

Department of Economics
B.A. (Hons) Economics
Four Year Undergraduate Programme (FYUP)
(w.e.f. 2024-25)

Semester II						
Paper Code	Paper Title	Credits	Internal Assessment Marks	Semester End Examination Marks	Total Marks	Weekly Hours
Major						
24-ECO-C-150	Microeconomics-II	4	25	75	100	4
24-ECO-C-151	Mathematical Methods for Economics-II	4	25	75	100	4
Minor						
24-ECO-M-152	Principles of Macroeconomics*	4	25	75	100	4
Multidisciplinary						
24-ECO-T-153	Financial Economics	3	19	56	75	3
Ability Enhancement Course						
	General English-II	2	12	38	50	2
Skill Enhancement Course						
24-ECO-S-154	Introduction to Indian Statistical System	3	19	56	75	3
Value Added Course						
24-ECO-V-155	Introduction to Environmental Studies	2	12	38	50	2
Compulsory (Only Qualifying)						
<i>Qualifying – I</i>	General Urdu-II	2	12	38	50	2
<i>Qualifying – II</i>	IRC/HRS/Islamiat**	2	12	38	50	2
24-ECO-I-157	Internship 4 Credits					
Total Credits		22+4	Total Marks		550	
Discipline Specific Core for B.A. (Multidisciplinary)						
24-ECO-D-156	Principles of Macroeconomics	4	25	75	100	4

*This course is offered to students from other department.

** *Qualifying - II shall be any one of Islamiat/Hindu Religion Studies (HRS)/Indian Religions & Culture (IRC).*

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Title: Mathematical Methods for Economics-II	
Type of course: Major	Code: 24-ECO-C-151
Semester: II	Credits: 4

I. Overview: For the strong foundation of economic modeling at under graduate level, the basic knowledge of Mathematics is essential. Therefore, this course provides an extensive and through use of mathematical concepts. In this direction students are expected to gain the knowledge of the concepts of set theory, functions and graphs, limits, continuity and single variable differential calculus, single variable optimization and integral calculus. This course has been designed keeping in mind the aforesaid need of the students. The main focus will be on understanding how the mathematical tools can be used to analyze the economic problems.

II. Objectives:

1. To enhance the mathematical skills essential to study economics.
2. To identify, solve and interpret the economic problem mathematically.
3. To understand and create economic models.
4. To explore the techniques to solve complex problems of economics.

III. Learning Outcomes: At the end of the course, students are expected,

1. To advance the mathematical skills necessary to study Economics.
2. To know the basic concept of mathematics used in Economics.
3. To understand the analytical skills required for solving problems in economics.
4. To apply the various tools of mathematics in Economics.
5. To evaluate the economic policy quantitatively.

IV. Course Contents

Unit - 1: Linear Algebra

- System of linear equations, vectors, vector operations, linear combinations of vectors, length of vectors and orthogonality, Applications in Economics
- Matrices and its types, matrix operations(row and column), determinants and its properties, singularity of a matrix, inverse of a matrix, linear independence and rank of a matrix, solution of a system of linear equations (by Cramer's Rule, Matrix Inversion), Applications in Economics

➤ Solution of Homogeneous Equation System; Leontief Input-Output models (Open and Closed), Input – Output Analysis: Assumptions; Transaction matrix: Technical coefficients, Hawkin Simon Conditions, Metzler condition, Applications in Economics

Unit - 2: Calculus of Multivariate Functions

➤ Partial derivatives (two variables and many variables) and its economic relevance, Total derivatives, Derivatives of functions using chain rule, Derivative of functions defined implicitly, Homogeneous and Homothetic functions, Multivariable optimization, local and global extreme, Stationary points of a function, first and second order condition using Hessian, Point of Inflection, Saddle point, Constraint Optimization (using Lagrangian multiplier), sufficient condition (using Bordered Hessian), Optimization of economic functions, Applications in Economics.

