor demand functions; supply functions; comparative statics using profit functions.

**Cost Theory:**
Cost minimization; derivation of cost functions from alternative production technologies; conditional factor demand functions; cost functions and their properties; geometry of cost functions; Shephard's Lemma; homothetic cost functions; duality between production and cost functions; sufficient conditions for cost functions; applications of duality theory.

## Unit III: Market Structure and Strategic Behaviour (25 Lecture Hours)

**Perfect Competition:**
Marginal analysis as an approach to price and output determination; short-run and long-run equilibrium of firm and industry; price and output determination; supply curve; welfare analysis; efficiency and competitive equilibrium.

**Monopoly:**
Short-run and long-run equilibrium; price discrimination; monopoly power; welfare implications; monopoly regulation and control; pricing behaviour; cost distortions; rent-seeking behaviour; durable goods monopoly; limits to monopoly power.

**Monopolistic Competition:**
General and Chamberlin approaches to equilibrium; equilibrium of firm and group under product differentiation and selling costs; excess capacity; criticisms of monopolistic competition models.

**Oligopoly and Strategic Interaction:**
Oligopoly in a game theoretic framework; Cournot–Nash equilibrium; Bertrand model; product differentiation and linear city model; dynamic games; backward induction; subgame perfect equilibrium; repeated interaction—finite and infinite repetition.

## Suggested Readings


1. Gravelle, H., and Rees, R. *Microeconomics*. Prentice Hall.
2. Kreps, D. *A Course in Microeconomic Theory*. Princeton University Press.
3. Mas-Colell, A., Whinston, M. D., and Green, J. R. *Microeconomic Theory*. Oxford University Press.
4. Silberberg, E., and Suen, W. *The Structure of Economics: A Mathematical Analysis*. McGraw-Hill.
5. Tirole, J. *The Theory of Industrial Organization*. MIT Press.
6. Varian, H. R. *Microeconomic Analysis*. W.W. Norton.


# Semester: I

# QUANTITATIVE ECONOMICS (ECO2PCOR02T)

**Type of Course:** Departmental Core Course 2
**Course Credits:** 4 **Full Marks:** 50 **Lecture Hours:** 60

## Course Objectives

This course aims to provide postgraduate students with rigorous mathematical foundations required for advanced economic analysis. The course introduces functional analysis, static and dynamic optimization, comparative statics, differential and difference equations, and optimal control methods with applications to economic theory. It seeks to develop analytical competence necessary for advanced study in microeconomics, macroeconomics, growth economics, environmental economics, and quantitative economic research.

## Course Outcomes

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

**CO1:** Apply mathematical tools and functional analysis in economic modelling. **(K3)**

**CO2:** Solve static optimization problems under unconstrained and constrained conditions. **(K3)**

**CO3:** Use duality concepts and optimization theorems in microeconomic analysis. **(K3/K4)**

**CO4:** Perform comparative static analysis in economic models. **(K4)**

**CO5:** Analyze dynamic economic systems using differential and difference equations. **(K4)**

**CO6:** Apply calculus of variations and optimal control techniques in dynamic economic decision-making. **(K3/K5)**

# Course Contents

## Unit I: Functions and Functional Properties (10 Lecture Hours)

Functions and their economic applications; concave and convex functions; quasi-concave and quasi-convex functions; homogeneous and homothetic functions; utility and production functions; indirect utility functions; functional forms commonly used in economic analysis.

## Unit II: Static Optimization and Economic Applications (15 Lecture Hours)

Optimization in economic analysis; unconstrained optimization; first-order and second-order conditions; constrained optimization; equality constraints; local and global optima; uniqueness of local maxima; economic applications of optimization; ordinary demand functions; compensated demand functions; input demand functions; optimization-based applications in consumer and producer theory.

## Unit III: Duality, Theorems, and Constrained Optimization (10 Lecture Hours)

Implicit Function Theorem; Envelope Theorem; Hotelling's Lemma; Shephard's Lemma; duality in economic analysis; applications of duality in consumer and producer theory; concave programming; Kuhn–Tucker conditions; constrained optimization with inequality restrictions.

## Unit IV: Comparative Statics and Dynamic Analysis (15 Lecture Hours)

Comparative static analysis; applications in microeconomic and macroeconomic theory; dynamic economic analysis; first-order homogeneous and non-homogeneous differential equations; second-order homogeneous and non-homogeneous differential equations; applications in economic dynamics; first-order homogeneous and non-homogeneous difference equations; second-order homogeneous and non-homogeneous difference equations; applications in economic models.

## Unit V: Calculus of Variations and Optimal Control Theory (10 Lecture Hours)

Introduction to calculus of variations; Euler equation; dynamic optimization; optimal control theory; Hamiltonian formulation; necessary conditions for optimal control; introductory economic applications in growth theory, resource economics, and intertemporal optimization.

# Suggested Readings


1. Chiang, A. C., and Wainwright, K. *Fundamental Methods of Mathematical Economics*. McGraw-Hill.
2. Madden, P. *Concavity and Optimization in Microeconomics*. Blackwell.
3. Hoy, M., Livernois, J., McKenna, C., Rees, R., and Stengos, T. *Mathematics for Economics*. Prentice Hall.
4. Simon, C. P., and Blume, L. *Mathematics for Economists*. W.W. Norton.
5. Takayama, A. *Mathematical Economics*. Cambridge University Press.

# Semester: I

# DEVELOPMENT ECONOMICS (ECO2PCOR03T)

**Type of Course:** Departmental Core Course 3
**Course Credits:** 4 **Full Marks:** 50 **Lecture Hours:** 60

## Course Objectives

This course aims to familiarize postgraduate students with the fundamental theoretical and empirical issues in Development Economics, particularly in the context of underdeveloped and developing economies. The course examines theories of growth and development, measurement of development, poverty and inequality, rural–urban interconnections, agrarian markets, institutions, and governance. Since the course includes both quantitative and qualitative dimensions of development, it seeks to develop critical and analytical understanding of development problems and related policy discourse, while preparing students for empirical and field-based research.

## Course Outcomes

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

**CO1:** Explain major theoretical approaches to economic growth and development. **(K2)**

**CO2:** Analyze development indicators and measurement issues relating to human development and welfare. **(K4)**

**CO3:** Evaluate issues of poverty, inequality, labour markets, and structural transformation in developing economies. **(K5)**

**CO4:** Examine rural land, tenancy, and informal credit market structures from a development perspective. **(K4)**

**CO5:** Assess the role of institutions, governance, and state intervention in the development process. **(K5)**

**CO6:** Apply development economics concepts in research and policy-oriented analysis. **(K3)**

# Course Contents

## Unit I: Economic Development: Theoretical Ideas and Measurement Issues (12 Lecture Hours)

Neo-classical thoughts on growth and development; economics of growth—a theoretical and historical perspective; meaning and measurement of development; development indicators; mobility matrix; Physical Quality of Life Index (PQLI); human development as capability expansion; Human Development Index (HDI) and measurement issues; global human development perspective; Gender Development Index (GDI).

## Unit II: Rural–Urban Interconnections and Development (12 Lecture Hours)

Rural–urban interconnections: an overview; surplus labour and economic development—Lewis model; Ranis and Fei model of economic development; Stiglitz's labour turnover model and urban wage determination; surplus labour and efficiency wage.

## Unit III: Income Inequality and Poverty (16 Lecture Hours)

Income distribution in developing countries; problem of income inequality—conceptual issues; measurement of income inequality—different indices; inequality and growth: inverted-U hypothesis; empirical evidence on the inverted-U hypothesis from different countries; poverty—conceptual issues; dimensions of poverty; measures of poverty—different indices; human poverty—conceptual ideas and measurement issues; multidimensional poverty: theoretical ideas and measurement; poverty, nutrition, and labour markets; Dasgupta–Ray model.

## Unit IV: Rural Land and Credit Markets (10 Lecture Hours)

Theory of agrarian contracts; ownership and tenancy; models of productivity, efficiency, and tenancy; rural informal financial systems; credit markets; theories of informal credit markets; credit default and collateral; interlinkage of rural markets; interlinked transactions; credit rationing in agrarian economies.

## Unit V: Institutions, Governance, and Development (10 Lecture Hours)

Institutions: concepts and types; New Institutional Economics and development; market failures; role and emergence of institutions; role of the state; governance and development; governance indicators; governance indices; global governance and development perspectives.

# Suggested Readings

## Basic Readings


1. Ray, D. *Development Economics*. Oxford University Press.
2. Basu, K. *Analytical Development Economics*. Oxford University Press.
3. Bardhan, P., and Udry, C. *Development Microeconomics*. Oxford University Press.

4. Chenery, H., and Srinivasan, T. N. (eds.) *Handbook of Development Economics*, Vols. I & II. Elsevier.
5. Thirlwall, A. P. *Growth and Development*. Macmillan.
6. Kindleberger, C. P. *Economic Development*. McGraw-Hill.
7. Fukuda-Parr, S., and Shiva Kumar, A. K. (eds.) *Readings in Human Development*. Oxford University Press.

**Reference Readings**

8. Dasgupta, P. *An Inquiry into Well-Being and Destitution*. Clarendon Press.
9. Dasgupta, P., and Ray, D. "Inequality as a Determinant of Malnutrition and Unemployment." *Economic Journal*.
10. Sen, A. K. *Commodities and Capabilities*. Oxford University Press.
11. Sen, A. K. *Development as Freedom*. Oxford University Press.
12. Kahkonen, S., and Olson, M. *A New Institutional Approach to Economic Development*. Vistaar.
13. United Nations. *Human Development Report*.
14. Bardhan, P. *The Economic Theory of Agrarian Institutions*. Oxford University Press.
15. Stiglitz, J. *Globalization and Its Discontents*. Penguin.

# Semester: I

# INTERNATIONAL ECONOMICS (ECO2PCOR04T)

**Type of Course:** Departmental Core Course 4
**Course Credits:** 4 **Full Marks:** 50 **Lecture Hours:** 60

## Course Objectives

This course aims to provide postgraduate students with advanced analytical understanding of international economics beyond undergraduate foundations. Building upon prior knowledge of trade theory and policy, the course focuses on advanced international trade theories, trade under imperfect competition, strategic trade policy, economic integration, international macroeconomic adjustment, and foreign exchange market dynamics. The course seeks to develop critical understanding of contemporary international economic issues in the context of globalization, regionalism, and evolving international trade and financial systems.

## Course Outcomes

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

**CO1:** Critically evaluate advanced theories of international trade and trade patterns. **(K5)**

**CO2:** Analyze trade policy interventions and their strategic, welfare, and distributional implications. **(K4)**

**CO3:** Examine the interaction between economic growth, trade, and development in an open economy framework. **(K4)**

**CO4:** Assess regional economic integration and international economic cooperation using theoretical and policy perspectives. **(K5)**

**CO5:** Analyze balance of payments adjustment, exchange rate dynamics, and open economy macroeconomic policy. **(K4)**

**CO6:** Interpret contemporary global economic challenges using advanced international economics frameworks. **(K4/K5)**

# Course Contents

## Unit I: Advanced Theories of International Trade (20 Lecture Hours)

Review of international trade theory in perspective; limitations of traditional trade theories; extensions of Heckscher–Ohlin framework.

