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ताळगांव पठार,
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(Accredited by NAAC with Grade A+)

GU/Acad –PG/BoS -NEP/2026-27/159 Date: 23.06.2026

CIRCULAR

Ref. No.: GU/Acad –PG/BoS -NEP/2025-26/177 dated 26.06.2025

In supersession to the above referred Circular, the structure and syllabus of Semester III and IV and additional DSE Courses for Semester II of the **Master of Arts in Economics** Programme approved by the Standing Committee of the Academic Council in its meeting held 24th February 2026 is attached.

Further, the Syllabus of Semester I and II approved earlier by the Academic Council in its meeting held on 13th & 14th June 2025 is also attached.

The Dean & Vice-Dean (Academic) of the Goa Business School and the Principals of the affiliated Colleges offering the **Master of Arts in Economics** Programme are requested to take note of the above and bring the contents of the Circular to the notice of all concerned.

ASHWIN V LAWANDE Digitally signed by ASHWIN V LAWANDE Date: 2026.06.23 10:26:02 +05'30'

(Ashwin V. Lawande)
Deputy Registrar – Academic

To,

1. The Dean, Goa Business School, Goa University.
2. The Vice-Dean (Academic), Goa Business School, Goa University.
3. The Principals of Affiliated Colleges offering the Master of Arts in Economics Programme.

Copy to:

1. Chairperson, BoS in Economics, Goa University.
2. Programme Director, M.A. Economics, Goa University.
3. Controller of Examinations, Goa University.
4. Assistant Registrar Examinations (PG), Goa University.
5. Directorate of Internal Quality Assurance, Goa University for uploading the Syllabus on the University website.

GOA UNIVERSITY

Master of Arts in Economics

(Effective from the Academic Year 2025-26)

ABOUT THE PROGRAMME

The MA Programme in Economics is of two years (four semesters) in which students have to earn 80 credits as per the university rules to successfully complete the degree requirements. It blends modern and conventional areas of Economics with an emphasis on quantitative techniques. Students have the option of earning all credits through in-class courses or partial research and online courses.

The core teaching includes microeconomics, macroeconomics, statistics, mathematical economics, econometrics, public economics, international economics, and development economics.

OBJECTIVES OF THE PROGRAMME

The M.A. Programme aims to provide a strong theoretical overview of the subject domain with an emphasis on quantitative techniques. In order to give a flavour of different areas of economic studies, students are offered a wide range of elective courses including Econometrics, Environmental Economics, Financial Economics and Human Resource Development, Labour Economics, Regional Integration, Indian Economic Thought and the Goan Economy. The programme is designed to empower students to join the academic world of teaching and research, the financial and banking sector, or the administrative apparatus.

PROGRAMME SPECIFIC OUTCOMES (PSO)	
PSO 1.	Understand how to allocate resources optimally using economic tools
PSO 2.	Use mathematical and statistical methods to aid economic decision-making
PSO 3.	Analyse economic problems faced by developing economies
PSO 4.	Critically evaluate existing domestic and global economic policies
PSO 5.	Predict behavioural response to changes in price, market conditions, policy and external conditions
PSO 6	Design policies for growth, development and welfare outcomes

PROGRAMME STRUCTURE

MA Economics Effective from Academic Year 2025-26

Bridge Course			
Sr. No.	**Course Code**	**Title of the Course**	**Credits**
1	**ECO-1000**	Basic Calculus for Economics	1T
2	**ECO-1001**	Basic Matrix Algebra for Economics	1T
3	**ECO-1002**	Basic Probability	1T
4	**ECO-1003**	Fundamentals of Econometrics	1T

SEMESTER I				
Discipline Specific Core (DSC) Courses (16 credits)				
Sr. No.	**Course Code**	**Title of the Course**	**Credits**	**Level**
1	**ECO-5000**	Microeconomics	4T	400
2	**ECO-5001**	Macroeconomics	4T	400
3	**ECO-5002**	Public Economics and Public Policy	4T	400
4	**ECO-5003**	Statistics For Economic Analysis	4T	400
Total Credits for DSC Courses in Semester I			**16**	
Discipline Specific Elective (DSE) Course (4 credits)				
Sr. No.	**Course Code**	**Title of the Course**	**Credits**	**Level**
1	**ECO-5201**	Indian Economy	4T	400
2	**ECO-5202**	Indian Public Finance	4T	400
3	**ECO-5203**	Human Resource Development	4T	400
Total Credits for DSE Courses in Semester I			**4**	
Total Credits in Semester I			**20**	

SEMESTER II				
Discipline Specific Core (DSC) Courses				
Sr. No.	**Course Code**	**Title of the Course**	**Credits**	**Level**
1	**ECO-5004**	Mathematics for Economic Analysis	4T	500
2	**ECO-5005**	Economic Growth and Development	4T	500
3	**ECO-5006**	International Trade and Finance	4T	500
4	**ECO-5007**	Introduction to Econometrics	4T	500
Total Credits for DSC Courses in Semester II			**16**	
Discipline Specific Elective (DSE) Courses (4 credits)				
Sr. No.	**Course Code**	**Title of the Course**	**Credits**	**Level**
1	**ECO-5204**	Labour Economics	4T	400
2	**ECO-5205**	Goan Economy	4T	400
3	**ECO-5206**	Indian Economic Thought	4T	400
4	**ECO 5207**	Behavioural Economics	4T	400
5	**ECO 5208**	Industrial Economics	4T	400
6	**ECO 5209**	Bayesian Statistics (Theory)	1T	400
7	**ECO 5210**	Bayesian Statistics (Practical)	1P	~~400~~
8	**ECO-5211**	Sustainable Development and Resource Management	3T	400
~~**9**~~	**ECO-5212**	Sustainable Development and Resource Management Practical	1P	400
Total Credits for DSE Courses in Semester II			**4**	
Total Credits in Semester II			**20**	

SEMESTER III				
Research Specific Elective (RSE) Courses (12 credits)				
Sr. No.	**Course Code**	**Title of the Course**	**Credits**	**Level**
1	**ECO-6000**	Environmental Economics	4T	500
2	**ECO-6001**	Economics of Regional Integration	4T	500
3	**ECO-6002**	Research Methodology in Economics	4T	500
4	**ECO-6003**	Data Sources for the Indian Economy	4T	500
5	**ECO-6004**	Introduction to Law and Economics	2T	500
6	**ECO-6005**	Gender Economics	2T	500
7	**ECO-6006**	Economics of Crime	2T	500
8	**ECO-6007**	Economics of Multinational Enterprises	4T	500
Total Credits for RSE Courses in Semester III			**12**	
Discipline Specific Vocational Elective (DSVE) Courses (8 credits)				
Sr. No.	**Course Code**	**Title of the Course**	**Credits**	**Level**
1	**ECO-6401**	Techniques of Geospatial Analysis	2T+2P	500
2	**ECO-6402**	Time Series Econometrics	2T+2P	500
3	**ECO-6403**	Introduction to Finance	2T+2P	500
4	**ECO-6404**	Resource Economics	1T +1P	500
5	**ECO-6405**	Financial Econometrics	1T +1P	500
Total Credits for DSVE Courses in Semester III			**8**	
Total Credits in Semester III			**20**	

Discipline Specific Dissertation (DSD) (40 Credit Dissertation)				
Sr. No.	**Course Code**	**Title of the Course**	**Credits**	**Level**
1	**ECO-6501**	Dissertation	**40**	**500**

SEMESTER IV				
Generic Elective (GE) Courses (20 credits)				
Sr. No.	**Course Code**	**Title of the Course**	**Credits**	**Level**
1	**ECO-6201**	Introduction to Game Theory	4T	500
2	**ECO-6202**	Introduction to Spatial Economics	4T	500
3	**ECO-6203**	Comparative Economic Systems	4T	500
4	**ECO-6204**	Indian Agriculture	4T	500
5	**ECO-6205**	Health Economics	4T	500
6	**ECO-6206**	Evolution of Economic Thought	4T	500
7	**ECO-6207**	Data Visualization	2P	500
8	**ECO-6208**	AI and Economics	1T	500
9	**ECO-6209**	AI and Economics Practical	1P	500
10	**ECO-6210**	Introduction to Environmental Valuation	1T	500
11	**ECO-6211**	Spatial Economic Analysis	1T	500
Total Credits for GE Courses in Semester IV			**20**	

Discipline Specific Dissertation (DSD)/ Internship (20 Credit Dissertation)				
Sr. No.	**Course Code**	**Title of the Course**	**Credits**	**Level**
1	**ECO-6502**	Dissertation	20	500
Total Credits in Semester IV			**20**	

Blooms Taxonomy Cognitive Levels	
Cognitive Level	**Notations**
K1	Remembering
K2	Understanding
K3	Applying
K4	Analyzing
K5	Evaluating
K6	Create

BRIDGE COURSES

Title of the Course	Basic Calculus for Economics
Course Code	ECO-1000
Number of Credits	01
Theory/Practical	Theory
Level	300
Effective from AY	2025-26
New Course	Yes
Bridge Course/ Value added Course	Bridge Course
Course for advanced learners	No

Pre-requisites for the Course:	Nil	
Course Objectives:	To provide students with a foundational understanding of basic calculus concepts and their applications in economic reasoning and problem-solving.	
Course Outcomes:		**Mapped to PSO**
	CO 1. Identify and interpret basic functions and graphs used in economic analysis.	PSO1, PSO2
	CO 2. Understand the concept of limits, continuity, and basic rules of differentiation.	
	CO 3. Apply differentiation techniques to calculate marginal values and elasticities in economics.	
	CO 4. Analyse simple economic problems involving optimisation using first derivatives.	