Unit -3: Dynamic Analysis

➤ **Continuous time:** First order linear differential equations (homogeneous and non-homogeneous case) with constant coefficient and constant term; with variable coefficient and variable term; Dynamics of market price; Exact differential equations.

Discrete Time: First order Difference equations, the stability analysis of the equilibrium (oscillatory and non-oscillatory, divergent and convergent time paths); The Cobweb model, Applications in Economics.

V. References:

1. Knut Sydsaeter and Peter J. Hammond (2005), *Mathematics for Economic Analysis*. Pearson Educational Asia: Delhi, 4th Indian reprint
2. Chiang, A. C. & Kevin Wainwright (2005) Fourth Edition): *Fundamental Methods of Mathematical Economics*, McGraw-Hill.
3. Allen, R.G.D.(1974), *Mathematical Analysis for Economists*, McMillan Press, London
4. Chiang. A.C. (1984), *Fundamental Methods of Mathematical Economics*, 3rd ed. McGraw-Hill
5. Hoy.,M., J. Livernois, C. McKenna, R.Rees and T. Stengos: *Mathematics for Economics*, 2nd Edition Prentice Hall, India (2001)
6. Dowling, Edward T. (1992), *Schaum's Outline of Theory and Problems of Introduction to Mathematics*, 3rd Edition, McGraw-Hill.

VI. Evaluation:

Internal tests	Assignment (25 marks)
University examination	Written unseen test in the usual pattern (one 20 marks question from each unit and 15 marks from all units, 75 marks in total)

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Title: Microeconomics- II	
Type of course: Major	Code: 24-ECO-C-150
Semester: II	Credits: 4

Introduction:

This course is built on the basic microeconomics course. The course is designed to expose students to the working of the markets, and price determinations under different market conditions. This course will use both graphical/diagrammatical methods and mathematical methods to price determinations. The students will be exposed to ideal market scenario to real-life situations.

Course Objectives:

- To understand the different types of market structures, like perfect competition, monopoly, monopolistic competitions, and oligopoly market structures
- To explore how firms and industry operate under various market structures to make decisions regarding pricings and output levels.

Course Outcomes:

- The students will demonstrate a deep understanding of different market structures, like perfect competition, monopoly, monopolistic competitions, and oligopoly.
- The students will develop both analytical and critical thinking skills by evaluating market structures, policy interventions, and implications for real world markets.
- The students will be prepared for further study or research in economics where the understanding of market structure is basic requirements.

Course Contents:

Unit-I: Perfect Competition

Salient Features and Assumptions,

Short run equilibrium – firms and industry

Long run equilibrium – firms and industry

Dynamic changes and Industry equilibrium

Perfect Competition and Optimum Allocation of Resources

Unit-II: Monopoly and Monopolistic Competition

Equilibrium of the Monopolist – short run and long run

Dynamic changes and Equilibrium of the Monopolist

Elasticity of Demand and Price Discrimination

Equilibrium of monopolist under Price Discrimination

Monopolistic Competition: Assumptions, Concept of product group, Excess capacity

Chamberlin's models and criticisms of the model

Unit-III: Oligopoly Market Structures

Collusive and Non-collusive Oligopoly - Introduction

Duopoly Models - Cournot's, Bertrand's and Stackelberg's duopoly models

Paul Sweezy's kinked demand curve model and price rigidity

Cartels – Joint profit maximisation and market sharing cartels

Price Leadership – Low cost price leader and dominant price leadership models

Critiques of the Traditional price leadership models

References:

1. Varian H.R: Intermediate Microeconomics, 7th Edition 3 2.
2. Pindyck, Rubinfeld and Mehta: Microeconomics, 6th Edition
3. Ferguson and Gould: Microeconomics, 6th Edition
4. Gravelle and Rees: Microeconomics; Pearson Education, 2nd Edition
5. Nicholson, Microeconomics
6. Koutsoyiannis, A.: Modern Microeconomics, Macmillan
7. Chaudhary, Kalyanjit Roy: Microeconomics
8. Mankiw, N. G. (2018). Principles of Microeconomics 8th ed.