Economies of scale and international trade under imperfect competition; product differentiation and trade; role of dynamic factors in trade; changes in factor endowments (Rybczynski theorem); changes in tastes, technology, non-traded goods, differing demand conditions, and transport costs in explaining trade patterns.

New trade theories: Kravis' theory of availability; Linder's theory of representative demand and trade patterns; Kenen's human capital approach; intra-industry trade; trade under monopolistic competition; relevance for developing economies.

## Unit II: Trade Policy, Strategic Intervention, and Welfare Analysis (12 Lecture Hours)

Theory of trade intervention; tariffs, quotas, and non-tariff barriers; nominal, effective, and optimum tariffs; measurement and welfare implications.

Economic effects of trade policy on national income, output, employment, terms of trade, and income distribution.

Political economy of protection; strategic trade policy; trade liberalization versus protectionism; trade policy in developing economies.

## Unit III: Economic Growth, Trade, and Development (8 Lecture Hours)

Production and consumption effects of economic growth in open economies; H.G. Johnson's growth and trade framework; effects of growth on terms of trade; immiserizing growth.

Trade and development perspectives; export-led growth; trade openness and development debates.

### Unit IV: Economic Integration and International Economic Cooperation (10 Lecture Hours)

Regional versus international economic integration; forms of integration—Preferential Trade Agreement (PTA), Free Trade Area (FTA), Customs Union, Common Market, Economic Union, and Total Economic Integration.

Theory of customs union; trade creation and trade diversion; partial and general equilibrium approaches; static and dynamic effects of integration.

Regionalism, multilateralism, and international economic cooperation.

### Unit V: Open Economy Macroeconomics and Foreign Exchange Markets (10 Lecture Hours)

Balance of payments structure; equilibrium and disequilibrium in balance of payments; monetary approach to balance of payments.

Monetary and fiscal policy under alternative exchange rate regimes; Mundell–Fleming model.

Foreign exchange markets: spot and forward exchange rates; hedging; speculation; interest arbitrage; exchange market equilibrium.

## Suggested Readings

### Basic Readings


1. Krugman, P. R., Obstfeld, M., and Melitz, M. *International Economics: Theory and Policy*. Pearson.
2. Salvatore, D. *International Economics*. Wiley.
3. Appleyard, D. R., Field, A. J., and Cobb, S. L. *International Economics*. McGraw-Hill.
4. Södersten, B., and Reed, G. *International Economics*. Macmillan.
5. Gandolfo, G. *International Trade Theory and Policy*. Springer.


### Reference Readings


6. Helpman, E., and Krugman, P. *Market Structure and Foreign Trade*. MIT Press.
7. Bhagwati, J. *Protectionism*. MIT Press.
8. Balassa, B. *The Theory of Economic Integration*. Routledge.
9. Caves, R., Frankel, J., and Jones, R. *World Trade and Payments*. Pearson.
10. Acharyya, R. *International Economics*. Oxford University Press.

# Semester: I

# INDIAN ECONOMIC ISSUES (ECO2PCOR05T)

**Type of Course:** Departmental Core Course 5
**Course Credits:** 4 **Full Marks:** 50 **Lecture Hours:** 60

## Course Objectives

This course aims to develop the analytical ability of postgraduate students by providing an integrated understanding of major dimensions of the Indian economy. The course examines economic growth, structural transformation, agriculture, industry, poverty, inequality, financial sector reforms, and India's external sector within the broader socio-economic and policy environment. Special emphasis is placed on contemporary economic challenges, policy reforms, and regional development issues to enable students to critically analyze current economic problems in India.

## Course Outcomes

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

**CO1:** Analyze economic growth and structural transformation in the Indian economy. **(K4)**

**CO2:** Evaluate major policy issues relating to agriculture and rural development. **(K5)**

**CO3:** Examine industrial development and policy reforms in India. **(K4)**

**CO4:** Assess poverty, inequality, and social development challenges using analytical frameworks. **(K5)**

**CO5:** Analyze India's external sector and integration with the global economy. **(K4)**

**CO6:** Critically examine financial sector reforms and contemporary policy challenges in India. **(K5)**

## Course Contents

### Unit I: Growth and Structural Changes (8 Lecture Hours)

Economic growth in independent India; occupational structure and economic development; growing importance of the tertiary sector; analysis of structural changes since independence; approaches to economic development and its measurement; human development in India and constituent states, with special reference to the economy of West Bengal.

### Unit II: Agriculture Sector (15 Lecture Hours)

Trends in agricultural production and productivity; issues in Indian agricultural policy; agricultural price policy; agricultural subsidies and public investment; food security; Public Distribution System in India; agriculture and WTO; rural credit; farmers' income and rural indebtedness; contract farming; contemporary agrarian challenges.

### Unit III: Industrial Sector and Industrial Policy Reforms (10 Lecture Hours)

Growth and pattern of industrialization in India; industrial policy from planning to economic reforms; New Industrial Policy and post-liberalization industrial restructuring; small-scale

industries and MSMEs in India; industrial labour and trade union movement; financing and investment in the industrial sector; industrial competitiveness and challenges in the reform era.

### Unit IV: Poverty and Inequality (10 Lecture Hours)

Poverty and inequality: concepts and measurement; poverty and inequality in India—major estimates; regional and sectoral dimensions; rural poverty and agricultural performance (Ahluwalia); causes and consequences of poverty; poverty and economic reforms; inequality–development relationship; growth and poverty reduction in the Indian context; poverty alleviation programmes in India—implications and limitations.

### Unit V: India's External Sector and Global Economic Integration (10 Lecture Hours)

India's foreign trade: structure, composition, and direction; balance of payments and trade reforms; foreign capital in India—composition and direction of foreign investment; foreign capital and the role of multinational/transnational corporations; impact of FDI; India's external debt; exchange rate policy; FEMA; WTO and India's trade reforms; globalization of the Indian economy; export competitiveness; external vulnerability; issues relating to trade policy and economic safety nets.

### Unit VI: Financial Sector (7 Lecture Hours)

Banking sector reforms; role of Reserve Bank of India in Indian economic development; Indian financial system; Indian budget; expenditure of central and state governments; fiscal reforms; financial inclusion and exclusion—definition, need, and role in economic development; status of financial inclusion in India; policies for financial inclusion; impact of financial inclusion; microfinance and its economic implications.

## Suggested Readings

### Basic Readings


1. Ahluwalia, I. J., and Little, I. M. D. (eds.) *India's Economic Reforms and Development*. Oxford University Press.
2. Bardhan, P. K. *The Political Economy of Development in India*. Oxford University Press.
3. Chakravarty, S. *Development Planning: The Indian Experience*. Oxford University Press.
4. Misra, S. K., and Puri, V. K. *Indian Economy* (Latest Edition).
5. Datt, R., and Sundaram, K. P. M. *Indian Economy* (Latest Edition).


### Reference Readings


6. Nayyar, D. "Economic Growth in Independent India." *Economic and Political Weekly*.
7. Sundaram, K. "Employment and Poverty in India." *Economic and Political Weekly*.
8. Dev, S. Mahendra, and Ravi, C. "Poverty and Inequality in India." *Economic and Political Weekly*.

9. Brahmananda, P. R., and Panchmukhi, V. R. (eds.) *Development Experience in the Indian Economy*. Bookwell.
10. Government of India. *Economic Survey* (Latest Issues).
11. RBI. *Report on Currency and Finance* (Latest Issues).

# Semester: I

# RESEARCH METHODOLOGY (ECO2PAEC01T)

**Type of Course:** Ability Enhancement Compulsory Course (AEC)
**Course Credits:** 2 **Full Marks:** 50 **Lecture Hours:** 30

## Course Objectives

This course aims to develop foundational research competence among postgraduate students in Economics by introducing the philosophy, methods, and practical tools of economic and social science research. The course seeks to familiarize students with research design, data collection, sampling methods, and both quantitative and qualitative approaches to analysis. It also aims to prepare students for field-based research, dissertation work, and empirical academic inquiry.

## Course Outcomes

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

**CO1:** Understand the philosophical and methodological foundations of economic research. **(K2)**

**CO2:** Formulate research problems and design appropriate research strategies. **(K6)**

**CO3:** Develop practical skills in primary data collection, questionnaire design, and sampling. **(K3)**

**CO4:** Apply basic quantitative and qualitative techniques in research analysis. **(K3)**

**CO5:** Undertake field-based and empirical research with methodological clarity. **(K4)**

**CO6:** Prepare for postgraduate dissertation and project-based academic research. **(K6)**

## Course Contents

### Unit I: Introduction to Research in Economics (4 Lecture Hours)

Meaning, nature, and scope of research in Economics; research in social sciences; methodology versus methods; types of research; research process; identification of research problems; formulation of objectives and hypotheses.

### Unit II: Conceptual and Philosophical Foundations of Research (6 Lecture Hours)

Conceptual foundations of research methodology; approaches to scientific knowledge; positivism; post-positivism; deductive and inductive reasoning; empirical research in economics; ethics in academic research.

### Unit III: Data and Quantitative Research Methods (8 Lecture Hours)

Significance of data in economic research; types and sources of data; primary and secondary data; quantitative analysis—descriptive statistics, interpretation of economic data, tabulation, graphical presentation; introduction to empirical analysis.

### Unit IV: Survey Methods and Sampling Techniques (8 Lecture Hours)

Need for sample surveys; questionnaire design; interview schedules; sampling concepts; probability and non-probability sampling; simple random sampling; stratified sampling; sample selection; sample size determination; practical issues in field surveys.

### Unit V: Qualitative Research Methods (4 Lecture Hours)

Qualitative research approaches; interviews; observation; case studies; focus group discussions; qualitative interpretation in economic research; mixed-method approaches.

## Suggested Readings

### Basic Readings


1. Kothari, C. R. *Research Methodology: Methods and Techniques*. New Age International.
2. Gujarati, D. N., and Porter, D. C. *Basic Econometrics*. McGraw-Hill.
3. Murthy, M. N. *Sampling Theory and Methods*. Statistical Publishing Society.
4. Bryman, A. *Social Research Methods*. Oxford University Press.


### Reference Readings


5. Blaug, M. *The Methodology of Economics*. Cambridge University Press.
6. Kane, A. *The Methodology of Economic Research*.
7. Wooldridge, J. M. *Introductory Econometrics*. Cengage.
8. Creswell, J. W. *Research Design: Qualitative, Quantitative, and Mixed Methods Approaches*. Sage.

# Semester: II

# MACROECONOMICS (ECO2PCOR06T)

**Type of Course:** Departmental Core Course 6
**Course Credits:** 4 **Full Marks:** 50 **Lecture Hours:** 60

## Course Objectives

This course offers a postgraduate-level introduction to modern macroeconomics with emphasis on analytical foundations, contemporary macroeconomic debates, and policy relevance. The course familiarizes students with modern theories of consumption, investment, inflation, unemployment, and open economy macroeconomics. It seeks to develop conceptual and analytical understanding of macroeconomic models and their relevance to policy formulation, economic fluctuations, and macroeconomic adjustment in both closed and open economies.