Content:		No of hours	Mapped to CO	Cognitive Level
Module 1:	**Understanding Functions and Differentiation:** Concept of a function with economic illustrations (demand, cost, revenue), Graphical interpretation and slope, Concept of a limit and continuity, Rules of differentiation (polynomial, power rule, constant, sum rule), Marginal concepts: marginal cost, marginal utility, marginal revenue; **Applications of Derivatives in Economics:** Elasticity of demand, Maxima and minima in economic problems (profit maximisation, cost minimisation), Sketching curves using first derivative, Brief introduction to multivariable functions and partial derivatives, Common mistakes and how to avoid them in economic problem-solving	**15**	CO1, CO2, CO3, CO4	K1, K2, K3, K4
Pedagogy:	• Chalk and talk aided by ICT enabled lectures • Flipped Classroom • PC lab exercises • Assignments and presentations • Group activity • MOOC (or similar) Component			
Texts:	Core reading 1. Sydsaeter, K., Hammond, P., Strom, A., & Carvajal, A. (2018). *Essentials of Mathematics for Economic Analysis*, Pearson			
References/ Readings:	Supplementary reading 1. Simon, Carl P. & L. Blume (2018) Mathematics for Economists W.W. Norton, New York 2. A.C. Chiang and K. Wainwright (2017) Fundamental Methods in Mathematical Economic McGraw Hill, New York			

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Title of the Course	Basic Matrix Algebra for Economics
Course Code	ECO-1001
Number of Credits	01
Theory/Practical	Theory
Level	300
Effective from AY	2025-26
New Course	Yes
Bridge Course/ Value added Course	Bridge Course
Course for advanced learners	No

Pre-requisites for the Course:	Nil	
Course Objectives:	To introduce the fundamental concepts of matrix algebra and develop basic computational skills required for interpreting economic data and models using matrix methods.	
Course Outcomes:		**Mapped to PSO**
	CO 1. Identify and describe basic elements of matrices and vectors used in economics.	PSO1, PSO2
	CO 2. Perform elementary operations such as matrix addition, scalar multiplication, and transposition.	
	CO 3. Solve basic systems of linear equations using matrix notation.	
	CO 4. Recognise how matrices are used in simplified economic models (e.g., input-output tables).	

Content:		No of hours	Mapped to CO	Cognitive Level
Module 1:	**Introduction to Matrices:** Concept of a matrix and vector, Types of matrices, Basic operations: addition, scalar multiplication, transposition, Matrix representation of simple data; **Matrix Applications in Economics:** Solving small systems of equations (2×2), Introduction to input-output tables and Leontief's idea, Interpretation of matrix results in basic economic settings	**15**	CO1, CO2, CO3, CO4	K1, K2, K3, K4
Pedagogy:	• Chalk and talk aided by ICT enabled lectures • Flipped Classroom • PC lab exercises • Assignments and presentations • Group activity • MOOC (or similar) Component			
Texts:	Core reading 1. Sydsaeter, K., Hammond, P., Strom, A., & Carvajal, A. (2018). *Essentials of Mathematics for Economic Analysis*, Pearson			
References/ Readings:	Supplementary reading 1. Simon, Carl P. & L. Blume (2018) Mathematics for Economists W.W. Norton, New York 2. A.C. Chiang and K. Wainwright (2017) Fundamental Methods in Mathematical Economic McGraw Hill, New York			

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Title of the Course	Basic Probability
Course Code	ECO-1002
Number of Credits	01
Theory/Practical	Theory
Level	300
Effective from AY	2025-26
New Course	Yes
Bridge Course/ Value added Course	Bridge Course
Course for advanced learners	No

Pre-requisites for the Course:	Nil	
Course Objectives:	To introduce fundamental concepts of probability theory and develop basic skills necessary for understanding economic data and decision-making under uncertainty.	
Course Outcomes:		**Mapped to PSO**
	CO 1. Identify and define key probability terms, including sample space, event, and outcome	PSO 2
	CO 2. Apply basic probability rules to compute the probability of events	
	CO 3. Understand and interpret conditional probability and independence	
	CO 4. Use counting principles to determine the number of possible outcomes in simple experiments	

Content:		No of hours	Mapped to CO	Cognitive Level
Module 1:	**Probability Fundamentals:** Experiment, outcome, and sample space, Defining events: mutually exclusive, independent, complementary, Classical, empirical, and subjective approaches to probability, Basic rules: Addition rule and Multiplication rule; **Conditional Probability and Counting Rules:** Marginal and conditional probability, Independence of events, Tree diagrams and simple applications, Counting principles: factorials, combinations, and permutations	**15**	CO1, CO2, CO3, CO4	K1, K2, K3
Pedagogy:	● Chalk and talk aided by ICT enabled lectures ● Flipped Classroom ● PC lab exercises ● Assignments and presentations ● Group activity ● MOOC (or similar) Component			
Texts:	**Core Reading:** 1. Mann, Prem S. (2016). Introductory Statistics, Latest Edition, Wiley. 2. Grimmett, G., & Welsh, D. (2014). Probability: An introduction (2nd ed.). Oxford University Press.			
References/ Readings:	1. David Spiegelhalter (2020) The Art of Statistics: Learning from Data, Pelican Books, UK 2. David Freedman, Robert Pisani, Roger Purves (2007) Statistics, W.W. Norton, New York			

Title of the Course	Fundamentals of Econometrics
Course Code	ECO-1003
Number of Credits	01
Theory/Practical	Theory
Level	300
Effective from AY	2025-26
New Course	Yes
Bridge Course/ Value added Course	Bridge Course
Course for advanced learners	No

Pre-requisites for the Course:	Nil			
Course Objectives:	Introduce students to basic applied knowledge of introductory econometrics			
Course Outcomes:			**Mapped to PSO**	
	CO 1. To understand the basic concepts of econometrics			
	CO 2. To comprehend the assumptions of classical linear regression			
	CO 3. To familiarize the students with simple and multiple regression model.			
Content:		**No. of Hours**	**Mapped to CO**	**Cognitive Level**
Module 1:	Introduction to Econometrics and an overview of its applications; Simple Regression with Classical Assumptions; Least Squares Estimation and BLUE, Properties of estimators, Multiple Regression Model	**15**	CO 1, CO 2, CO 3	K1, K2, K3

Pedagogy:	● Chalk and talk aided by ICT enabled lectures ● Flipped Classroom ● PC lab exercises ● Assignments and presentations ● Group activity ● MOOC (or similar) Component
Texts:	1. Gujarati, N. Damodar. Basic Econometrics. New Delhi: McGraw-Hill. (Latest edition) 2. Gujarati, N. Damodar. Econometrics by Examples. New Delhi: McGraw-Hill. (Latest edition)
Web Resources:	1. https://www.youtube.com/@SpartacanUsuals/playlists 2. https://www.burkeyacademy.com/statistics-econometrics 3. https://www.youtube.com/@EconometricsWithJan 4. https://www.youtube.com/@NickHuntingtonKlein

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SEMESTER I

Discipline Specific Core (DSC) Courses

Title of the Course	Microeconomics
Course Code	ECO-5000
Number of Credits	04
Theory/Practical	Theory
Level	400
Effective from AY	2025-26
New Course	No
Bridge Course/ Value added Course	No
Course for advanced learners	No

Pre-requisites for the Course:	Nil	
Course Objectives:	The objective of the course is to expose the students the applications of modern theories demand, production and the complex decision making problems faced by the firms.	
Course Outcomes:		**Mapped to PSO**
	CO 1. Analyze and solve practical problems related to consumer choices and equilibrium.	PSO1, PSO2, PSO5
	CO 2. Describe methods of production and techniques of resource allocation.	PSO1, PSO2, PSO5