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Title: Principles of Macroeconomics	
Type of course: Minor	Code: 24-ECO-M-152
Semester: II	Credits: 4

Introduction to the Course: This introductory course in Principles of Macroeconomics aims to provide students with a conceptual understanding of macroeconomic principles and stylized facts about the economy specially focus to India Economy. Through a blend of traditional and modern economic thinking, students will develop a foundational knowledge of macroeconomics. Additionally, the course will explore the workings of the Indian economy, offering students valuable insights into its dynamics. No pre-requisites for this course.

Course Objectives:

1. To acquaint the students with basic concepts of the national income and to equip them with a holistic understanding of the economic activities that are organized in the economy.
2. To familiarises students with different theories about the process of stabilisation in aggregate income and employment of the economy.
3. The course also provides glimpses on impact of autonomous changes in economy's income and employment such as changes in investment spending, government expenditure and taxes.

Learning Outcome:

1. Students will be equipped to understand and use the national income data to analyse the behaviour of aggregate economy.
2. Students will learn about the role of different actors i.e., households, firms and government in the economy and mechanism of circular flow of income and spending in the economy.
3. This course will equip students with an understanding of the fundamental principles and frameworks that will enable them to explain the working of aggregate economic variables, their interactions and therefore the economy.

Course Contents:

Unit 1: Basic Concept of National Income

Concepts of National Income –GNP and NNP at market price and factor cost, Gross value added (GVA) at basic price, National product and Domestic product, Measurement of National Income– Product or Value-added Method, Income Method and Expenditure Method, difficulties in the measurement of National Income. Real and nominal GDP, GDP deflator. Trajectory of GDP in post-independent India.

Unit 2: Classical Theory of Output & Employment

Brief history of major schools of economic thought; Says law of markets and Quantity theory of Money, Classical model without saving and Investment. Effects of the change in Labour

supply and in Change in labour demand, on the level of output employment, rigid money wage, monetary policy and full employment. Classical theory with saving and investment.

Unit 3: Keynesian Theory of Income and Employment

Great Depression of the 1929 and the Keynesian Revolution, Keynesian approach to the determination of price, Output and Employment –The Complete Keynesian model. Consumption function, Saving and Investment, Concept of Multiplier, Government Expenditure Multiplier, and tax multiplier, Leakages of multiplier.

Basic Readings:

1. Beckerman, W. (1980). *An Introduction to National Income Analysis*. Littlehampton Book Services.
2. D'Souza E. (2009). *Macroeconomics*, Pearson Education.
3. Mankiw, N. (2016). *Macroeconomics*, 9th ed. Worth Publishers.
4. S.K. Aggarwal (2002). *National Income Accounting*. Worldview Publications.
5. Shapiro, D. (2022). *Principles of Macroeconomics 3e*. OpenStax College Shapiro E. Macro Economic Analysis Second Edition.
6. Vaish, M.C. (2010). *Macroeconomic Theory*, Vikas Publishing House Pvt.Ltd.

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Title: Principles of Macroeconomics	
Type of course: Discipline Specific Course	Code: 24-ECO-D-156
Semester: II	Credits: 4

Introduction to the Course: This introductory course in Principles of Macroeconomics aims to provide students with a conceptual understanding of macroeconomic principles and stylized facts about the economy specially focus to India Economy. Through a blend of traditional and modern economic thinking, students will develop a foundational knowledge of macroeconomics. Additionally, the course will explore the workings of the Indian economy, offering students valuable insights into its dynamics. No pre-requisites for this course.

Course Objectives:

1. To acquaint the students with basic concepts of the national income and to equip them with a holistic understanding of the economic activities that are organized in the economy.
2. To familiarises students with different theories about the process of stabilisation in aggregate income and employment of the economy.
3. The course also provides glimpses on impact of autonomous changes in economy's income and employment such as changes in investment spending, government expenditure and taxes.