## Course Outcomes

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

**CO1:** Explain major theoretical approaches in modern macroeconomics and their analytical foundations. **(K2)**

**CO2:** Analyze theories of consumption and investment using intertemporal and optimization-based frameworks. **(K4)**

**CO3:** Critically evaluate alternative explanations of inflation and unemployment. **(K5)**

**CO4:** Examine macroeconomic relationships involving expectations, output, employment, and price adjustment. **(K4)**

**CO5:** Analyze open economy macroeconomic adjustment under alternative exchange rate regimes. **(K4)**

**CO6:** Apply macroeconomic theory to policy analysis and contemporary economic problems. **(K3)**

## Course Contents

### Unit I: Foundations of Modern Macroeconomic Theory and Consumption Analysis (15 Lecture Hours)

Microeconomics versus macroeconomics: analytical foundations; alternative approaches to macroeconomics—demand-side and supply-side perspectives; evolution of macroeconomic thought; schools of macroeconomic analysis.

Consumption function: short-run variability and long-run constancy; Permanent Income Hypothesis; Life Cycle Hypothesis; Fisher's intertemporal optimization model; household

maximization; interest rate and saving decisions; consumption under uncertainty; Random Walk Hypothesis.

### Unit II: Investment Theory (12 Lecture Hours)

Marginal Efficiency of Capital theory; accelerator principle and investment behaviour; flexible accelerator model; Jorgenson's neoclassical theory of investment; investment with adjustment costs; Tobin's q model and its implications.

### Unit III: Inflation and Unemployment (18 Lecture Hours)

Theories of inflation: brief review; Bent Hansen's dynamic inflation model.

Phillips relation and Lipsey's theoretical rationale; expectations-augmented Phillips Curve; Natural Rate of Unemployment Hypothesis; Tobin's modified Phillips Curve; adaptive expectations and Phillips analysis; Phillips Curve under rational expectations; NAIRU; Okun's Law.

### Unit IV: Open Economy Macroeconomics (15 Lecture Hours)

Open economy income determination and balance of payments adjustment; foreign exchange market—equilibrium and stability; balance of payments and exchange rate determination.

Mundell–Fleming model: equilibrium and stability; exchange rate, capital mobility, and effectiveness of fiscal and monetary policy; macroeconomic adjustment processes; exchange rate overshooting.

## Suggested Readings

### Basic Readings


1. Romer, D. L. *Advanced Macroeconomics*. McGraw-Hill.
2. Blanchard, O. J., and Fischer, S. *Lectures on Macroeconomics*. Prentice Hall.
3. Froyen, R. T. *Macroeconomics: Theories and Policies*. Pearson.
4. Branson, W. A. *Macroeconomic Theory and Policy*. Harper & Row.
5. Mankiw, N. G. *Macroeconomics*. Worth Publishers.
6. Gandolfo, G. *International Finance and Open Economy Macroeconomics*. Springer.


### Reference Readings


7. Hall, R. E., and Taylor, J. B. *Macroeconomics*. W.W. Norton.
8. Jha, R. *Contemporary Macroeconomic Theory and Policy*. Wiley Eastern.
9. Rakshit, M. *Studies in the Macroeconomics of Developing Countries*. Oxford University Press.
10. Dornbusch, R., Fischer, S., and Startz, R. *Macroeconomics*. McGraw-Hill.
11. Keynes, J. M. *The General Theory of Employment, Interest and Money*. Macmillan.
12. Friedman, M. *A Theory of the Consumption Function*. Princeton University Press.
13. Junankar, P. N. *Investment: Theories and Evidence*.

# Semester: II

# QUANTITATIVE RESEARCH TECHNIQUES (ECO2PCOR07T)

**Type of Course:** Departmental Core Course 7
**Course Credits:** 4 **Full Marks:** 50 **Lecture Hours:** 60

## Course Objectives

This course aims to provide postgraduate students with advanced statistical foundations required for quantitative economic research and econometric analysis. Building upon undergraduate statistical training, the course emphasizes advanced probability theory, sampling distributions, statistical estimation, hypothesis testing, exact inference, and non-parametric methods. The course seeks to develop rigorous analytical competence necessary for econometric modelling, empirical dissertation work, and evidence-based economic research.

## Course Outcomes

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

**CO1:** Apply advanced probability and sampling theory in quantitative economic analysis. **(K3)**

**CO2:** Use estimation and statistical inference methods in empirical research. **(K3)**

**CO3:** Evaluate properties of estimators and apply likelihood-based estimation techniques. **(K5)**

**CO4:** Conduct exact statistical inference under finite-sample settings. **(K3/K4)**

**CO5:** Apply non-parametric statistical methods where distributional assumptions are not appropriate. **(K3)**

**CO6:** Develop advanced quantitative competence for econometric and empirical research. **(K6)**

## Course Contents

### Unit I: Advanced Probability Theory and Sampling Distributions (15 Lecture Hours)

Advanced probability concepts; mathematical expectation and variance; conditional expectation; moment generating functions; Chebyshev's inequality; convergence concepts (introductory ideas); central limit theorem and applications.

Sampling theory and random sampling; sampling distributions; expectation and standard error of sample mean with replacement and without replacement; sampling distributions of sample proportion, sample variance, and sample difference of means.

Standard probability distributions and their applications: Binomial, Poisson, Normal, Beta, Gamma, Chi-square, Student's *t*, and *F* distributions.

### Unit II: Statistical Estimation and Inferential Methods (15 Lecture Hours)

Statistical inference: concepts and principles; point estimation and interval estimation.

Properties of estimators: unbiasedness, consistency, efficiency, sufficiency.

Methods of estimation: method of moments and maximum likelihood estimation.

Maximum likelihood estimators from Normal, Poisson, and Binomial distributions.

Confidence interval estimation; hypothesis testing; Type I and Type II errors; power of a test; likelihood ratio principles.

### Unit III: Exact Tests and Small Sample Inference (15 Lecture Hours)

Exact inference for univariate normal populations.

Tests relating to population mean, variance, and difference of means.

Exact tests based on Chi-square, Student's *t*, and *F* distributions.

Confidence intervals under normality assumptions.

Small sample statistical inference and applications in economic research.

Applications of exact inference in quantitative economic analysis.

### Unit IV: Non-Parametric Methods (15 Lecture Hours)

Introduction to non-parametric methods; advantages and limitations; non-parametric measures of location and dispersion; tolerance intervals; non-parametric tests for location—one sample sign test, one sample Wilcoxon signed rank test, paired sample sign test, two sample Wilcoxon rank sum test, two sample median test; non-parametric tests for dispersion; general non-parametric tests for two independent samples; Kolmogorov–Smirnov tests; one sample tests for randomness; non-parametric measures and tests of association.

## Suggested Readings

### Basic Readings


1. Casella, G., and Berger, R. L. *Statistical Inference*. Cengage.
2. Hogg, R. V., McKean, J. W., and Craig, A. T. *Introduction to Mathematical Statistics*. Pearson.
3. Rohatgi, V. K., and Saleh, A. K. Md. E. *An Introduction to Probability and Statistics*. Wiley.
4. Freund, J. E. *Mathematical Statistics*. Prentice Hall.


### Reference Readings


5. Goon, A. M., Gupta, M. K., and Dasgupta, B. *Fundamentals of Statistics*, Vols. I & II.
6. Gupta, S. C., and Kapoor, V. K. *Fundamentals of Mathematical Statistics*.
7. Siegel, S., and Castellan, N. J. *Nonparametric Statistics for the Behavioral Sciences*. McGraw-Hill.
8. Mood, A. M., Graybill, F. A., and Boes, D. C. *Introduction to the Theory of Statistics*. McGraw-Hill.


# Semester: II

# ECONOMETRICS (ECO2PCOR08T)

**Type of Course:** Departmental Core Course 8
**Course Credits:** 4 **Full Marks:** 50 **Lecture Hours:** 60

## Course Objectives

This course aims to provide postgraduate students with rigorous foundations in econometric theory and applications for empirical economic research. The course focuses on estimation and inference in single-equation regression models, specification issues, diagnostic testing, qualitative regressors, and measurement error problems. It seeks to develop the analytical competence required for model building, empirical interpretation, and advanced econometric study.

## Course Outcomes

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

**CO1:** Formulate and estimate econometric models using classical regression frameworks. **(K6/K3)**

**CO2:** Evaluate assumptions, estimation methods, and inferential procedures in regression analysis. **(K5)**

**CO3:** Diagnose and correct econometric problems such as heteroscedasticity, autocorrelation, and multicollinearity. **(K4/K5)**

**CO4:** Analyze regression models involving qualitative regressors and structural shifts. **(K4)**

**CO5:** Assess specification errors, model selection criteria, and diagnostic tests. **(K5)**

**CO6:** Apply econometric reasoning in empirical economic research. **(K3)**

# Course Contents

# Group A: Foundations of Single-Equation Econometrics

## Unit I: Classical Linear Regression Model and Estimation (15 Lecture Hours)

Nature and scope of econometrics; specification of econometric models; stochastic specification in economics.

Classical Linear Regression Model (CLRM): assumptions and interpretation.

Single-equation regression analysis: simple and multiple regression models.

Estimation of regression parameters: Ordinary Least Squares (OLS) and Maximum Likelihood Estimation (MLE).

Properties of least squares estimators; Gauss–Markov theorem; statistical inference in regression; hypothesis testing; confidence intervals; prediction and forecasting.

Functional forms of regression models: linear, log-linear, linear-log, log-log models.

## Unit II: Problems of Classical Regression Model (15 Lecture Hours)

Specification issues in regression analysis.

Heteroscedasticity: nature, consequences, detection, and remedial measures.

Autocorrelation: nature, consequences, detection, and remedial measures.

Multicollinearity: nature, consequences, detection, and remedial measures.

Illustrative applications in empirical economic analysis.

# Group B: Extensions and Applied Econometric Issues

## Unit III: Regression with Qualitative Regressors (8 Lecture Hours)

Dummy variables: meaning and applications; classification systems; dummy variable trap.

Interpretation of estimated coefficients.

Class effects and interaction effects.

Structural change analysis: dummy variable approach and Chow test.

Use of dummy variables for seasonal adjustment.

## Unit IV: Errors in Variables and Instrumental Variable Methods (12 Lecture Hours)

Measurement errors in dependent and explanatory variables.

Classical errors-in-variables problem.

Single equation model with one explanatory variable measured with error.

Multiple explanatory variables with measurement errors.

Reverse regression problem.

Instrumental Variable (IV) estimation.

### Unit V: Model Selection, Specification Testing, and Diagnostic Checking (10 Lecture Hours)

Concept of specification error.

Diagnostic tests based on least squares residuals.

Tests for omitted variables.

Model selection criteria: Theil's criterion, Akaike Information Criterion (AIC), prediction error criteria.

Diagnostic tests: Chow test, Ramsey RESET, Jarque–Bera normality test.

Model adequacy and empirical interpretation.

# Suggested Readings

## Basic Readings


1. Gujarati, D. N., Porter, D. C., & Gunasekar, S. *Basic Econometrics*. McGraw-Hill.
2. Koutsoyiannis, A. *Theory of Econometrics*. Macmillan.
3. Maddala, G. S. *Introduction to Econometrics*. Wiley.
4. Kmenta, J. *Elements of Econometrics*. University of Michigan Press.


## Reference Readings


5. Greene, W. H. *Econometric Analysis*. Pearson.
6. Johnston, J., and DiNardo, J. *Econometric Methods*. McGraw-Hill.
7. Judge, G. G. et al. *Introduction to the Theory and Practice of Econometrics*. Wiley.
8. Wooldridge, J. M. *Introductory Econometrics: A Modern Approach*. Cengage.