	CO 3. Describe the different market structures and their consequences on equilibrium outcomes.		PSO1, PSO2, PSO3, PSO5	
	CO 4. Explain the principles of economic welfare and the role of information in decision-making.		PSO1, PSO2, PSO3, PSO5	
Content:		**No of hours**	**Mapped to CO**	**Cognitive Level**
Module 1:	Theory of Consumer Behaviour Consumer's tastes. Indifference Curves-Consumer's choice and equilibriumIncome and substitution effects- Derivation of demand curve Applications of Indifference curves - Revealed preference theorem- market demand models-constant elasticity and distributed lag models. Developments in the theory demand- Constant elasticity demand function-Dynamic versions of demand functions-Nerlove, Houthakker and Taylor-Linear expenditure system.	**15**	CO1	K1, K2, K3, K4, K5
Module 2:	Theory of Production and Costs Technology of production. Production function: short run and long runisoquants-Elasticity of substitution, Homogenous and Homothetic -Cobb Douglas Production function - CES,VES production functions-Recent developments-Technical progress and production function- Returns to scale - Choice of least cost combination of inputs. Costs-Short and long run-The L shaped cost curve. Derivation of cost function - Duality of cost and production function	**15**	CO2	K1, K2, K3, K4, K5
Module 3:	Introduction to perfect and imperfect markets. Chamberlin's model of monopolistic competition.Oligopoly Market Structure Uncertainty and interdependence- Non Collusive Oligopoly models - Cournot, Bertrand, Chamberlin, Sweezy and Stackelberg models-Collusive models-Cartels and Price leadership models-Managerial Theories of Firm ; Baumol's sales revenue maximisation- Marris maximum rate of growth and profits hypothesisWilliamson's discretion model -Behavioural model of Cyert and March Firm's demand for factors in the short run and long runfactor shares-Technological progress and factor sharesProduct Exhaustion theorems	**15**	CO3	K1, K2, K3, K4, K5, K6

Module 4:	General Equilibrium- General equilibrium in production and exchange - Walrasian Model- Existence, uniqueness and stability of General Equilibrium. Information Economics-Adverse Selection and Moral hazards-Market for Lemons-Pooling and separating equilibrium-signaling and screening-Principal-agent Problem.	**15**	CO4	K1, K2, K3, K4, K5, K6
Pedagogy:	● Chalk and talk aided by ICT enabled lectures ● Flipped Classroom ● PC lab exercises ● Assignments and presentations ● Group activity ● MOOC (or similar) Component			
Texts:	Core Readings 1. Koutsoyannis,A(2023),Modern Microeconomics Macmillan, London. 2. Varian, H.R.(2020), Intermediate Microeconomics: A Modern Approach, W.W. Norton, New York.			
References/ Readings:	Additional readings 1. Zerloff.J.M.(2020), Microeconomics, Theory and Applications with Calculus, Pearson Education. 2. Pindyck, Robert, Daniel .Rubinfeld (2017) Microeconomics, Pearson Education 3. Timothy Taylor, Steven A. Greenlaw, Eric Dodge (2014), Principles of Microeconomics, Publisher: OpenStax, ISBN 13: 9781938168246			
Web Resources:	1. https://ocw.mit.edu/courses/14-121-microeconomic-theory-i-fall-2015/ 2. https://www.core-econ.org/the-economy/ 3. https://openstax.org/details/books/principles-microeconomics-2e 4. https://www.youtube.com/watch?v=1UxA6JzoT-4			

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Title of the Course	Macroeconomics
Course Code	ECO-5001
Number of Credits	04
Theory/Practical	Theory
Level	400
Effective from AY	2025-26
New Course	No
Bridge Course/ Value added Course	No
Course for advanced learners	No

Pre-requisites for the Course:	Nil	
Course Objectives:	To understand the role of effective demand in determining employment, output, prices and interest rates.	
Course Outcomes:		**Mapped to PSO**
	CO 1. Explain the national accounts system and its sectoral implications	PSO 1, PSO 2, PSO 3, PSO 4, PSO 5
	CO 2. Analyse causes of unemployment under classical and Keynesian systems	PSO 1, PSO 2, PSO 3, PSO 4, PSO 5
	CO 3. Describe the Monetarist challenge to Keynes and emergence of New Keynesian ideas.	PSO 1, PSO 2, PSO 3, PSO 4, PSO 5
	CO 4. Explain monetary policy, goals and targets.	PSO 1, PSO 2, PSO 3, PSO 4, PSO 5

Content:		**No of hours**	**Mapped to CO**	**Cognitive Level**
Module 1:	National Accounts System: UN system of accounts, India's Accounting system, Green Accounting Classical System: Classical model introduction – Employment, labour, supply – Equilibrium output and employment Money prices and interest under classical system, quantity theory of money (Fisher and Cambridge)	**15**	CO1, CO2	K1,2,3,4,5
Module 2:	Keynesian system: Simple Keynesian Model – Equilibrium income and changes in equilibrium income. Consumption function &. Investment function; IS-LM model: Fiscal and Monetary Policy effects on IS-LM model. Open economy macroeconomics under fixed and flexible exchange rate (Mundell-Fleming model)	**15**	CO 1, CO 2	K1,2,3,4,5
Module 3:	Monetarists, New Classical Economics and New Keynesian: Friedman's restatement of quantity theory, National Rate of Unemployment Theory-- Philips Curve – short run and long run, Rational Expectations Theory. New Keynesian Model – Sticky price, efficiency wage and Insider – Outsider model.	**15**	CO 3, CO 4	K1,2,3,4,5
Module 4:	Monetary Policy Goals and targets-strategies for monetary policy Targeting monetary aggregates-Interest rate targeting Intermediate targeting- Money stock versus interest rates. Money supply in India, Money multiplier-model of money supply determination-	**15**	CO 3, CO 4	K1,2,3,4,5
Pedagogy:	● Chalk and talk aided by ICT enabled lectures ● Flipped Classroom ● PC lab exercises ● Assignments and presentations ● Group activity ● MOOC (or similar) Component			
Texts:	Core Readings			

	1. R.T. Froyen (2014) Macroeconomics: Theories and Policies, Pearson, New Delhi
References/ Readings:	Additional Readings 1. N. Gregory Mankiw, 2015, Macroeconomics , Macmillan, New Delhi 2. R. Dornbusch, S. Fishser, R.Startz, 2020, Macroeconomics, Mcgraw Hill, New Delhi 3. Frederic S. Mishkin, 2016,Macroeconomics: Policy & Practice. Pearson, New Delhi 4. Mankiw, N. Gregory & Mark P. Taylor (2023) Macroeconomics, Cengage Publications, India

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Title of the Course	Public Economics and Public Policy
Course Code	ECO-5002
Number of Credits	04
Theory/Practical	Theory
Level	400
Effective from AY	2025-26
New Course	No
Bridge Course/ Value added Course	No
Course for advanced learners	No

Pre-requisites for the Course:	Nil	
Course Objectives:	This course will provide students a basic understanding of welfare economics, market failure, tax, and public expenditure	
Course Outcomes:		**Mapped to PSO**
	CO 1. Explain the role of the government in resource allocation and the foundational concepts of welfare, efficiency, and public intervention.	PSO 1, PSO 2, PSO 3, PSO 4, PSO 5
	CO 2. Analyze market failures such as externalities, public goods, and information asymmetries, and evaluate policy mechanisms to address them.	PSO 1, PSO 2, PSO 3, PSO 4, PSO 5
	CO 3. Apply principles of taxation and expenditure to assess their efficiency, equity, and behavioural implications.	PSO 1, PSO 2, PSO 3, PSO 4, PSO 5
	CO 4. Evaluate models of fiscal federalism and intergovernmental transfers in the Indian	PSO 1, PSO 2, PSO 3,

	context to understand growth and equity implications.		PSO 4, PSO 5	
	CO 5. Use economic frameworks to critically assess contemporary policy debates on health, education, and social security.		PSO 1, PSO 2, PSO 3, PSO 4, PSO 5	
Content:		**No of hours**	**Mapped to CO**	**Cognitive Level**
Module 1:	Public Economics- Nature and need. Role of Government – effect of the intervention. Policy Debates over Social Security, Health Care, and Education. Fundamental theorems of welfare. Social Welfare Functions. Economic efficiency, and Pareto optimality, Dalton's Principle of maximum social advantage, Pigou's concept of welfare.	**15**	CO1, CO5	K1,2,3,4,5
Module 2:	Market Failure - causes, Externalities – types, Private-Sector Solutions to Negative Externalities, Public-Sector Remedies for Externalities, information asymmetry and Third Best Policies. Optimal Provision of Public and private Goods, Free rider Problem, Voting – majority voting, Arrow's	**15**	CO2	K1,2,3,4,5
Module 3:	Principles of Taxation –Principle of Fiscal Neutrality, Excess Burden, Doctrine Principle of Equity, Benefit Principle, Bowen and Lindhal Models, Ability to pay Principle. Meaning, types and Measurements of Tax Capacity, Incidence of Tax- Issues in Efficiency and	**15**	CO3	K1,2,3,4,5
Module 4:	Nature and composition of public expenditure, Criterion for Public Expenditure-Social Cost-Benefit Analysis. Wagners Law of Expanding state activity, The Tiebout Model. Fiscal Federalism in India -Devolution of resources and grants	**15**	CO4, CO5	K1,2,3,4,5
Pedagogy:	● Chalk and talk aided by ICT enabled lectures ● Flipped Classroom ● PC lab exercises			