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1. Students will be equipped to understand and use the national income data to analyse the behaviour of aggregate economy.
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Brief history of major schools of economic thought; Says law of markets and Quantity theory of Money, Classical model without saving and Investment. Effects of the change in Labour supply and in Change in labour demand, on the level of output employment, rigid money wage, monetary policy and full employment. Classical theory with saving and investment.

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Basic Readings:

1. Beckerman, W. (1980). *An Introduction to National Income Analysis*. Littlehampton Book Services.
2. D'Souza E. (2009). *Macroeconomics*, Pearson Education.
3. Mankiw, N. (2016). *Macroeconomics*, 9th ed. Worth Publishers.
4. S.K. Aggarwal (2002). *National Income Accounting*. Worldview Publications.
5. Shapiro, D. (2022). *Principles of Macroeconomics 3e*. OpenStax College Shapiro E. Macro Economic Analysis Second Edition.
6. Vaish, M.C. (2010). *Macroeconomic Theory*, Vikas Publishing House Pvt.Ltd.

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Title: Introduction to Indian Statistical System	
Type of course: Skill Enhancement Course (SEC)	Code: 24-ECO-S-154
Semester: II	Credits: 3

I. Introduction to the course:

Indian statistical system has been a major source of the data for research and policy making on Indian economy however introduction of this source of data occurs at much later stage among students. This course intends to fill this void by familiarising students with rich source of data from Indian statistical system at an early stage so that they can independently conduct research on the topics of their interest and can effectively participate in policy discussions and debates.

II. Objectives:

1. To *describe* the broad features of Indian statistical system
2. To *locate* the appropriate sources of data for various research issues
3. To *analyse* (selected) surveys and reports published by Government of India

III. Outcome: At the end of this course, students are expected to:

1. To *recognise* the scope and limitations of data used in the context of research problem.
2. To *connect* indicators with data and data sources in India
3. To critically *examine* the adequacy of analysis and results drawn by other authors using data from Indian statistical system.

IV. Course Contents:

Unit 1: Emergence of Statistical System for Development and Planning

- Need for statistical system—planning and development
- Evolution of institutions to develop the Indian statistical system
 - Registrar General and Census Commissioner of India
 - Role ISI and P C Mahalanobis
 - NSSO
 - CSO
- Ministry level statistical systems: Health, Agriculture, Rural Development
- State level statistical systems

Unit 2: Nationally representative surveys and Census

- Idea of nationally representative sample survey
 - Purpose
 - Survey design
 - Understanding and summarizing the data
 - Using data to compute indicators
 - Connecting the surveys with developmental questions

- National Family Health Survey
- Sample registration system (SRS)
- Contrasting Census with representative sample surveys

Unit 3: Macro Aggregates and Budgets

- Gross Domestic Product)
 - Examples of estimating sectoral value added in national Accounts.
 - Nominal vs real
 - Base years
- Union and State Budgets
 - Role of national finance commissions
 - Budget Estimates (BE), Revised estimates (RE) and Actuals

V. Reading list:

1. Rukmani, S. (2021). *Whole numbers and half truths: What data can and cannot tell us about modern India*. Context (publisher).
2. Menon, N. (2022). *Planning Democracy: Modern India's Quest for Development*. Cambridge University Press.
3. Bhattacharya, P. (2023). India's Statistical System: Past, Present, Future Carnegie Endowment for International Peace
4. Historical Perspective of Official Statistics in India
https://unstats.un.org/unsd/wsd/docs/India_wsd_history.pdf
5. Rao, T. J. (2010). Official Statistics in India: The past and the present. *Journal of Official Statistics*, 26(2), 215.
6. Ghosh, J. K., Maiti, P., Rao, T. J., & Sinha, B. K. (1999). Evolution of statistics in India. *International Statistical Review/Revue Internationale de Statistique*, 13-34.
7. Mohan, R. (2007). *Statistical System of India: Some Reflections* (No. id: 1061).
8. Latest Reports of NSSO survey on various themes
9. Reports of Comptroller and Auditor General of India
10. Reports of Annual Survey of Industry
11. Adhikari Committee Report of the Committee on Private Final Consumption Expenditure
https://mospi.gov.in/sites/default/files/publication_reports/Adhikari_Committee_PFC_E_22may15.pdf
12. Latest Report of Economic census
13. Latest Report of Agriculture census
14. Latest Report of Livestock census
15. Naoroji, D. (1901). *Poverty and un-British rule in India*. London S. Sonnenschein 1901..