# Semester: II

# ECOLOGY AND ENVIRONMENT (ECO2PCOR09T)

**Type of Course:** Departmental Core Course 9
**Course Credits:** 4 **Full Marks:** 50 **Lecture Hours:** 60

## Course Objectives

This course aims to provide postgraduate students with analytical understanding of ecological and environmental economics, with emphasis on mathematical modelling of environmental problems, natural resource management, sustainability, and environmental policy instruments. The course examines pollution control mechanisms, sustainable development, renewable and non-renewable resource economics, environmental valuation, climate change and growth interactions, and community forestry. It seeks to develop theoretical and policy-oriented competence in environmental economic analysis.

## Course Outcomes

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

**CO1:** Analyze economic approaches to environmental regulation and pollution control. **(K4)**

**CO2:** Evaluate theories of sustainable development and natural resource management. **(K5)**

**CO3:** Apply dynamic optimization frameworks in renewable and non-renewable resource economics. **(K3)**

**CO4:** Examine the interaction between climate change and long-run economic growth. **(K4)**

**CO5:** Assess environmental valuation and community-based natural resource management. **(K5)**

**CO6:** Apply environmental economics concepts in policy and research contexts. **(K3)**

## Course Contents

### Unit I: Environmental Regulation and Pollution Control (15 Lecture Hours)

Cost-efficient rules for pollution control; equality of marginal abatement costs (MACs); taxation for pollution control; efficient pollution control under environmental taxation; advantages of pollution taxes.

Basic theory of Tradable Pollution Permits (TPPs); least-cost property of tradable permit systems.

Coase theorem and environmental externalities.

### Unit II: Sustainable Development and Natural Resource Economics (20 Lecture Hours)

Economics of sustainable development; weak versus strong sustainability; economic indicators of sustainability; green growth and economic growth models.

Economics of non-renewable resources; socially optimal extraction.

Renewable resource economics: static economic model of fishery; dynamic model of fishing; continuous-time dynamic optimization; optimal harvesting.

Natural resources and economic growth; Solow growth model; Romer endogenous growth model.

Valuation of environmental resources.

### Unit III: Climate Change and Economic Growth (15 Lecture Hours)

Climate change and economic growth in developing countries.

Cass–Koopmans optimal growth model.

Implications of climate change-induced changes in factor productivity, particularly labour and capital, within a Cass–Koopmans growth framework.

Climate vulnerability and long-run development perspectives.

### Unit IV: Community Forestry and Environmental Governance (10 Lecture Hours)

Social, economic, and environmental dimensions of community forestry.

Case studies from South Asia and Africa.

Deforestation and forest policy in India.

Community participation and environmental sustainability.

## Suggested Readings

### Basic Readings


1. Hanley, N., Shogren, J. F., and White, B. *Environmental Economics*. Macmillan.
2. Kolstad, C. D. *Environmental Economics*. Oxford University Press.
3. Pearce, D. W., and Turner, R. K. *Economics of Natural Resources and the Environment*. Johns Hopkins University Press.
4. Sankar, U. *Environmental Economics*. Oxford University Press.


### Reference Readings


5. Lecocq, F., and Shalizi, Z. *How Might Climate Change Affect Economic Growth in Developing Countries?* World Bank Policy Research Working Paper.
6. Toman, M. *The Roles of the Environment and Natural Resources in Economic Growth Analysis*. Resources for the Future.
7. Costanza, R. et al. (1997). "The Value of the World's Ecosystem Services and Natural Capital." *Nature*.
8. Pearce, D. W. (2001). "The Economic Value of Forest Ecosystems." *Ecosystem Health*.
9. Gylfason, T., and Zoega, G. Selected writings on environment and growth.

# Semester: II

# GAME THEORY AND APPLICATIONS (ECO2PDSC01T)

**Type of Course:** Discipline Specific Elective (DSE)
**Course Credits:** 4 **Full Marks:** 50 **Lecture Hours:** 60

## Course Objectives

This course aims to provide postgraduate students with rigorous analytical foundations in game theory and its applications in economics. The course covers strategic interaction under complete and incomplete information, static and dynamic games, Bayesian games, and repeated strategic interaction. It seeks to equip students with conceptual and analytical tools required for advanced study in industrial organization, information economics, contract theory, and strategic decision-making.

## Course Outcomes

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

**CO1:** Explain core concepts of strategic interaction in economic decision-making. **(K2)**

**CO2:** Analyze static and dynamic games under complete information. **(K4)**

**CO3:** Apply equilibrium concepts such as Nash equilibrium, mixed strategies, and subgame perfect equilibrium. **(K3)**

**CO4:** Evaluate strategic behaviour under incomplete and asymmetric information. **(K5)**

**CO5:** Analyze Bayesian games and dynamic strategic interaction. **(K4)**

**CO6:** Apply game theoretic reasoning in industrial organization and policy contexts. **(K3)**

## Course Contents

### Unit I: Static Games of Complete Information (15 Lecture Hours)

Basic concepts of game theory including players, strategies, payoffs, and information structures. Normal-form games, dominance, rationalizability, Nash equilibrium, applications of static games, mixed strategies, and existence of equilibrium.

### Unit II: Dynamic Games of Complete Information (15 Lecture Hours)

Dynamic games and extensive-form representation. Dynamic games of complete and perfect information. Backward induction, subgame perfect equilibrium, repeated games under finite and infinite horizons, and applications of dynamic strategic interaction.

### Unit III: Bayesian Games and Strategic Interaction under Incomplete Information (15 Lecture Hours)

Incomplete information in strategic interaction, Bayesian games, Bayesian Nash equilibrium, signalling and screening (introductory treatment), and applications of strategic behaviour under asymmetric information.

### Unit IV: Dynamic Games of Incomplete Information and Applications (15 Lecture Hours)

Dynamic games under incomplete information, sequential equilibrium (introductory concepts), reputation effects, dynamic strategic interaction under asymmetric information, and applications in industrial organization, bargaining, auctions, and economic policy.

## Suggested Readings

### Basic Readings

Gibbons, R. *Game Theory for Applied Economists*. Princeton University Press.
Osborne, M. J. *An Introduction to Game Theory*. Oxford University Press.
Maschler, M., Solan, E., and Zamir, S. *Game Theory*. Cambridge University Press.

### Reference Readings

Fudenberg, D., and Tirole, J. *Game Theory*. MIT Press.
Kreps, D. M. *A Course in Microeconomic Theory*. Princeton University Press.
Myerson, R. B. *Game Theory: Analysis of Conflict*. Harvard University Press.

# Semester: II

# ADVANCED QUANTITATIVE TECHNIQUES (ECO2PDSC02T)

**Type of Course:** Discipline Specific Elective (DSE)
**Course Credits:** 4 **Full Marks:** 50 **Lecture Hours:** 60

## Course Objectives

This course aims to provide postgraduate students with advanced quantitative techniques used in economic modelling, structural analysis, and multivariate empirical research. Building upon undergraduate mathematical and statistical foundations, the course introduces input–output analysis for inter-sectoral economic modelling and multivariate statistical techniques for empirical research. The course seeks to develop analytical and applied quantitative skills relevant to economic planning, policy analysis, and data-driven research.

## Course Outcomes

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

**CO1:** Analyze inter-sectoral economic relationships using input–output modelling. **(K4)**

**CO2:** Apply Leontief models for structural analysis, linkage analysis, and economic planning. **(K3)**

**CO3:** Use factor analysis for dimensionality reduction and latent variable identification. **(K3)**

**CO4:** Apply cluster analysis for classification and segmentation of economic data. **(K3)**

**CO5:** Interpret multivariate quantitative methods in empirical economic research. **(K4)**

**CO6:** Develop applied quantitative competence for advanced research and policy analysis. **(K6)**

## Course Contents

## Group A: Input–Output Analysis (30 Lecture Hours)

### Unit I: Input–Output Modelling and Economic Structure (15 Lecture Hours)

Input–output framework and inter-sectoral interdependence in an economy; Leontief input–output model; technology coefficients; static open input–output model; Hawkins–Simon condition; solution properties; Leontief closed static model; Leontief price system; input–

output multipliers; backward and forward linkage analysis; sectoral interdependence and structural analysis.

### Unit II: Applications of Input–Output Analysis (15 Lecture Hours)

Aggregation issues in input–output modelling; applications of input–output analysis in economic planning, development analysis, and sectoral interdependence studies; regional and employment analysis; trade linkage analysis; introductory applications in environmental accounting and policy analysis.

## Group B: Multivariate Statistical Techniques (30 Lecture Hours)

### Unit III: Factor Analysis (15 Lecture Hours)

Objectives and applications of factor analysis; assumptions underlying factor analysis; design of factor analysis; correlation matrix and factorability; factor extraction methods; determining the number of factors; factor rotation; interpretation of factors; assessment of model adequacy and overall fit; validation of factor analysis; applications in empirical economic research.

### Unit IV: Cluster Analysis (15 Lecture Hours)

Concept and objectives of cluster analysis; similarity and distance measures; hierarchical and non-hierarchical clustering methods; interpretation of clusters; validation of clustering results; applications in classification of regions, markets, development indicators, and economic datasets.

## Suggested Readings

### Basic Readings


1. Miller, R. E., and Blair, P. D. *Input–Output Analysis: Foundations and Extensions*. Cambridge University Press.
2. Hair, J. F. et al. *Multivariate Data Analysis*. Pearson.
3. Gorsuch, R. L. *Factor Analysis*. Routledge.
4. Everitt, B., Landau, S., Leese, M., and Stahl, D. *Cluster Analysis*. Wiley.


### Reference Readings


5. Dorfman, R., Samuelson, P. A., and Solow, R. M. *Linear Programming and Economic Analysis*.
6. Kline, P. *An Easy Guide to Factor Analysis*.
7. Johnson, R. A., and Wichern, D. W. *Applied Multivariate Statistical Analysis*.
8. Pal, D. P. *Structural Interdependence and Development: An Input–Output Study of the Indian Economy*.

# Semester: III

# ADVANCED MICROECONOMICS (ECO2PCOR10T)

**Type of Course:** Departmental Core Course 10
**Course Credits:** 4 **Full Marks:** 50 **Lecture Hours:** 60

## Course Objectives

This course aims to provide postgraduate students with advanced analytical foundations in modern microeconomic theory, with emphasis on general equilibrium, welfare economics, decision-making under uncertainty, and economics of information. The course develops rigorous theoretical understanding of equilibrium, efficiency, welfare, risk, and asymmetric information, while equipping students with the conceptual tools required to engage with advanced microeconomic literature and research.

## Course Outcomes

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

**CO1:** Analyze general equilibrium models and their conditions for existence, uniqueness, and stability. **(K4)**

**CO2:** Evaluate welfare economics principles, efficiency criteria, and social choice issues. **(K5)**

**CO3:** Apply expected utility theory and risk analysis to economic decision-making under uncertainty. **(K3)**

**CO4:** Examine market behaviour under asymmetric information and informational imperfections. **(K4)**

**CO5:** Critically assess advanced microeconomic theories relating to welfare, uncertainty, and information. **(K5)**

**CO6:** Develop analytical foundations for research in advanced microeconomics, industrial organization, and information economics. **(K6)**

# Course Contents

## Unit I: General Equilibrium (15 Lecture Hours)

Walrasian equilibrium in a pure exchange economy: existence, uniqueness, and stability; fixed point theorems; core: basic idea; Walrasian equilibrium and the core; shrinking core; tâtonnement process; Walrasian equilibrium under production.