	● Assignments and presentations ● Group activity ● MOOC (or similar) Component
Texts:	Core Readings 1. Gruber, J. (2005). Public Finance and Public Policy. Worth Publishers. 2. Musgrave, Richard & Peggy Musgrave (2024) Public Finance in Theory and Practice, McGrawHill, NY
References/ Readings:	Additional References 1. Sarma, J. V. M. (2018). Public Finance: Principles and Practices. Oxford University Press, New Delhi 2. Jha, Raghbendra (1998) Modern Public Economics, Routledge, London 3. Myles, Gareth D. (1995) Public Economics, Cambridge University Press, Cambridge 4. Hyman, David N. (Latest edition) Public Finance: A Contemporary Application of Theory to Policy, South-Western Cengage Learning, USA

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Title of the Course	Statistics For Economic Analysis
Course Code	ECO-5003
Number of Credits	04
Theory/Practical	Theory
Level	400
Effective from AY	2025-26
New Course	No
Bridge Course/ Value added Course	No
Course for advanced learners	No

Pre-requisites for the Course:	Nil			
Course Objectives:	To learn the statistical techniques and concepts that aid economic analysis and prepare the base for undertsiang econometric applications.			
Course Outcomes:			**Mapped to PSO**	
	CO 1. Solve problems relating to discrete and continuous probability distributions.		PSO 2	
	CO 2. Explain random sampling and its importance in sample selection		PSO 2	
	CO 3. Connect statistical analysis with economic decision making		PSO 2	
	CO 4. Have the necessary base to study econometrics and its applications		PSO 2	
Content:		**No of hours**	**Mapped to CO**	**Cognitive Level**

Module 1:	Probability Sampling methods, Sample Space, Random Variable, Addition and multiplication theorem-Conditional Probability, Bayes Theorem, Distribution Function, Mathematical Expectation, Exploratory Data analysis: Measures of central tendency and variance. Skewness and Kurtosis.	**15**	CO1, CO2	K1,2,3,4,5
Module 2:	Probability Distributions : Discrete, Continuous and Sampling Distributions: Binomial, Poisson, Normal, Standard Normal, Student-t, Chi-Square, F distribution.	**15**	CO1, CO2	K1,2,3,4,5
Module 3:	Testing of Hypotheses: Concepts & Applications Testing of Hypothesis; Null and Alternative Hypothesis, Type I & II errors. Levels of Significance. Testing mean, proportion single and two populations. Testing t, z, F, chi-square test.	**15**	CO 3, CO 4	K1,2,3,4,5
Module 4:	Correlation & Regression: Covariance, Pearson's Correlation, Rank Correlation. Introduction to Two Variable Regression.	**15**	CO 3, CO 4	K1,2,3,4,5
Pedagogy:	● Chalk and talk aided by ICT enabled lectures ● Flipped Classroom ● PC lab exercises ● Assignments and presentations ● Group activity ● MOOC (or similar) Component			
Texts:	Core Readings 1. Mark L. Berenson, David M. Levine, Kathryn A. Szabat (2015), Basic Business Statistics, Pearson publication 2. David M. Levine, David F. Stephan, Kathryn A. Szabat, (2017) Statistics For Managers Using Ms Excel, Pearson			
References/ Readings:	Additional References 1. David Spiegelhalter (2020) The Art of Statistics: Learning from Data, Pelican Books, UK 2. David Freedman, Robert Pisani, Roger Purves (2007) Statistics, W.W. Norton, New York			

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Discipline Specific Elective (DSE) Courses

Title of the Course	Indian Economy
Course Code	ECO-5201
Number of Credits	04
Theory/Practical	Theory
Level	400
Effective from AY	2025-26
New Course	No
Bridge Course/ Value added Course	No
Course for advanced learners	No

Pre-requisites for the Course:	Nil	
Course Objectives:	To provide students a comprehensive understanding of India's economic development in recent years and to familiarize them with the growth, development, and contribution of various sectors to the Indian economy.	
Course Outcomes:		**Mapped to PSO**
	CO 1. Recall major phases and reforms in India's post-independence economy.	PSO 3, 4
	CO 2. Analyze trends and policies in agriculture, industry, and services.	PSO 3, 4
	CO 3. Evaluate India's trade structure and balance of payments.	PSO 3, 4
	CO 4. Assess debates on poverty, employment, inequality, and sustainability.	PSO 3, 4
	CO 5. Apply economic data to interpret India's development outcomes.	PSO 3, 4, 5

Content:		No of hours	Mapped to CO	Cognitive Level
Module 1:	Indian economy since independence (1947 -1990), New Economic Policy (1991) – stabilization and structural adjustment packages: fiscal reforms, financial sector reforms, and trade reforms; Role of Planning Commission and NITI Aayog, Demonetisation, GST.	**15**	CO1	K1, K2
Module 2:	Agricultural sector - Gross Value Added (GVA) trends, Allied Sectors: Animal Husbandry, Dairying, and Fisheries; Agricultural Research & Education; Food Management. Industrial sector – Gross Value Added (GVA) trends, Index of Industrial Production (IIP), Credit in Industry, FDI in Industries, Performance of Central Public Sector Enterprises, Sector Wise Performance and Issues in Industry	**15**	CO2, CO5	K3, K4
Module 3:	Services – Gross Value Added (GVA) trends, Services Sector share at the State and UT level, FDI Inflows into Services Sector, Major Services: Sub-Sector Wise Performance and Recent Policies. Developments in India's Merchandise Trade, Trade in Services, Developments In India's Balance of Payment (BOP), Initiatives Taken By Government To Boost Exports	**15**	CO3, CO5	K3, K4, K5
Module 4:	Current Debates on India's development process. Demographic dividend, Employment, Inequality, Poverty, Inflation, Sustainable Development Goals, and Climate Change.	**15**	CO4	K4, K5
Pedagogy:	● Chalk and talk aided by ICT enabled lectures ● Flipped Classroom ● PC lab exercises ● Assignments and presentations ● Group activity ● MOOC (or similar) Component			
Texts:	Core Reading 1. Banerjee, A., Gopinath, G., Rajan, R., & Sharma, M. S. (2019). What the Economy Needs Now. Juggernaut			

	Books, New Delhi 2. Economic Survey, Government of India, Ministryvof Finance, New Delhi (various issues) 3. Annual Reports and Monthly Bulletins, Reserve Bank of India, Mumbai
References/ Readings:	Additional References 1. Acharya Sankar and Rakesh Roshna (2010), India's Economy: Performance and Challenges, Oxford University Press, New Delhi. 2. Balakrishnan Pulapre (2010), Economic Growth in India: History and Prospect, Oxford University Press, New Delhi. 3. Ghate, C. (2012). The Oxford Handbook of the Indian economy. Oxford Univ. Press. New Delhi 4. Panagariya, Arvind (2010), India the emerging Giant, Oxford University Press, New Delhi 5. India Development Report, Oxford University Press, New Delhi

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Title of the Course	Indian Public Finance
Course Code	ECO-5202
Number of Credits	04
Theory/Practical	Theory
Level	400
Effective from AY	2025-26
New Course	No
Bridge Course/ Value added Course	No
Course for advanced learners	No

Pre-requisites for the Course:	Nil	
Course Objectives:	To familiarise the students with the budgetary process, documents and analyse Government's fiscal policy	
Course Outcomes:		**Mapped to PSO**
	CO 1. To understand the key components of the Government of India's annual budget, and analyze the implications of recent Union Budgets.	PSO 1, PSO 3, PSO 4, PSO 5
	CO 2. To Evaluate the principles of fiscal federalism in India, including the division of functions and finances	PSO 1, PSO 3, PSO 4, PSO 5
	CO 3. To evaluate tax and non-tax revenues and issues like tax evasion in India	PSO 1, PSO 3, PSO 4, PSO 5
	CO 4. To examine the types, trends, and effects of public expenditure in India	PSO 1, PSO 3, PSO 4, PSO 5