VI. Evaluation:

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Title: Introduction to Environmental Studies	
Type of Course: Value Added Course (VAC)	Code: 24-ECO-V-155
Semester: II	Credits: 2

I. Overview: Over the years, degradation of environment and depletion of natural resources have increased. India is no exception. Intensity of degradation and depletion has increased in the present century, as per periodic Assessment Reports published by many international organisations, including Inter-governmental Panel on Climate Change (IPCC). This course has been designed to provide an introduction to some matters connected with degradation and degradation of environment, primarily in India. Economic approach will be used mostly. However, no prior knowledge of economics is required.

II. Objectives:

1. To *connect* flow of ecosystem services with human well-being
2. To *analyse* the causes behind rise in pollution, degradation of ecosystems and depletion of natural resources
3. To *connect* access to natural resources and exposure to pollution with changes in human well-being
4. To *analyse* select environmental regulations in India to prevent or reduce the intensity of depletion and degradation of environment

III. Learning Outcomes: At the end of the course, students are expected,

1. To *identify* the attributes and characteristics of different components of environment
2. To *connect* depletion/ degradation of environment and its differential impacts on various categories of people
3. To *assess* the expectations from and effectiveness of laws and regulations to address depletion and degradation of environment in India

IV. Course Contents

Unit I: Ecosystem Services and Human Well-being

Open, closed and isolated systems

Ecosystems—definition, types, categories

Ecosystem functions and ecosystem services

Ecosystem services and human well-being

Trade-off between ecosystem services

Degradation of ecosystems—originating from human activities

State of (selected) ecosystems in India

Management of ecosystems

Unit II: Natural Resources

Classification of natural resources

Different types of natural resources (forests, minerals, water, land, and energy), and their contribution to human well-being

Common pool resources (CPR) in India

Degradation of CPRs in India

Unit III: Introduction to Environmental Regulations and Cases in India (selected)

Environment (Protection) Act (1986)

The Energy Conservation Act (2001)

Biological Diversity Act (2002)

Scheduled Tribes and Other Traditional Forest Dwellers (Recognition of Forest Rights) Act (2006)

National Green Tribunal Act (2010)

Major environmental judgments from Supreme Court (including M C Mehta cases, and Godavarman)

V. References:

Chhatrapati Singh (1987) 'Emerging Principles of Environmental Laws for Development' in J Bandyopadhyay, N D Jayal, U Schoettli and Chhatrapati Singh (eds.) *India's Environment: Crises and Responses*, Second Edition, Natraj Publishers, Dehra Dun, pp. 247-75

CPCB (2021) *Pollution Control Acts, Rules, & Notifications Issued Thereunder*, Delhi: Central Pollution Control Board, available online at

<https://cpcb.nic.in/7thEditionPollutionControlLawSeries2021.pdf>

Herman Daly and Joshua Farley (2003) *Ecological Economics: Principles and Applications*, Second Edition, Island Press. (Selected chapters)

M N Murty and Sushama Murty (2024) 'Economic Instruments and Economic Regulators: With applications to the case of India', Discussion Paper 21-04, CITD, JNU, New Delhi

Millennium Ecosystem Assessment (2005) Chapters 1-3 in *Ecosystems and Human Well-being: A Framework for Assessment*, Island Press, Washington, DC. Available online at