## Unit II: Welfare Economics (15 Lecture Hours)

Pareto efficiency conditions; Pareto efficiency and competitive markets; First Fundamental Theorem of Welfare Economics; distribution and markets; Second Fundamental Theorem of Welfare Economics; Pareto optimal conditions; optimal resource allocation; value judgments; role of convexity of preferences and technologies; aggregation and welfare; social welfare functions and Pareto criterion; compensation principles—Kaldor, Hicks, and Scitovsky; inability to attain optimum welfare under imperfections, market failure, decreasing costs, uncertainty, and incomplete or non-existent markets; theory of second best; Arrow's Impossibility Theorem.

## Unit III: Choice under Uncertainty (15 Lecture Hours)

Von Neumann–Morgenstern expected utility theory; utility for money; absolute and relative risk aversion; applications to market demand including demand for insurance and financial assets; states of nature and subjective probability theory; Savage's sure thing principle.

## Unit IV: Economics of Information (15 Lecture Hours)

Economics of information and asymmetric information; principal–agent problem; adverse selection and the lemons problem; moral hazard (introductory treatment); managerial incentives; job market signalling.

# Suggested Readings

## Basic Readings


1. Varian, H. R. *Microeconomic Analysis*. W. W. Norton & Company.
2. Kreps, D. M. *A Course in Microeconomic Theory*. Princeton University Press.
3. Mas-Colell, A., Whinston, M. D., and Green, J. R. *Microeconomic Theory*. Oxford University Press.


## Reference Readings


4. Salanié, B. *The Economics of Contracts: A Primer*. MIT Press.
5. Silberberg, E., and Suen, W. *The Structure of Economics: A Mathematical Analysis*. McGraw-Hill.
6. Macho-Stadler, I., and Pérez-Castrillo, D. *An Introduction to the Economics of Information: Incentives and Contracts*. Oxford University Press.

# Semester: III

# ADVANCED MACROECONOMICS (ECO2PCOR11T)

**Type of Course:** Departmental Core Course 11
**Course Credits:** 4 **Full Marks:** 50 **Lecture Hours:** 60

## Course Objectives

This course aims to introduce postgraduate students to advanced macroeconomic theories and modern analytical frameworks that shape contemporary macroeconomic policy discourse. The course examines disequilibrium macroeconomic models within the Walrasian general equilibrium framework, rational expectations and new classical macroeconomics, infinite horizon and overlapping generations models, real business cycle theory, and new Keynesian macroeconomics. It seeks to develop analytical understanding of modern macroeconomic modelling, economic fluctuations, expectations formation, and policy effectiveness, while preparing students for advanced research and competitive examinations.

## Course Outcomes

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

**CO1:** Explain major analytical frameworks in modern macroeconomics and their theoretical foundations. **(K2)**

**CO2:** Analyze disequilibrium macroeconomic models and alternative adjustment mechanisms. **(K4)**

**CO3:** Evaluate rational expectations, new classical macroeconomic models, and their policy implications. **(K5)**

**CO4:** Examine infinite horizon and overlapping generations models in dynamic macroeconomic analysis. **(K4)**

**CO5:** Assess real business cycle and new Keynesian explanations of macroeconomic fluctuations and unemployment. **(K5)**

**CO6:** Apply advanced macroeconomic concepts in research, policy analysis, and competitive academic settings. **(K3)**

# Course Contents

## Unit I: Keynesian Analysis in Walrasian Framework: Disequilibrium Models (15 Lecture Hours)

Incompatibility of Walras' Law and the neoclassical synthesis of Keynes's *General Theory*; Walrasian and Keynesian adjustment mechanisms; unitary decision and dual decision hypotheses (Clower); quantity-constrained models and non-market-clearing equilibrium; quantity-constrained models with money, effective demand, and non-market-clearing equilibrium; Benassy's formalization of non-Walrasian disequilibrium macroeconomics.

## Unit II: Rational Expectations and New Classical Macroeconomics (15 Lecture Hours)

Role of expectations in macroeconomics; adaptive expectations and rational expectations hypothesis; rational expectations and policy ineffectiveness proposition; Lucas imperfect information model; Lucas supply function; complete new classical macroeconomic model; limitations of rational expectations theory.

## Unit III: Basic Infinite Horizon Models and Overlapping Generations (10 Lecture Hours)

The Ramsey problem and Keynes-Ramsey rule; decentralized economy and command economy; role of government in decentralized economy; overlapping generations models—two-period life model and dynamic inefficiency; overlapping generations model with money.

## Unit IV: Real Business Cycle Theory (10 Lecture Hours)

Stylized facts about economic fluctuations; main features of real business cycle theory; baseline RBC model; household behaviour; special case of the RBC model and solution; output and employment fluctuations; productivity shocks and consumption; effects of technology shocks; fiscal and monetary policy implications; criticisms of real business cycle theory.

## Unit V: New Keynesian Macroeconomics (10 Lecture Hours)

Keynes and New Keynesianism; menu costs and real rigidity; efficiency wage theory and unemployment; insider-outsider model; contemporary perspectives on labour market imperfections.

# Suggested Readings

## Basic Readings


1. Romer, D. L. *Advanced Macroeconomics*. McGraw-Hill.
2. Blanchard, O. J., and Fischer, S. *Lectures on Macroeconomics*. Prentice Hall.
3. Mankiw, N. G. *Macroeconomics*. Worth Publishers.
4. Mankiw, N. G., and Romer, D. (eds.) *New Keynesian Economics*. MIT Press.

5. Lucas, R. E. *Studies in Business Cycle Theory*. MIT Press.

**Reference Readings**

6. Levacic, R., and Rebman, A. *Macroeconomics*. Macmillan.
7. Hall, R. E., and Taylor, J. B. *Macroeconomics*. W. W. Norton.
8. Sheffrin, S. M. *Rational Expectations*. Cambridge University Press.
9. Leijonhufvud, A. *On Keynesian Economics and the Economics of Keynes*. Oxford University Press.
10. Patinkin, D. *Money, Interest and Prices*. Harper & Row.
11. Benassy, J. P. *Macroeconomics: An Introduction to the Non-Walrasian Approach*. Academic Press.
12. Barro, R. J., and Grossman, H. I. "A General Disequilibrium Model of Income and Employment." *American Economic Review*.
13. Plosser, C. "Understanding Real Business Cycles." *Journal of Economic Perspectives*.
14. Gordon, R. J. "What is New Keynesian Economics?" *Journal of Economic Literature*.
15. Rakshit, M. *Studies in the Macroeconomics of Developing Countries*. Oxford University Press.

# Semester: III

# ADVANCED ECONOMETRICS I (ECO2PCOR12T)

**Type of Course:** Departmental Core Course 12
**Course Credits:** 4 **Full Marks:** 50 **Lecture Hours:** 60

## Course Objectives

This course assumes prior familiarity with simple and multiple regression analysis and introduces postgraduate students to selected advanced econometric techniques widely used in applied economic research. The course covers dynamic econometric models, nonlinear regression, qualitative response models, panel data regression models, and simultaneous equation systems. These econometric techniques are essential for testing economic theories, estimating economic relationships, and evaluating policy using real-world data. The course seeks to develop analytical understanding of model specification, estimation, identification, interpretation, and empirical application.

## Course Outcomes

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

**CO1:** Analyze econometric relationships involving lagged variables and dynamic adjustment processes. **(K4)**

**CO2:** Apply nonlinear estimation methods and statistical hypothesis testing procedures. **(K3)**

**CO3:** Estimate and interpret qualitative response regression models. **(K3/K4)**

**CO4:** Apply static panel data econometric techniques using fixed and random effects models. **(K3)**

**CO5:** Examine identification issues and estimation techniques in simultaneous equation systems. **(K4)**

**CO6:** Use advanced econometric methods in empirical economic research and policy analysis. **(K3)**

# Course Contents

## 1. Unit I: Dynamic Econometric Models / Regression with Lagged Variables (6 Lecture Hours)

Sources of lagged variables; consequences of applying direct OLS in distributed lag models; polynomial distributed lag models; geometric lag models; autoregressive distributed lag models; Koyck lag model; partial adjustment model; adaptive expectations model; instrumental variable approach; autocorrelation issues and applications; Almon distributed lag approach; causality testing; Granger causality test.

## 2. Unit II: Nonlinear Regression Models (6 Lecture Hours)

Nonlinear least squares estimation; maximum likelihood estimation; hypothesis testing under parametric restrictions; F-test and Wald test; likelihood ratio test; Lagrange multiplier test; Box-Cox transformation.

## 3. Unit III: Qualitative Response Models (8 Lecture Hours)

Nature of qualitative response models; Linear Probability Model (LPM) and applications; logit model—estimation and interpretation; probit model—estimation and interpretation; Tobit model and applications.

## 4. Unit IV: Panel Data Regression Models: Introduction to Static Panel Models (10 Lecture Hours)

**Fixed Effects Models:**
Introduction to panel data; Least Squares Dummy Variable (LSDV) approach; testing significance of group effects; within-group and between-group estimators; fixed time and group effects; unbalanced panel models under fixed effects.

**Random Effects Models:**
Generalized Least Squares (GLS); Feasible Generalized Least Squares (FGLS); testing for

random effects; Hausman test for fixed versus random effects; unbalanced panel models under random effects.

### 5. Unit V: Simultaneous Equation Systems: Overview and Identification (10 Lecture Hours)

Basic concepts, introduction, and examples; simultaneous equation bias and inconsistency of OLS estimators; structural form, reduced form, and final form models; identification problem; order and rank conditions; reduced form approach to identification; Hausman specification test for simultaneity; tests for exogeneity.

### 6. Unit VI: Simultaneous Equation Systems: Methods of Estimation (20 Lecture Hours)

Single equation methods; recursive models and OLS; indirect least squares (ILS); instrumental variable (IV) estimation; two-stage least squares (2SLS); limited information maximum likelihood (LIML); system methods—three-stage least squares (3SLS), full information maximum likelihood (FIML), and seemingly unrelated regression equations (SURE).

## Suggested Readings


1. Baltagi, B. H. *Econometric Analysis of Panel Data*. Wiley.
2. Johnston, J., and DiNardo, J. *Econometric Methods*. McGraw-Hill.
3. Kmenta, J. *Elements of Econometrics*. University of Michigan Press.
4. Greene, W. H. *Econometric Analysis*. Pearson.
5. Maddala, G. S. *Introduction to Econometrics*. Wiley.
6. Maddala, G. S. *Limited-Dependent and Qualitative Variables in Econometrics*. Cambridge University Press.
7. Hsiao, C. *Analysis of Panel Data*. Cambridge University Press.
8. Wooldridge, J. M. *Econometric Analysis of Cross Section and Panel Data*. MIT Press.
9. Gujarati, D. N., and Porter, D. C. *Basic Econometrics*. McGraw-Hill.