	CO 5. To assess deficit financing and public debt trends and their economic impact.		PSO 1, PSO 3, PSO 4, PSO 5	
	CO 6. To understand the causes, size, and consequences of the black economy in India, and evaluate the policy measures undertaken to curb it.		PSO 1, PSO 3, PSO 4, PSO 5	
Content:		**No of hours**	**Mapped to CO**	**Cognitive Level**
Module 1:	Government Budget – Meaning and steps involved in the budget formation, Assessment of the Recent Central Government Budget. Fiscal federalism in India - division of function and resources, vertical and horizontal imbalance, devolution of resources from centre to state government, criteria for transfer of resources, and the role of the finance commission. Emerging challenges in India's fiscal federalism	**15**	CO1, CO2	K1,2,3,4,5
Module 2:	Non-tax sources of revenue – types and trends, Taxes – Direct and Indirect taxes, Impact of taxation & tax evasion, Assessment of Indian tax system. Types of public expenditure and its trends, Effects of public expenditure.	**15**	CO 3, CO 4	K1,2,3,4,5
Module 3:	Deficit Financing - Meaning and Objectives, effects of deficit financing, Trends in different types of deficit finance in India. Public debt - Classifications of public debt, sources and effects of government borrowings, burden and management of public debt.	**15**	CO 5	K1,2,3,4,5
Module 4:	Black Economy – meaning, Measurement, the macroeconomic linkages, causes and consequences of the black economy, and measures undertaken by the government to curb the black economy. Estimates of the black economy in India.	**15**	CO 6	K1,2,3,4,5
Pedagogy:	● Chalk and talk aided by ICT enabled lectures ● Flipped Classroom ● PC lab exercises ● Assignments and presentations			

	● Group activity ● MOOC (or similar) Component
Texts:	Core Readings 1. Rao, M. G., & Rao, M. G. (2022). *Studies in Indian Public Finance*. Oxford University Press. 2. Kumar, A. (2017). The Black Economy in India (Updated Edition). Penguin Random House India, New Delhi
References/ Readings:	Additional References 1. Economic Survey of India (Various years), Ministry of Finance, Government of India 2. Reports of the 15th Finance Commission 3. Reports of the 14th Finance Commission 4. Reports of State Finance Commissions

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Title of the Course	Human Resource Development
Course Code	ECO-5203
Number of Credits	04
Theory/Practical	Theory
Level	400
Effective from AY	2025-26
New Course	No
Bridge Course/ Value added Course	No
Course for advanced learners	No

Pre-requisites for the Course:	Nil			
Course Objectives:	To familiarise students with designing, implementation and evaluation of HRD programmes in a corporate setting			
Course Outcomes:			**Mapped to PSO**	
	CO 1. Be able to Assess HRD needs and develop HRD programme		PSO 1, PSO 2	
	CO 2. Implement and evaluate HRD programmes		PSO 1, PSO 2	
	CO 3. Use HRD Applications		PSO 1, PSO 2	
	CO 4. Implement skills and technical training.		PSO 1, PSO 2	
Content:		**No of hours**	**Mapped to CO**	**Cognitive Level**
Module 1:	Introduction to Human Resource Development The evolution of HRD - The relationship between HRD and HRM - HRD functions - Roles of an HRD	**15**	CO1,	K1,2,3,4,5

	Professional - Challenges to HRD Influence on Employee Behaviour External influences on Employee Behaviour - Motivation: An Internal influence on Employee Behaviour - Other Internal Factors that Influence Employee Behaviour -Environmental Influences on Employee Behaviour.		CO2	
Module 2:	HRD needs and HRD Programs: Their Assessment HRD Needs: Definition and Purposes of Needs Assessment - Organisational Analysis - Task Analysis - Person Analysis - Prioritising HRD needs. Designing HRD Programs: Defining Program Objectives - Purchasing HRD Programs - Selecting the Trainer - Preparing a Lesson Plan - Selecting Training Methods	**15**	CO1, CO2	K1,2,3,4,5
Module 3:	Implementation and Evaluation of HRD Programs Implementation of HRD Programs: Training Delivery Methods – On-the-Job Training Methods - Classroom Training Methods - Scheduling the Training Program - Implementing the Training Program. Evaluation of HRD Programs: The purpose of HRD Evaluation - Models of Evaluation - Data Collection for HRD Evaluation - Research Design - Ethical Issues of Evaluation research.	**15**	CO3, CO4	K1,2,3,4,5
Module 4:	HRD Applications and Trainings HRD Applications: Introduction to Onboarding: Employee Socialization and Orientation- Socialization: The Process of Becoming an Insider-Various Perspectives on the Socialization Process -The Realistic Job Preview HRD Skills and Technical Training: Introduction - Basic Workplace Competencies- Basic Skills/Literacy ProgramsTechnical Training-Interpersonal Skills Training	**15**	CO3, CO4	K1,2,3,4,5
Pedagogy:	● Chalk and talk aided by ICT enabled lectures ● Flipped Classroom ● PC lab exercises ● Assignments and presentations ● Group activity ● MOOC (or similar) Component			
Texts:	1. Eugene Sadler-Smith (2021) Human Resource Development: From Theory into Practice, Sage Publications, UK			

	2. DeSimone R.L. & Harris D.M. (2012), Human Resource Development, Cengage Learning, U.S.A.
References/ Readings:	Additional References 1. Chalofsky, Neal E., Tonette S. Rocco, Michael Lane Morris (Eds) (2014) Handbook of Human Resource Development, John Wiley & Sons, Inc., Hoboken, New Jersey 2. Deb Tapomay (2012), Human Resource Development, Ane Books Pvt. Ltd., Mumbai. 3. Haldar U.K. (2009), Human Resource Development, OUP, New Delhi. 4. Mankin David (2009), Human Resource Development, OUP, New York. 5. Megginson D., (2001), Human resource Development, OUP, USA. 6. Rao T.V. (2010), Human Resource Development, Oxford and IBH Publishing Co.Pvt. Ltd., A6. Werner J.M., (2007), Human Resource Development,

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SEMESTER II

Discipline Specific Core (DSC) Courses

Title of the Course	Mathematics for Economic Analysis
Course Code	ECO-5004
Number of Credits	04
Theory/Practical	Theory
Level	500
Effective from AY	2025-26
New Course	No
Bridge Course/ Value added Course	No
Course for advanced learners	No

Pre-requisites for the Course:	Nil	
Course Objectives:	To learn the mathematical tools and concepts that aid in analysing economic optimisation.	
Course Outcomes:	On successful completion, students will be able to:	**Mapped to PSO**
	CO 1. Understand the foundational concepts of vectors, matrices, and set theory relevant to economic applications.	PSO2
	CO 2. Apply concepts of functions, limits, and continuity to interpret mathematical	PSO2

	relationships in economics.			
	CO 3. Solve problems involving differentiation and integration with reference to firm theory and economic growth.		PSO1, PSO2, PSO5	
	CO 4. Use mathematical optimisation techniques to analyse consumer and producer behaviour under various market structures.		PSO1, PSO2, PSO5	
Content:		**No of hours**	**Mapped to CO**	**Cognitive Level**
Module 1:	**Vectors and Matrices** Vectors, Vector Spaces, Linear Dependence, Basis. Elementary operations with Matrices, Equivalence, Determinants, Inverse of Matrix, Rank of a Matrix, Cramer's Rule. Introduction to Input-Output techniques.	**15**	CO1	K1, K2, K3, K4, K5
Module 2:	**Set Theory:** Sets, Set operations, Finite and Infinite Sets, Non denumerable sets, Cartesian Product, Relations, Functions, Ordered Sets, Linear Point Sets. **Functions & Limits:** Limit of a function, continuity, Necessary and sufficient conditions.	**15**	CO1, CO2	K1, K2, K3, K4, K5
Module 3:	**Differentiation:** Rules of differentiation: Total derivatives and Partial derivatives. Maxima and minima, points of inflexion. **Integration:** Reimann integral, Fundamental Theorem of the calculus, Techniques of integration and Definite integrals. Applications in economics: Theory of the firm (cost) & Growth	**15**	CO3	K1, K2, K3, K4, K5
Module 4:	**Optimisation:** Unconstrained & Constrained Application to economics: cost curves, demand curves, Theory of the consumer and Theory of the Firm under Perfect and Imperfect Competition.	**15**	CO4	K1, K2, K3, K4, K5

Pedagogy:	● Chalk and talk aided by ICT enabled lectures ● Flipped Classroom ● PC lab exercises ● Assignments and presentations ● Group activity ● MOOC (or similar) Component
Texts:	Core reading 1. K. Sydsaeter, P. Hammond, Strom and Carvajal (2018), Essentials of Mathematics for Economics Analysis, Pearson. Fifth Edition 2. Yu, Kam (2019) Mathematical Economics: Prelude to the Neoclassical Model, Springer, Switzerland
References/ Readings:	Additional References 1. Simon, Carl P. & L. Blume (2018) Mathematics for Economists W.W. Norton, New York 2. Chiang, A.C. and K. Wainwright (2017) Fundamental Methods in Mathematical Economic McGraw Hill, New York 3. Quandt,R. & Dusan Triska (2020) Optimal Decisions in Markets and Planned Economies, Routledge 4. Varian, Hal R. (2019) Intermediate Microeconomics With Calculus - a Modern Approach, WW Norton, NY

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Title of the Course	Economic Growth and Development
Course Code	ECO-5005
Number of Credits	04
Theory/Practical	Theory
Level	500
Effective from AY	2025-26
New Course	No
Bridge Course/ Value added Course	No
Course for advanced learners	No