<https://www.millenniumassessment.org/en/Framework.html#download>

Partha Dasgupta (2005) 'Common Property Resources: Economic Analytics', *Economic and Political Weekly*, April 16, pp. 1610-1622, available online at

https://www.epw.in/system/files/pdf/2005_40/16/commonpropertyresourceeconomicanalytics.pdf

Rabindranath Bhattacharya (ed.) (2001) *Environmental Economics- An India Perspective*, Oxford University Press, New Delhi. (Selected chapters)

Ramprasad Sengupta (2001) *Ecology and Economics: An Approach to Sustainable Development*, Oxford University Press, New Delhi. (Selected chapters)

Ramprasad Sengupta (2013) *Ecological Limits and Economic Development*, Oxford University Press, New Delhi. (Selected chapters)

Shyam Divan and Armin Rosencranz (2001) *Environmental Law and Policy in India*, Second Edition, OUP, New Delhi. (Selected chapters)

Relevant Supreme Court judgments from <https://main.sci.gov.in/judgments>

VI. Evaluation:

Internal tests 12 Marks

University examination Written unseen test in the usual pattern (one 10 marks question from each unit and 8 marks from all units, 38 marks in total)

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Title: Financial Economics	
Type of course: Multidisciplinary Course	Code: 24-ECO-T-153
Semester: II	Credits: 3

Introduction to the Course: The importance of financial sector in the economy has been increasing over the period of time. It is pertinent to expose students to the working of the financial markets and its potential link with real sectors of the economy. This course introduces the basic analytical tools for assessing financial market and its functioning. This course dwells on working of stock, bond, and derivative markets.

Course Objectives:

1. To provide the theoretical tools and framework to understand financial markets.
2. This course intends to impart the knowledge and understanding of different types of financial markets and instruments.
3. The course demystify the nexus between financial market and the economy.

Learning Outcome:

1. To be able to identify various instruments in financial markets.
2. To be able to conduct fundamental analysis of stocks and bonds
3. To develop computing capacities for valuation of financial assets.

Unit 1: Introduction to Financial Markets

- Capital Market Vs Money Market
- Financial Markets – Role and Functions
- Types of Financial Markets - Primary and Secondary Markets
- Financial Markets – Instruments and Transaction Mechanism in Spot Market
- Introduction to Derivatives Market – Forward, Futures and Options
- Transactions Mechanism in Derivative Markets
- Indian Financial Markets – Equity Market, Bond Market, Mutual Funds and Commodity Market

Unit 2: Stocks and Portfolio Analysis

- Basic concepts of Investing
- Different types of stocks and Valuation of Stocks
- Fundamental Analysis of Stocks and Investment – Qualitative and Quantitative Analysis
- Concept of Market Efficiency and Forms of Market Efficiency
- Portfolio analysis

Unit- 3: Bond Market Analysis

- Time Value of Money – Present Value and Future Value
- Annuity and Perpetuity, Compounding and Discounting

- Types of Bond – Pure Discount Bond, Coupon Bond, Consols
- Valuation of Bond
- Relationship between Government Bond and Corporate Bond
- Bond Price and Interest Rate

References

1. Bailey, R. E. (2005). *The economics of financial markets*. Cambridge University Press.
2. Bhole, L. M., & Mahakud, J. (2017). *Financial institutions and markets: structure growth and innovations*. McGraw-Hill.
3. Bodie, Robert c Merton and David Cleaton (2009), *Financial Economics*, Pearson
4. Elton, E. J., Gruber, M. J., Brown, S. J., & Goetzmann, W. N. (2014). *Modern Portfolio Theory and Investment Analysis*.
5. Hull, J. C., & Basu, S. (2016). *Options, futures, and other derivatives*. Pearson Education India.
6. LeRoy, S. F., & Werner, J. (2014). *Principles of financial economics*. Cambridge University Press.
7. Prasanna Chandra (2010), *International Analysis and portfolio Management*, Tata McGraw Hill