# Semester: III

# INDUSTRIAL ORGANIZATION (ECO2PCOR13T)

**Type of Course:** Departmental Core Course 13
**Course Credits:** 4 **Full Marks:** 50 **Lecture Hours:** 60

## Course Objectives

This course aims to provide postgraduate students with advanced analytical understanding of industrial organization, with emphasis on market structure, firm behaviour, strategic interaction, and industrial performance. Based on the Structure–Conduct–Performance (SCP) paradigm and modern strategic approaches, the course examines firm boundaries, market power, product differentiation, entry barriers, advertising, innovation, mergers, and research and development. The course seeks to equip students with theoretical and applied tools for analyzing industrial markets and strategic firm behaviour.

## Course Outcomes

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

**CO1:** Explain theories of the firm and industrial organization from transaction cost and strategic perspectives. **(K2)**

**CO2:** Analyze market structure, market power, and product differentiation models. **(K4)**

**CO3:** Evaluate strategic firm behaviour relating to pricing, entry, exit, and advertising. **(K5)**

**CO4:** Examine industrial concentration, competition, and merger-related issues. **(K4)**

**CO5:** Assess the role of research, development, and innovation in industrial performance. **(K5)**

**CO6:** Apply industrial organization theory to empirical and policy-oriented economic analysis. **(K3)**

## Course Contents

### Unit I: Theory of the Firm and Industrial Organization Foundations (15 Lecture Hours)

Structure–Conduct–Performance (SCP) paradigm and alternative approaches to industrial organization. Theory of the firm; transaction cost approach; Coase (1937); Williamson

(1985); property rights and firm boundaries; Grossman and Hart (1986); nature and scope of industrial organization.

### Unit II: Market Structure, Market Power, and Product Differentiation (15 Lecture Hours)

Market structure and market power; measures of concentration and competition; product differentiation; strategic competition under Cournot and Bertrand models; location models including linear city and circular city models.

### Unit III: Strategic Behaviour, Advertising, Entry and Exit (10 Lecture Hours)

Advertising and market behaviour; strategic firm behaviour; barriers to entry; entry deterrence strategies; limit pricing; predatory behaviour (introductory treatment); firm entry and exit decisions; mergers and industrial concentration.

### Unit IV: Research and Development, Innovation, and Industrial Performance (20 Lecture Hours)

Research and development (R&D) and innovation in industrial organization; incentives for innovation; market structure and technological change; patent protection and innovation; R&D rivalry and strategic interaction; innovation, firm performance, and industrial competitiveness.

## Suggested Readings

### Basic Readings


1. Tirole, J. *The Theory of Industrial Organization*. MIT Press.
2. Cabral, L. *Introduction to Industrial Organization*. MIT Press.
3. Belleflamme, P., and Peitz, M. *Industrial Organization: Markets and Strategies*. Cambridge University Press.


### Reference Readings


4. Shy, O. *Industrial Organization: Theory and Applications*. MIT Press.
5. Carlton, D. W., and Perloff, J. M. *Modern Industrial Organization*. Pearson.
6. *Handbook of Industrial Organization*, Vols. I–III. Elsevier.

# Semester: III

# HISTORY OF ECONOMIC THOUGHT (ECO2PDSE02T)

**Type of Course:** Discipline Specific Elective (DSE)
**Course Credits:** 4 **Full Marks:** 50 **Lecture Hours:** 60

## Course Objectives

This course aims to provide postgraduate students with a historical understanding of the evolution of economic ideas from ancient philosophical thought to modern economic thinking. The course examines the development of economic thought through major intellectual traditions including ancient economic ideas, scholasticism, mercantilism, physiocracy, classical political economy, Marxian economics, and Indian economic thought. It seeks to develop critical appreciation of how economic theories emerged in response to changing historical, institutional, and social conditions.

## Course Outcomes

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

**CO1:** Explain the historical evolution of economic thought from ancient to modern periods. **(K2)**

**CO2:** Analyze major contributions of mercantilist, physiocratic, classical, and Marxian thinkers. **(K4)**

**CO3:** Evaluate the intellectual foundations of modern economic theory in historical context. **(K5)**

**CO4:** Examine contributions of major Indian economic thinkers and development perspectives. **(K4)**

**CO5:** Critically compare alternative schools of economic thought and their policy implications. **(K5)**

**CO6:** Develop historical and analytical perspectives relevant to advanced economic inquiry. **(K6)**

## Course Contents

### Unit I: Early Foundations of Economic Thought (10 Lecture Hours)

Early economic ideas in the Old Testament, economic thought of Plato and Aristotle, economic ideas during the Middle Ages, scholastic thought, Canon Law, and the ethical and philosophical foundations of early economic reasoning.

### Unit II: Mercantilism and the Decline of Scholasticism (10 Lecture Hours)

Decline of scholasticism, emergence of mercantilism, principal features of mercantilist thought, and Thomas Mun's ideas on trade, wealth, and state intervention.

### Unit III: Pre-Classical Economic Thought and Physiocracy (15 Lecture Hours)

Economic thought of William Petty, John Locke, Dudley North, John Law, David Hume, Richard Cantillon, and James Steuart; emergence of physiocracy; principal ideas of the Physiocrats; and Quesnay's *Tableau Économique*.

### Unit IV: Classical Political Economy and Marxian Thought (15 Lecture Hours)

Features of the classical system; Adam Smith's ideas on economic development, political economy, value, and distribution; David Ricardo's theory of value, distribution, and growth; Thomas Robert Malthus's views on population and accumulation; and Karl Marx's theory of value and surplus value, reproduction schemes, transformation problem, organic composition of capital, and tendency of the rate of profit.

### Unit V: Indian Economic Thought (10 Lecture Hours)

Early economic ideas of Kautilya and Valluvar; modern Indian economic thought represented by Dadabhai Naoroji, Mahadev Govind Ranade, R. C. Dutt, and M. N. Roy; Gandhi's economic ideas relating to village economy, swadeshi, role of machines and labour, cottage industries, and trusteeship; early approaches to economic planning in India including the National Planning Committee and D. R. Gadgil's ideas on cooperation and development strategy.

## Suggested Readings

### Basic Readings


1. Roll, E. *A History of Economic Thought*. Oxford University Press.
2. Blaug, M. *Economic Theory in Retrospect*. Cambridge University Press.
3. Dasgupta, A. K. *Epochs of Economic Theory*. Blackwell.


### Reference Readings


4. Schumpeter, J. A. *History of Economic Analysis*. Oxford University Press.
5. Spiegel, H. W. *The Growth of Economic Thought*. Duke University Press.
6. Paul, R. R. *History of Economic Thought*. Kalyani Publishers.
7. Vaggi, G., and Groenewegen, P. *A Concise History of Economic Thought*. Palgrave Macmillan.

# Semester: III

# AGRICULTURAL ECONOMICS (ECO2PDSE02T)

**Type of Course:** Discipline Specific Elective (DSE)
**Course Credits:** 4 **Full Marks:** 50 **Lecture Hours:** 60

## Course Objectives

This course aims to provide postgraduate students with analytical understanding of agricultural economics, with emphasis on farm household behaviour, agrarian institutions, agricultural labour markets, rural credit, agricultural marketing, and sustainable agricultural development. The course examines theoretical models of peasant and farm household decision-making, institutional structures in agrarian economies, and policy issues relating to agricultural growth and resource management. It also seeks to provide comparative perspectives on agricultural development across countries.

## Course Outcomes

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

**CO1:** Analyze farm household behaviour using alternative theoretical models in agricultural economics. **(K4)**

**CO2:** Evaluate agrarian institutions relating to tenancy, sharecropping, rural credit, and agricultural markets. **(K5)**

**CO3:** Examine labour market structures and employment issues in rural and agricultural economies. **(K4)**

**CO4:** Assess issues relating to sustainable agricultural development and natural resource management. **(K5)**

**CO5:** Compare agricultural development experiences across countries and policy environments. **(K5)**

**CO6:** Apply agricultural economics concepts to empirical and policy-oriented research. **(K3)**

## Course Contents

### Unit I: Farm Household Models (15 Lecture Hours)

Chayanov's farm household model; extension of Chayanov's model incorporating labour markets; New Home Economics—essential features; Barnum–Squire farm household model;

Low's farm household model; women in the peasant household; time allocation and the economic role of farm women; scope and applications of New Home Economics in agricultural analysis.

### Unit II: Theory of Agrarian Institutions (20 Lecture Hours)

Tenancy, rent, cost and risk sharing; models of sharecropping; problems of marginal and small farmers; imperfections in rural credit markets; role of capital and rural credit; organized and unorganized capital markets; characteristics and sources of rural credit; risk, uncertainty, and emergence of market interlinkage; partial equilibrium analysis of interlinked markets; interlinkage and intertemporal earnings approach; moral hazard and interlinked transactions; institutional and non-institutional aspects of agricultural marketing; marketing efficiency, marketing margins, price spread, market structure and market imperfections; marketed and marketable surplus; agricultural marketing and government policy.

### Unit III: Agricultural Labour Market (10 Lecture Hours)

Interlinkage of labour markets; labour mobility and segmentation in rural labour markets; marginalization of rural labour; nature, extent, and trends in rural unemployment; agricultural wages and labour market dynamics.

### Unit IV: Sustainable Agricultural Development (10 Lecture Hours)

Optimal use of natural resources and sustainable agricultural growth; soil degradation and water resource management; theoretical models of sustainable agricultural development; public policy for agricultural growth, environmental sustainability, and resource management.

### Unit V: Agricultural Development Experiences in Other Countries (5 Lecture Hours)

Comparative experiences of agricultural development in selected countries; institutional and policy perspectives in agricultural transformation.

## Suggested Readings

### Basic Readings


1. Ellis, F. *Peasant Economics: Farm Households and Agrarian Development*. Cambridge University Press.
2. Bardhan, P. *The Economic Theory of Agrarian Institutions*. Oxford University Press.
3. Ray, D. *Development Economics*. Oxford University Press (relevant chapters).
4. Bardhan, P., and Udry, C. (eds.) *Development Microeconomics*. Oxford University Press.


### Reference Readings

5. Ramachandran, V. K., and Swaminathan, M. (eds.) *Agrarian Studies: Essays on Agrarian Relations in Less-Developed Countries*. Tulika Books.
6. Harriss-White, B. *Agricultural Markets: From Theory to Practice*.
7. Akram-Lodhi, A. H., and Kay, C. (eds.) *Peasants and Globalization*. Routledge.
8. Scott, J. C. *The Moral Economy of the Peasant*. Yale University Press.
9. Selected journal articles as recommended by the course instructor.

# Semester: III

# INTRODUCTION TO R AND PYTHON (ECO2PSEC01M)

**Type of Course:** Skill Enhancement Course (SEC)
**Course Credits:** 2 **Full Marks:** 50 **Lecture Hours:** 30

## Course Objectives

This course aims to introduce postgraduate students to the practical use of statistical programming tools for data analysis and econometric applications. The course provides foundational training in **R and Python** for exploratory data analysis, statistical computation, visualization, and basic econometric modelling. It seeks to develop computational skills necessary for empirical economic research, dissertation work, and data-driven policy analysis.

## Course Outcomes

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

**CO1:** Perform exploratory data analysis using R and Python. **(K3)**

**CO2:** Generate statistical summaries, tables, charts, and graphical representations of data. **(K3)**

**CO3:** Conduct univariate and bivariate statistical analysis using statistical software. **(K3)**

**CO4:** Estimate and interpret basic econometric models, particularly classical linear regression models. **(K3/K4)**

**CO5:** Apply diagnostic techniques for regression analysis using software tools. **(K3)**

**CO6:** Develop computational skills relevant to empirical economic research. **(K6)**

# Course Contents

### Unit I: Data Analysis with R (15 Lecture Hours | Marks: 25)

Introduction to R and RStudio environment; data handling and data structures in R; exploratory statistical analysis using tables, charts, and diagrams; descriptive statistical analysis; univariate and bivariate statistical analysis; correlation analysis; estimation of classical linear regression model; interpretation of regression output; basic regression diagnostic analysis.