Pre-requisites for the Course:	Nil	
Course Objectives:	To introduce students to the theories and empirics of growth and development and to enhance the students' knowledge of economic problems facing developing countries.	
Course Outcomes:		**Mapped to PSO**
	CO 1. Explain the concepts and indicators of economic growth and human development, and analyze inequality using various statistical measures	PSO 1, PSO 2, PSO 3,
	CO 2. Examine classical and structuralist growth theories and assess their relevance to the development process in different contexts	PSO3
	CO 3. Apply and compare different growth models	PSO 3, PSO 5
	CO 4. Analyze and critically evaluate endogenous growth models and the role of innovation and international linkages.	PSO 3

Content:		**No of hours**	**Mapped to CO**	**Cognitive Level**
Module 1:	Economic growth and Development – meaning and criteria, Measurements of development - GDP; Human development index, Per Capita Income and human development. Structural characteristics of developing countries – demographic, occupational and production, rural urban migration. Agrarian change and industrial transformation, Post-industrial society Economic inequality – meaning, Criteria for inequality measurement - Anonymity principle, Population principle, Relative income principle and the Dalton principle, The Lorenz curve, Complete measures of inequality - the range, the Kuznets ratios, the mean absolute deviation, the coefficient of variation and the Gini coefficient.	**15**	CO1	K1, K2, K3, K4, K5
Module 2:	Rostow's Stages of Growth- Big Push- Balanced and Unbalanced Growth- Critical Minimal Effort- Ranis Fei, Joan Robinson golden age theory.	**15**	CO2	K1, K2, K3, K4, K5
Module 3:	Growth models Keyneisian model: Harrod – Domar growth model, Neo-claisscal model: Solow's model of economic growth, Convergence – Conditional and Unconditional. Convergence and explaining differences in growth rates	**15**	CO3	K1, K2, K3, K4, K5
Module 4:	New growth theories Romer Model, The Final-Goods Sector, The Intermediate-Goods Sector, The Research Sector Basic Elements of the Schumpeterian Model, Growth in the Schumpeterian Model, The "AK" Model, Externalities and AK Models, Evaluating Endogenous Growth Models Role of international Trade in growth and development	**15**	CO4	K1, K2, K3, K4, K5
Pedagogy:	● Chalk and talk aided by ICT enabled lectures			

	● Flipped Classroom ● PC lab exercises ● Assignments and presentations ● Group activity ● MOOC (or similar) Component
Texts:	1. Ray, Debraj, (2010), Development Economics, OUP, Delhi. 2. de Janvry, Alain & Elisabeth Sadoulet (2021) Development Economics: Theory and Practice, Routledge, London
References/ Readings:	1. Cypher, J. M., & Dietz, J. L. (2009). The process of Economic Development,Routledge, London 2. Charles I. Jones and Dietrich Vollrath, (2013) 3. Introduction To Economic Growth, Viva Books Pvt. Ltd., New Delhi 4. Jujiro,Hayami & Godo Yoshihisa (2023) Development Economics, OUP, New Delhi Indian edition 5. Wydick, Bruce (2007) Games in Economic Development, Cambridge University Press 6. Acemoglu,Daron & James A. Robinson (2012) Why Nations Fail: The Origins of Power, Prosperity, and Poverty, Penguin Random House, NY

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Title of the Course	International Trade and Finance
Course Code	ECO-5006
Number of Credits	04
Theory/Practical	Theory
Level	500
Effective from AY	2025-26
New Course	No
Bridge Course/ Value added Course	No
Course for advanced learners	No

Pre-requisites for the Course:	Nil	
Course Objectives:	The Objectives of the course are 1. to provide the students with a theoretical and analytical understanding of international trade and finance 2. to expose the students to the factors affecting international trade, investment, exchange rate and regional trading blocs and critically evaluate their significance in the economy. 3. to provide skill sets to the students to understand the complexities involved in formulating and implementing international trade policies.	
Course Outcomes:	Upon successful completion of the course, students will be Outcomes able to:	**Mapped to PSO**
	CO 1. Understand the structure and pattern of trade based on the theories of international trade	PSO1, PSO 3, PSO 4, PSO 5
	CO 2. Understand the role of international trade in economic development	PSO1, PSO 3, PSO 4, PSO 5

	CO 3. Know the functioning of the international financial system		PSO1, PSO 3, PSO 4, PSO 5	
	CO 4. Role and function of international institutions shaping international trade and finance.		PSO1, PSO 3, PSO 4, PSO 5	
Content:		**No of hours**	**Mapped to CO**	**Cognitive Level**
Module 1:	**Theories of International Trade** Classical and Neo-Classical Models: Smith, Ricardo, Heckscher-Ohlin, Specific factors model, Stolper-Samuelson, Rybczynski theorem,and Factor Price Equalization Theorems; Empirical Evidence - the Leontief Paradox. New Theories: Economies of scale, Imperfect competition trade based on product differentiation and intra-industry trade, dynamic technological differences-product cycle model and Technology-Gap Models.	**15**	CO1, CO2, CO3, CO4	K1, K2, K3, K4, K5
Module 2:	**Trade Policy Free trade and protection;** Trade restriction-Tariffs (Partial and general equilibrium analysis), optimum tariff; Non –tariff barriers: Quotas, Voluntary export restraints, international cartels, dumping, export subsidies. Free Trade Areas versus Customs Union, Trade Creation and Trade Diversion under custom union; Static and dynamic benefit of regional integration, WTO and trade policy reforms in India	**15**	CO1, CO2, CO3, CO4	K1, K2, K3, K4, K5
Module 3:	**Balance of Payments** The balance of payments: concepts and measurement – balance of trade and transfers, current and capital accounts – deficits and surpluses – national income and balance of payments. Balance of payments adjustments: types and causes of disequilibrium income approach, foreign trade multiplier, price approach, exchange rate changes, Marshall–Lerner condition of devaluation, empirical measurement of import and export demand elasticities, elasticity and absorption approaches, monetary approach and the terms of trade	**15**	CO1, CO2, CO3, CO4	K1, K2, K3, K4, K5

Module 4:	**International money and foreign exchange market** Spot and forward market, demand and supply of foreign exchange, purchasing power parity theory, exchange rates (nominal, effective, real and shadow) The international capital market: nature and characteristics, Eurocurrency markets, international financial risk management, international capital movements, commercial borrowings of developing countries, external debt management, transfer problem.	**15**	CO1, CO2, CO3, CO4	K1, K2, K3, K4, K5
Pedagogy:	● Chalk and talk aided by ICT enabled lectures ● Flipped Classroom ● PC lab exercises ● Assignments and presentations ● Group activity ● MOOC (or similar) Component			
Texts:	1. Salvatore, Dominick, International Economics, PrenticeHall, 13th Edition (2019), John Wiley & Sons.(Latest Edition) 2. Robert C. Feenstra & Alan M. Taylor (2021), Fifth Edition, International Trade, Worth Publishers.(Latest Edition)			
References/ Readings:	1. Paul R. Krugman, Maurice Obstfeld, and Marc Melitz (2017), International Finance: Theory and Policy, 11th Edition, Pearson. 2. E. Helpman (2011) Understanding Global Trade, Harvard Univesity Press, MA 3. Giancarlo Gandolfo (2014) International Trade Theory and Policy, Springer-Verlag International Edition. 4. Keith Pilbeam (2013) International Finance, Palgrave Macmillan, Fourth Edition.			
Web Resources:	1. https://www.learning.wto.org/ 2. https://tradecouncil.org/further-education/ 3. https://www.uclaextension.edu/business-management/international-trade-commerce/course/fundamentals-international-trade-mgmt-x 4. https://learn.saylor.org/course/view.php?id=795			

	5. https://www.iif.com/

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Title of the Course	Introduction to Econometrics
Course Code	ECO-5007
Number of Credits	04
Theory/Practical	Theory
Level	500
Effective from AY	2025-26
New Course	No
Bridge Course/ Value added Course	No
Course for advanced learners	No

Pre-requisites for the Course:	Basic knowledge of Statistics and preferably an exposure to Mathematical methods in Economics	
Course Objectives:	To provide students exposure to regression analysis with crosssection data.	
Course Outcomes:		**Mapped to PSO**
	CO 1. Develop econometric models using cross-section data	PSO 1, PSO 2, PSO 3, PSO 4, PSO 5
	CO 2. Differentiate between functional forms and their implications of econometric estimates	PSO 1, PSO 2, PSO 3, PSO 4, PSO 5
	CO 3. Explain the limitations of simple and multiple linear regression models	PSO 1, PSO 2, PSO 3, PSO 4, PSO 5
	CO 4. Draw policy implications to help decision makers.	PSO 1, PSO 2, PSO 3, PSO

			4, PSO 5	
Content:		**No of hours**	**Mapped to CO**	**Cognitive Level**
Module 1:	Econometrics and Economic Data The Structure of Economic Data; Cross-Sectional Data; Time Series Data; Pooled Cross Sections; Panel or Longitudinal Data; Causality in Econometric Analysis The Simple Regression Model Ordinary Least Squares Estimates and Properties, Goodness-of-Fit, Functional Form; Incorporating Nonlinearities, Expected Values and Variances of Estimators; Unbiasedness, Estimating the Error Variance	**15**	CO1, CO2	K1,2,3,4,5
Module 2:	Multiple Regression Analysis: Estimation The Model with Two or more Independent Variables, Interpretation Comparison of Simple and Multiple Regression, Omitted Variable Bias, Multicollinearity; Variances in Misspecified Models, Efficiency of OLS: The Gauss-Markov Theorem Multiple Regression Analysis: Inference Testing Hypotheses of single and Multiple Linear Restrictions: The F Test; Testing Exclusion Restrictions; Relationship between F and t Statistics; The F Statistic for Overall Significance of a Regression, Reporting Regression Results	**15**	CO1, CO2	K1,2,3,4,5
Module 3:	Multiple Regression Analysis: OLS Asymptotics Consistency; Deriving the Inconsistency in OLS; Asymptotic Normality and Large Sample Inference; Other Large Sample Tests: The Lagrange Multiplier Statistic; Asymptotic Efficiency of OLS Multiple Regression Analysis: Further Issues More on Functional Form; Models with Interaction Terms; Adjusted R-Squared; Prediction and Residual Analysis; Confidence Intervals for Predictions; Residual Analysis Multiple Regression Analysis with Qualitative Information: Binary (or Dummy) Variables Describing Qualitative Information; A Single Dummy Independent Variable; Interactions among Dummy Variables; Allowing for Different Slopes; Binary Dependent Variable: The Linear Probability Model; More on Policy Analysis and Program Evaluation; Interpreting Regression Results	**15**	CO3, CO4	K1,2,3,4,5

	with Discrete Dependent Variables			
Module 4:	Heteroskedasticity Consequences of Heteroskedasticity for OLS; Heteroskedasticity-Robust Inference, Testing for Heteroskedasticity; Feasible GLS More on Specification and Data Issues Functional Form Misspecification; RESET as a General Test Using Lagged Dependent Variables as Proxy Variables; Measurement Error in an Explanatory Variable; Missing Data, Nonrandom Samples, and Outlying Observations; Missing Data; Nonrandom Samples; Outliers and Influential Observations; Least Absolute Deviations Estimation	**15**	CO3, CO4	K1,2,3,4,5
Pedagogy:	● Chalk and talk aided by ICT enabled lectures ● Flipped Classroom ● PC lab exercises ● Assignments and presentations ● Group activity ● MOOC (or similar) Component			
Texts:	Core Readings 1. Wooldridge (2019), Introductory Econometrics, 7th edition, South Western College Publishing, Singapore. Additional References			
References/ Readings:	1. Florian Heiss (2020) Using R for Introductory Econometrics, 2nd edition; Germany, ISBN: 979-8648424364 2. Florian Heiss and Daniel Brunner (2020) Using Python for Introductory Econometrics, 1st edition, Germany, ISBN: 9798648436763 3. Angrist,,Joshua D. & Jörn-Steffen Pischke (2009) Mostly Harmless Econometrics, Princeton University Press, Princeton			

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Discipline Specific Elective (DSE) Courses

Title of the Course	Labour Economics
Course Code	ECO-5204
Number of Credits	04
Theory/Practical	Theory
Level	400
Effective from AY	2025-26
New Course	No
Bridge Course/ Value added Course	No
Course for advanced learners	No

Pre-requisites for the Course:	Nil	
Course Objectives:	To develop students' abilities in acquiring a better understanding of the functioning of labour market.	
Course Outcomes:		**Mapped to PSO**
	CO 1. Understand various issues related to labour demand and supply	PSO 1, PSO 2, PSO 3, PSO 4, PSO 5
	CO 2. Explain various theories of labour market functioning.	PSO 1, PSO 2, PSO 3, PSO 4, PSO 5
	CO 3. Explain Labour productivity and impact of technology	PSO 1, PSO 2, PSO 3, PSO 4, PSO 5

	CO 4. Understand the role of institutions on wage determination		PSO 1, PSO 2, PSO 3, PSO 4, PSO 5	
Content:		**No of hours**	**Mapped to CO**	**Cognitive Level**
Module 1:	The Supply of Labour and Demand for Labour Supply of labour by an individual, by a household to an economy – A Household model of labour supply – A bargaining model of family labour supply – Changes in work participation over time: Labour force growth during recessions: The Added Worker Effect-The Discouraged Worker Effect - Classical Theory of Job Choice - Modern Theory in terms of investment in Human Capital - Migration. The Demand for Labour in the short run and long run - Elasticity of demand for labour	**15**	CO1, CO2	K1,2,3,4,5
Module 2:	The Labour Market and Theories of Labour Market Discrimination Definition of the labour market – Differences between Labour Markets and Commodity Markets - Labour Market Structure: Structured Labour markets- Unstructured Labour Markets-Internal and External Labour markets; Primary and Secondary Labour Markets. Theories of Labour Market Discrimination: Types of discrimination – Taste-for- discrimination model. Market Power: The Monopsony model – Theory of Statistical discrimination – The Crowding model.	**15**	CO1, CO2	K1,2,3,4,5
Module 3:	Employment Employment- Concept; Types of unemployment – The measurement of unemployment – Causes of unemployment: Job Search (The Stigler model, The McCall model)-Rigid Wages, Efficiency wages. Present Employment Scenario at the National and International level.	**15**	CO3, CO4	K1,2,3,4,5
Module 4:	Wage Determination and Productivity Concept Wage determination in a perfectly competitive market and Monopsony market – Minimum wage: Minimum wage in a perfectly competitive market and in a monopsony market. The minimum wage and efficiency wage theory. Segmentation and Dual Labour Market Theory. Productivity Concept - Measurement – Importance of productivity increases - Factors influencing labour productivity - Productivity	**15**	CO3, CO4	K1,2,3,4,5

	and inflation - Productivity and employment.			
Pedagogy:	● Chalk and talk aided by ICT enabled lectures ● Flipped Classroom ● PC lab exercises ● Assignments and presentations ● Group activity ● MOOC (or similar) Component			
Texts:	1. Borjas G.J. (2015), Labour Economics, McGraw-Hill, New York. 2. McConnell, C.R, S.L.Brue and Macpherson, (2010), Contemporary Labour Economics, McGraw Hill Irwin, New York.			
References/ Readings:	1. Cahuc Pierre, Zylberberg A., (2014), Labour Economics, Mit Press, USA. 2. Ehrenberg R., (2017), Modern Labour Economics Theory and Public Policy, Routledge, U.S.A. 3. Jacobson J., Skillman G., (2002), Labour Markets and Employment Relationships: A Comprehensive Approach. 4. Kaufman B.E. and Hotchkiss J.L. (2006), Labour Market Economics, Cengage Learning, India. 5. Smith S.W. (2003), Labour Economics, Routledge, London. 6. Bauder Harold (2006), Labour Movement: How Migration Regulates Labour Markets? OUP, USA			

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Title of the Course	Goan Economy
Course Code	ECO-5205
Number of Credits	04
Theory/Practical	Theory
Level	400
Effective from AY	2025-26
New Course	Yes
Bridge Course/ Value added Course	No
Course for advanced learners	No

Pre-requisites for the Course:	NIL	
Course Objectives:	To provide the students with a comprehensive knowledge of the demographic features, sectoral dynamics and development challenges of the Goan Economy.	
Course Outcomes:		**Mapped to PSO**
	CO 1. Analyse the demographic features, human development indicators and income structure of Goa	PSO 1, PSO 3
	CO 2. Interpret Goa's SDG performance and assess its progress towards inclusive and sustainable development.	PSO 3, PSO 5
	CO 3. Analyze agricultural productivity, land use patterns, and the impact of credit and schemes on Goa's agricultural sector.	PSO 2, PSO 3, PSO 5
	CO 4. Assess Goa's Industrial sector with a focus on MSMEs, emerging industries, and	PSO 2, PSO 3, PSO 5

	industrial finance.			
	CO 5. Evaluate the structural composition and growth of Goa's services sector and the role of institutional frameworks.		PSO 2, PSO 3, PSO 5	
	CO 6. Understand the trends in Goa's public finance, including centre-state transfers, local governance, and fiscal indicators.		PSO 2, PSO 3, PSO 5	
Content:		**No of hours**	**Mapped to CO**	**Cognitive Level**
Module 1:	**Overview of the Goan Economy** Demographic features: population growth, density, age structure, migration patterns. Human Development and Quality of Life Indicators: literacy, life expectancy, infant mortality, Gender ratio State Income: GSDP/NSDP, GSVA by sector (Primary, Secondary, Tertiary), PCI, Issues of Employment Environment: forest cover, rivers, biodiversity, coastline, (key environmental issues and resource challenges) Challenges: mining-related degradation, coastal erosion, pollution Goa's performance in SDG India Index	**15**	CO1, CO2	K1, K2
Module 2:	**Agriculture, allied sectors and Industry** Land Use and Cropping Patterns, Agricultural Productivity and Inputs, Agricultural Credit, Challenges in Agriculture**,** Agricultural Policies and Schemes. Horticulture, Forestry, Fishing. Schemes for Rural Development- National Rural Livelihood Mission **Industry** Sectoral Composition and Trends, Emerging sectors: IT, electronics, biotechnology. Micro, Small and Medium Enterprises (MSMEs)- Growth and challenges, Industrial Finance, Industrial Policy, Infrastructure pressures and land use conflicts	**15**	CO3, CO4	K2, K3, K4
Module 3:	**Services**	**15**	CO5	K3, K5