### Unit II: Data Analysis with Python (15 Lecture Hours | Marks: 25)

Introduction to Python for data analysis; installation and use of Anaconda and Jupyter Notebook; Python basics—variables, data types, lists, tuples, dictionaries, and basic programming syntax; exploratory statistical analysis using summary statistics, charts, and graphical visualization; univariate and bivariate statistical analysis; correlation analysis; estimation of classical linear regression model; interpretation of regression output; basic regression diagnostic analysis.

# Suggested Readings


1. James, G., Witten, D., Hastie, T., and Tibshirani, R. *An Introduction to Statistical Learning with Applications in R*. Springer.
2. Grolemund, G., and Wickham, H. *R for Data Science*. O'Reilly.
3. McKinney, W. *Python for Data Analysis*. O'Reilly.
4. Downey, A. *Think Python*. O'Reilly.
5. Gujarati, D. N., Porter, D. C., and Gunasekar, S. *Basic Econometrics*. McGraw Hill.
6. Wooldridge, J. M. *Introductory Econometrics: A Modern Approach*. Cengage.

# Semester: IV

# ADVANCED ECONOMETRICS II (ECO2PCOR14T)

**Type of Course:** Departmental Core Course 14
**Course Credits:** 4 **Full Marks:** 50 **Lecture Hours:** 60

## Course Objectives

This course aims to provide postgraduate students with advanced applied econometric training combining empirical applications and time series econometric analysis. The first component emphasizes hands-on application of econometric techniques using statistical software for empirical economic research, while the second component introduces analytical foundations of modern time series econometrics. The course seeks to develop practical competence in estimation, interpretation, forecasting, and quantitative measurement relevant to economic research and policy analysis.

## Course Outcomes

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

**CO1:** Apply econometric techniques using statistical software for empirical economic analysis. **(K3)**

**CO2:** Estimate and interpret applied econometric models relating to demand, production, money demand, and panel data. **(K3/K4)**

**CO3:** Apply quantitative measurement techniques relating to inequality, poverty, diversification, and human development. **(K3)**

**CO4:** Analyze stationary and non-stationary time series data using modern econometric tools. **(K4)**

**CO5:** Apply time series models for forecasting and economic interpretation. **(K3/K4)**

**CO6:** Use advanced econometric methods in dissertation research and policy-oriented empirical studies. **(K3/K6)**

# Course Contents

## Group A: Applied Econometrics and Quantitative Measurement (25 Marks | 30 Lecture Hours)

### Unit I: Exploratory Data Analysis and Application of Econometric Techniques

Exploratory data analysis using suitable econometric software packages; data handling, descriptive analysis, graphical presentation, correlation analysis, model specification, estimation, and interpretation of empirical econometric results.

### Unit II: Application of Econometric Techniques: Functional Estimation

**(a) Consumer Demand Analysis**
Specification and estimation of demand functions; estimation of demand elasticities; Engel function estimation; estimation of demand systems including Linear Expenditure System (LES) and Almost Ideal Demand System (AIDS).

**(b) Production Function Estimation**
Problem of identification and estimation bias; specification and estimation of production functions including Cobb-Douglas, Leontief, and CES production functions.

**(c) Money Demand Function**
Specification and estimation of money demand functions; partial stock adjustment and optimum money demand; estimation of long-run and short-run interest elasticities.

### Unit III: Quantitative Measurement Techniques

Measurement of diversification: Simpson Index, Modified Entropy Index.

Measures of inequality: coefficient of variation, Theil's inequality indices, Gini coefficient, Atkinson measure.

Measures of poverty: poverty gap measure, Sen's poverty measure, Foster-Greer-Thorbecke (FGT) index.

Measurement of multidimensional poverty, gender discrimination, and development indicators including HDI, IHDI, HPI, and GDI.

### Unit IV: Application of Panel Data Econometrics

Application of panel data econometric techniques using statistical software packages; estimation and interpretation of fixed effects and random effects models.

## Group B: Time Series Econometrics (25 Marks | 30 Lecture Hours)

### Unit V: Stationary Time Series Models (10 Lecture Hours)

Time series and stochastic processes; time domain versus frequency domain; strict and weak stationarity; white noise processes; autoregressive (AR) processes; moving average (MA) processes; ARMA models; stationarity and invertibility conditions; autocorrelation function (ACF) and correlogram; partial autocorrelation function (PACF); sample autocorrelation and sample partial autocorrelation; Box-Jenkins methodology; forecasting; seasonal ARIMA modelling.

### Unit VI: Trends and Unit Root Testing (10 Lecture Hours)

Trend stationary process (TSP) versus difference stationary process (DSP); unit root processes; Dickey-Fuller tests; augmented Dickey-Fuller (ADF) test; Nelson and Plosser evidence; power problem of ADF tests; Phillips-Perron test (conceptual treatment).

### Unit VII: Spectral Properties of Stationary Models (5 Lecture Hours)

Periodogram of a time series; spectrum and spectral density function; simple applications of spectral analysis.

### Unit VIII: Multi-equation Time Series Models (5 Lecture Hours)

Intervention analysis; transfer function models; estimation of transfer functions; impulse response function.

# Suggested Readings

## Applied Econometrics


1. Desai, M. *Applied Econometrics*. Philip Allan Publishers.
2. Intriligator, M. D. *Econometric Methods, Techniques and Applications*. Prentice Hall.
3. Johnston, J., and Dinardo, D. *Econometric Methods*. McGraw-Hill.
4. Pindyck, R. S., and Rubinfeld, D. L. *Econometric Models and Economic Forecasts*. McGraw-Hill.
5. Asteriou, D., and Hall, S. G. *Applied Econometrics*. Palgrave Macmillan.
6. Sen, A. K. *On Economic Inequality*. Oxford University Press.
7. Subramanian, S. (ed.) *Measurement of Inequality and Poverty*. Oxford University Press.
8. Fukuda-Parr, S., and Shiva Kumar, A. K. (eds.) *Readings in Human Development*. Oxford University Press.
9. UNDP. *Human Development Reports*.


## Time Series Econometrics

10. Box, G. E. P., Jenkins, G. M., and Reinsel, G. C. *Time Series Analysis*.
11. Enders, W. *Applied Econometric Time Series*.
12. Maddala, G. S., and Kim, I. M. *Unit Roots, Cointegration and Structural Change*.
13. Mills, T. C. *Time Series Techniques for Economists*.

# Semester: IV

# PUBLIC ECONOMICS & SOCIAL SECTOR (ECO2PCOR15T)

**Type of Course:** Departmental Core Course 15
**Course Credits:** 4 **Full Marks:** 50 **Lecture Hours:** 60

## Course Objectives

This course aims to provide postgraduate students with analytical understanding of public economics and the economics of the social sector. The first part examines the role of the public sector, public expenditure, taxation, budgeting, and public debt in economic development. The second part focuses on economics of education and health, emphasizing human capital formation, resource allocation, financing, institutional arrangements, and policy interventions. The course seeks to develop both theoretical and empirical understanding of the role of public finance and social sector development in economic growth and welfare.

## Course Outcomes

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

**CO1:** Explain the economic rationale for public sector intervention and public finance. **(K2)**

**CO2:** Analyze public expenditure, taxation, budgeting, and public debt in the context of economic development. **(K4)**

**CO3:** Evaluate education as a component of human capital formation and economic growth. **(K5)**

**CO4:** Examine theoretical and empirical issues in the economics of education and labour markets. **(K4)**

**CO5:** Assess health economics, healthcare financing, inequalities in health, and health policy issues. **(K5)**

**CO6:** Apply public economics and social sector concepts in policy analysis and research. **(K3)**

# Course Contents

## Group A: Public Economics (30 Lecture Hours)

### Unit I: Public Sector and Public Goods (10 Lecture Hours)

Public sector and private sector; targets and instruments of the public sector; public goods, private goods, club goods, and local public goods; justification for public sector intervention; market versus government; development models of public sector growth; Wagner's Law and Baumol's Law.

### Unit II: Government Expenditure, Revenue, and Budget (7 Lecture Hours)

Structure of government expenditure and revenue with examples from the Indian economy; objectives of government budgeting; revenue budget and capital budget; different concepts of budget deficits.

### Unit III: Taxation and Tax Incidence (8 Lecture Hours)

Grounds for income taxation; determining taxable income; concepts of tax evasion and tax avoidance; effects of income taxation on savings; incidence of sales tax, value added tax (VAT), and excise duty; deadweight loss of taxation.

### Unit IV: Public Borrowing and Debt (5 Lecture Hours)

Public borrowing and its economic effects; incidence of borrowing; public debt and its implications for society, resource allocation, and future generations.

## Group B: Economics of Social Sector (30 Lecture Hours)

### Unit V: Economics of Education (15 Lecture Hours)

Education as an instrument of economic growth; human capital—human capital versus physical capital; components of human capital; private and social demand for education; determinants of educational demand; costs of education—private and social costs; benefits of education—direct and indirect, private and social benefits; cost-benefit analysis; production function models; manpower requirements approach; programming and input-output models in educational planning; education and labour market outcomes; effects of education, ability, and family background on earnings, poverty, and income distribution; relationship between education market and labour market; alternative models of education; rate of return versus fixed coefficient approach; microeconomic analysis of returns to education; social versus private returns in macro growth models; empirical growth equations.

### Unit VI: Health Economics (15 Lecture Hours)

Health as a dimension of development; measurement of health; determinants of health including poverty, malnutrition, and environmental factors; economic dimensions of healthcare demand and supply; financing of healthcare and resource constraints; concept of human life value; theory and empirical studies of healthcare production; inequalities in health from class and gender perspectives; institutional issues in healthcare delivery; public and private health infrastructure; health policy.

# Suggested Readings

## Public Economics


1. Musgrave, R. A., and Musgrave, P. B. *Public Finance in Theory and Practice*.
2. Due, J. F., and Friedlaender, A. F. *Government Finance: Economics of the Public Sector*.
3. Hindriks, J., and Myles, G. D. *Intermediate Public Economics*.
4. Mukherjee, A., Ghose, D., and Nag, A. *Analytical Public Economics*.
5. Johansen, L. *Public Economics*.


## Economics of Social Sector


6. Becker, G. S. *Human Capital*.
7. Blaug, M. *Introduction to the Economics of Education*.
8. Woodhall, M. *Cost-Benefit Analysis in Educational Planning*.
9. Lindahl, M., and Krueger, A. B. "Education for Growth: Why and for Whom?" *Journal of Economic Literature*.
10. Dasgupta, M., Chen, L. C., and Krishnan, T. N. (eds.) *Health, Poverty and Development in India*.
11. Feldstein, M. S. *Economic Analysis of Health Service Efficiency*.
12. WHO. *World Health Report*.
13. National Family Health Survey (various rounds).

# Semester: IV

# FINANCIAL ECONOMICS (ECO2PCOR16T)

**Type of Course:** Departmental Core Course 16
**Course Credits:** 4 **Full Marks:** 50 **Lecture Hours:** 60

## Course Objectives

This course aims to provide postgraduate students with analytical understanding of financial economics, combining corporate finance, investment theory, portfolio analysis, derivatives, and modern financial econometrics. The course introduces the institutional framework of financial systems, valuation principles, capital budgeting, market efficiency, financial risk, and econometric approaches to financial market analysis. It seeks to develop conceptual and analytical competence relevant to financial research, investment analysis, and policy applications.

## Course Outcomes

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

**CO1:** Explain the structure and functioning of financial institutions, markets, and financial instruments. **(K2)**

**CO2:** Analyze corporate financial decision-making relating to investment, financing, and dividend policy. **(K4)**

**CO3:** Apply portfolio theory, bond valuation, and risk-return analysis in investment decisions. **(K3)**

**CO4:** Evaluate derivative instruments, market efficiency, and financial market behaviour. **(K5)**

**CO5:** Apply econometric tools in analysing volatility, long-run financial relationships, and financial market dynamics. **(K3/K4)**

**CO6:** Use financial economics concepts in empirical research and policy-oriented analysis. **(K3)**

# Course Contents

## Group A: Foundations of Financial Economics (30 Lecture Hours)

### Unit I: Introduction to Finance and Financial System (5 Lecture Hours)

Finance and the role of financial institutions; financial markets and financial instruments; basic concepts of corporate finance; principal-agent problem; finance and financial liberalization in the age of globalization; concept of securitization; Indian financial system—basic concepts, relevant markets, institutions, and financial instruments.

### Unit II: Financial Statements and Time Value of Money (5 Lecture Hours)

Financial statements—balance sheet, income statement, working capital statement, and cash flow statement; time value of money and its applications in financial decision-making.

### Unit III: Risk, Return, and Security Valuation (5 Lecture Hours)

Risk and return; portfolio diversification; valuation of securities; bond market and stock market; basic principles of investment valuation.

### Unit IV: Corporate Finance and Derivatives (15 Lecture Hours)

Capital budgeting and investment criteria—Net Present Value (NPV), Benefit-Cost Ratio, Internal Rate of Return (IRR), Payback Rule, and Accounting Rate of Return (ARR); cost of capital; dividend policy; introduction to derivatives—forward contracts, futures, options, and swaps (rudimentary treatment).

## Group B: Advanced Financial Economics and Financial Econometrics (30 Lecture Hours)

### Unit V: Portfolio Selection and Bond Analysis (10 Lecture Hours)

Portfolio selection; efficient set theorem; concavity of efficient set; choice of optimal portfolio; portfolio diversification; lending under risk-free rate; lending and borrowing in risk-free markets; market model; bonds—basic concepts, types of bonds, bond valuation, and yield to maturity.

### Unit VI: Financial Derivatives (5 Lecture Hours)

Financial derivatives; futures and options; basic concepts; mark-to-market principle; determinants of option value; futures and options versus forward contracts; payoff profiles of futures and options.

### Unit VII: Efficient Market Hypothesis (5 Lecture Hours)

Efficient Market Hypothesis (EMH)—concept and forms; random walk model; martingales; portmanteau tests; variance ratio tests; predictability, non-linearity, and BDS test.

### Unit VIII: Financial Time Series and Volatility Modelling (10 Lecture Hours)

Historical, implied, and stochastic volatility; ARCH and GARCH models; asymmetric volatility models—EGARCH and TGARCH; modelling long-run financial relationships—cointegration; Engle-Granger test; Johansen trace test; Granger Representation Theorem; error correction model; Granger causality; switching models—SETAR and STAR; introductory use of financial econometric software (e.g., JMulTi or equivalent).

# Suggested Readings

## Core Readings


1. Brealey, R. A., Myers, S. C., and Allen, F. *Principles of Corporate Finance*. McGraw-Hill.
2. Ross, S. A., Westerfield, R. W., and Jaffe, J. *Corporate Finance*. McGraw-Hill.
3. Sharpe, W. F., Alexander, G. J., and Bailey, J. V. *Investments*. Prentice Hall.
4. Bhole, L. M. *Financial Institutions and Markets: Structure, Growth and Innovations*. McGraw-Hill.
5. Mishkin, F. S., and Eakins, S. G. *Financial Markets and Institutions*. Pearson.
6. Hull, J. C. *Options, Futures, and Other Derivatives*. Pearson.
7. Howells, P., and Bain, K. *The Economics of Money, Banking and Finance*.
8. Levi, M. D. *International Finance*.


## Advanced Readings


9. Campbell, J. Y., Lo, A. W., and MacKinlay, A. C. *The Econometrics of Financial Markets*.
10. Brooks, C. *Introductory Econometrics for Finance*.

# Semester: IV

# GROWTH ECONOMICS (ECO2PCOR17T)

**Type of Course:** Departmental Core Course 17
**Course Credits:** 4 **Full Marks:** 50 **Lecture Hours:** 60

## Course Objectives

This course aims to provide postgraduate students with a rigorous understanding of major theories of economic growth, with particular emphasis on neoclassical and endogenous growth models. The course introduces the analytical foundations of dynamic growth theory, capital accumulation, technological progress, and long-run economic development. It builds upon the mathematical and dynamic optimization tools introduced in earlier semesters and prepares students for advanced theoretical and empirical research in growth economics.

## Course Outcomes

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

**CO1:** Explain the major theoretical models of economic growth and their analytical foundations. **(K2)**

**CO2:** Analyze dynamic equilibrium and capital accumulation processes in classical and neoclassical growth models. **(K4)**

**CO3:** Evaluate the role of technological progress in long-run economic growth. **(K5)**

**CO4:** Examine alternative growth theories including endogenous growth approaches. **(K4)**

**CO5:** Compare different growth models in terms of assumptions, mechanisms, and policy implications. **(K5)**

**CO6:** Apply growth theory concepts in advanced research and policy analysis. **(K3)**

# Course Contents

## Unit I: Harrod's Growth Model and Dynamic Equilibrium (15 Lecture Hours)

Harrod's growth model; concepts of warranted growth, actual growth, and natural growth; dynamic equilibrium in Harrod's model; instability problem in growth equilibrium; analytical implications of Harrodian growth theory.

## Unit II: Solow's Growth Model and Extensions (15 Lecture Hours)

Solow's neoclassical growth model; steady-state equilibrium; capital accumulation and long-run growth; extensions of the Solow model; technological progress—exogenous and endogenous perspectives; Hicks-neutral and Harrod-neutral technological progress; growth accounting and implications of technological change.

## Unit III: Alternative Neoclassical Growth Models (10 Lecture Hours)

Swan's growth model; Kaldor's growth model; stylized facts of economic growth; comparative analysis of alternative neoclassical growth approaches.

## Unit IV: Endogenous Growth Theory and Dynamic Optimization (20 Lecture Hours)

Endogenous growth theories of Arrow and Romer; learning-by-doing and knowledge externalities; the Ramsey model; long-run growth and capital accumulation; intertemporal optimization; technical change and endogenous growth dynamics.

# Suggested Readings


1. Sen, A. K. (ed.). *Growth Economics: Selected Readings*. Penguin Books.
2. Barro, R. J., and Sala-i-Martin, X. *Economic Growth*. McGraw-Hill.
3. Jones, H. G. *An Introduction to Modern Theories of Economic Growth*. McGraw-Hill.
4. Stiglitz, J. E., and Uzawa, H. (eds.). *Readings in the Modern Theory of Economic Growth*. MIT Press.
5. Romer, D. *Advanced Macroeconomics*. McGraw-Hill.
6. Acemoglu, D. *Introduction to Modern Economic Growth*. Princeton University Press.

# Semester: IV

# DISSERTATION / PROJECT REPORT (ECO2PCOR18M)

**Type of Course:** Departmental Core Course 18 (Research)
**Course Credits:** 4
**Full Marks:** 50

## Course Objectives

This course aims to develop students' ability to undertake independent empirical research in Economics through field-based investigation. Students will learn to identify research problems, review relevant literature, formulate research objectives and hypotheses, design appropriate methodologies, collect and analyse data, and prepare a research dissertation following accepted academic standards. The course seeks to strengthen research competence and prepare students for advanced academic and policy-oriented research.

## Course Outcomes

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

**CO1:** Identify and formulate research problems relevant to economics and public policy. (K3/K6)

**CO2:** Design and conduct field-based empirical research using appropriate sampling and data collection techniques. (K6/K3)

**CO3:** Collect, organize, process, and analyse primary data using suitable statistical and econometric tools. (K3/K4)

**CO4:** Interpret empirical findings and derive academically sound conclusions and policy implications. (K4/K5)

**CO5:** Prepare a research dissertation following accepted academic writing, referencing, and reporting standards. (K6)

## Course Structure

**Dissertation / Project Report: 50 Marks**

Students shall undertake an independent or group project/dissertation based primarily on field survey data collected through appropriate research methodology under the supervision of faculty member(s). The study may focus on economic, developmental, social, institutional, financial, labour, agricultural, environmental, or policy-related issues relevant to the discipline.

The project shall ordinarily involve identification of a research problem, review of literature, formulation of objectives and/or hypotheses, research design, sampling strategy, preparation of survey instruments, field data collection, statistical and econometric analysis, interpretation of findings, and formulation of policy recommendations.

**Indicative Components of Dissertation**

- Title Page
- Certificate / Declaration
- Acknowledgement
- Abstract / Executive Summary
- Table of Contents
- Introduction and Statement of the Problem
- Review of Literature
- Objectives / Research Questions / Hypotheses
- Research Methodology
- Data Analysis and Interpretation
- Findings and Discussion
- Policy Suggestions and Conclusion
- Bibliography / References
- Annexures

# Semester: IV

# PRESENTATION AND VIVA-VOCE (ECO2PCOR19M)

**Type of Course:** Departmental Core Course 19 (Research)
**Course Credits:** 4
**Full Marks:** 50

## Course Objectives

This course aims to develop students' ability to communicate and defend research findings effectively through academic presentation and scholarly discussion. The course focuses on developing presentation skills, research communication, interpretation of empirical results, critical reasoning, and the ability to respond to academic queries and critiques.

## Course Outcomes

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

CO1: Organize and present research findings in a clear, logical, and academically coherent manner. (K4)

CO2: Communicate empirical results using appropriate tables, figures, and analytical tools. (K3/K4)

CO3: Defend research methodology, analytical procedures, and findings through academic discussion. (K5)

CO4: Critically evaluate the strengths, limitations, and policy relevance of research outcomes. (K5)

CO5: Demonstrate effective oral communication, presentation, and academic interaction skills. (K3/K5)

CO6: Present and defend research findings successfully in seminar presentation and viva-voce examination. (K5)

# Course Structure

**Presentation and Viva-Voce: 50 Marks**

Each student/group shall make a formal presentation of the dissertation/project before an evaluation panel comprising departmental faculty members and external examiner(s). The presentation shall highlight the research problem, objectives, methodology, data analysis, findings, limitations, and policy implications of the study.

Students shall subsequently appear before the evaluation panel for viva-voce examination. The viva-voce shall assess conceptual understanding, methodological competence, analytical ability, interpretation of findings, communication skills, and overall understanding of the research undertaken.

Evaluation shall be conducted jointly by the departmental faculty members and external examiner(s).