	Growth and Structural composition of the service sector-Tourism, Banking and Finance, Health, Education and Skill Development, Real Estate and Urban Services. Institutional and Policy Framework, Challenges in the Service Sector.			
Module 4:	**State Public Finance** Centre-State financial devolution, Major sources of revenue: tax and non-tax revenues, Expenditure Patterns and Development Priorities, Goa's Public Debt, Fiscal deficit, revenue deficit, primary deficit trends, Trends in grants-in-aid from the Centre, State Finance Commissions, Overview of Local Governance in Goa, Own revenue sources of panchayats and ULBs	**15**	CO6	K4, K5
Pedagogy:	● Chalk and talk aided by ICT enabled lectures ● Flipped Classroom ● PC lab exercises ● Assignments and presentations ● Group activity ● MOOC (or similar) Component			
Texts:	1. Government of India. (2011). *'Goa Development Report.'* Academic Foundation, Planning Commission. 2. *Economic Survey* (Various Issues) Directorate of Planning, Statistics & Evaluation. Government of Goa 3. NCAER (1962) Techno-economic survey of Goa, Daman and Diu, NCAER, New Delhi			
References/ Readings:	1. GoG. (2008, September). *Goa At Glance*. Directorate of Planning, Statistics and Evaluation. 2. Rajan,S. Irudaya & K. C. Zachariah (2011) Impact of Emigration and Remittances on Goan Economy, in India Migration Report 2011, edited by S. Irudaya Rajan, Routledge India 3. CAG (2024) Performance Audit on Public Health infrastructure and Management of Health Services in Goa, Comptroller and Auditor General of India, Government of India https://cag.gov.in/en/audit-report/details/120344 4. GoG (2024) State finances audit report of the Comptroller and Auditor General of India for the year ended 31 march 2023, Comptroller and Auditor General of India, Government of India, https://cag.gov.in/ag/goa/en/audit-report/details/120334 5. Alvares, Claude (2002) Fish Curry And Rice, Goa Foundation, Mapusa, https://goafoundation.org/publications/			

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Title of the Course	Indian Economic Thought
Course Code	ECO-5206
Number of Credits	04
Theory/Practical	Theory
Level	400
Effective from AY	2025-26
New Course	Yes
Bridge Course/ Value added Course	No
Course for advanced learners	No

Pre-requisites for the Course:	Nil	
Course Objectives:	Provide a synoptic view of the contributions of Indian economists in important areas of economics.	
Course Outcomes:		**Mapped to PSO**
	CO 1. Recognise the important contributions of Indian economists to the domain of knowledge	PSO 1, PSO 3, PSO 4
	CO 2. Understand the intellectual contributions of economists to public policy.	PSO 1, PSO 3, PSO 4
	CO 3. Assess the linkage between Indian developmental challenges and potential alternative solutions as conceived by Indian economists	PSO 1, PSO 3, PSO 4
	CO 4. Critically analyse the similarities and differences between Indian and Western Knowledge systems in the field of Economics	PSO 1, PSO 3, PSO 4

Content:		**No of hours**	**Mapped to CO**	**Cognitive Level**
Module 1:	**Ethics, Equity and Welfare** Early contributions – Vedic ideas, Buddha, Bhagwan Mahavir; Early and mid-twentieth Century debates – Gandhi, Ambedkar, Dandekar, Gadgil, Ranade, Gokhale; Late-Twentieth century and early 21st century-Amartya Sen, Partha Dasgupta, Abhijit Banerjee	**15**	CO1, CO2, CO3, CO4	KO1,2,3,4,5
Module 2:	**Economy and Public Policy** Early contributions – Kautilya; Early and mid-twentieth Century debates – VKRV Rao, KN Raj, P.R. Brahmananda; M.L. Dantwala Late-Twentieth century and early 21st century– Sukhomoy Chakravarty, Manmohan Singh, Dreze,	**15**	CO1, CO2, CO3, CO4	KO1,2,3,4,5
Module 3:	**Industrialization and Development** Early contributions – Kautilya; Early and mid-twentieth Century debates – Gandhi, Mahalanobis, Gadgil, Ranade, Dada Bhai Nauroji, Bombay Plan; Late-Twentieth century and early 21st century– Amit Bhaduri, Krishna Bharadwaj, Ashok Rudra	**15**	CO1, CO2, CO3, CO4	KO1,2,3,4,5
Module 4:	**International Trade** Early contributions – Kautilya; Early and mid-twentieth Century debates – Ambedkar; Gandhi, JC Kumarappa Late-Twentieth century and early 21st century– Bhagwati, TN Srinivasan, Avinash Dixit, Prabhat Patnaik	**15**	CO1, CO2, CO3, CO4	KO1,2,3,4,5

Pedagogy:	● Chalk and talk aided by ICT enabled lectures ● Flipped Classroom ● PC lab exercises ● Assignments and presentations ● Group activity ● MOOC (or similar) Component
Texts:	1. Dasgupta, Ajit Kumar. 2002. *History of Indian Economic Thought*. The Routledge History of Economic Thought. London New York: Routledge.
References/ Readings:	1. Ambedkar, B. R. 1923. *The Problem of the Rupee*. Westminster: P. S. King & Son Ltd. https://archive.org/details/in.ernet.dli.2015.84521/page/n3/mode/2up. 2. Ambirajan, S. 1999. "Ambedkar's Contributions to Indian Economics." *Economic and Political Weekly* 34 (46/47): 3280–85. https://www.jstor.org/stable/4408623. 3. Barua, Ankur. 2019. "Revisiting the Gandhi–Ambedkar Debates over 'Caste': The Multiple Resonances of Varṇa." *Journal of Human Values* 25 (1): 25–40. https://doi.org/10.1177/0971685818805328. 4. Bhaduri, Amit. 2005. *Development with Dignity: A Case for Full Employment*. 1. edition. Popular Social Science. New Delhi: National Book Trust, India. 5. Bharadwaj, Krishna. 1986. *Classical Political Economy and Rise to Dominance of Supply and Demand Theories*. 2., rev. Ed. London: Sangam Books. 6. Brahmananda, P.R. 1973. *Explorations in the New Classical Theory of Political Economy and A Connected Critique of Economic Theory*. Mumbai: Allied Publishers. 7. Cassan, Guilhem. 2024. "The Economics of Caste." In *The Oxford Handbook of Caste*, edited by Surinder S. Jodhka and Jules Naudet, 1st ed., 573–85. Oxford University Press. https://doi.org/10.1093/oxfordhb/9780198896715.013.39. 8. Dandekar. 1994. "Role of Economic Planning in India in the 1990s and Beyond." *Economic and Political Weekly* 29 (24). https://www.epw.in/journal/1994/24/special-articles/role-economic-planning-india-1990s-and-beyond.html. 9. ———. 2003. *Gandhi's Economic Thought*. London: Routledge, Taylor & Francis Group. https://www.routledge.com/Gandhis-Economic-Thought/Dasgupta/p/book/9781138006799. 10. Dixit, Avinash, and Victor Norman. 1980. *Theory of International Trade: A Dual, General Equilibrium Approach*. 1st ed. Cambridge University Press. https://doi.org/10.1017/CBO9780511628627.

11. Gadgil, D.R. 1961. "An Approach to Indian Planning." *Economic and Political Weekly* 13 (27-28–29).
12. Gandhi, Rajmohan. 2015. "Independence and Social Justice: The Ambedkar–Gandhi Debate." *Economic and Political Weekly* 50 (15): 35–44. https://www.jstor.org/stable/24481885.
13. Ghate, Chetan, Pawan Gopalakrishnan, and Srishti Grover. 2022. *The Mahalanobis Growth Model: A Macrodynamics Approach*. Singapore: Springer Nature. https://doi.org/10.1007/978-981-16-8980-2.
14. Manne, Alan S., Ashok Rudra, Pushpam Paul Koola, Vinod Prakash, A. V. Ramsunder, V. C. Sabherwal, M. R. Saluja, and H. C. Sharma. 1965. "A Consistency Model of India's Fourth Plan." *Sankhyā: The Indian Journal of Statistics, Series B (1960-2002)* 27 (1/2): 57–144. https://www.jstor.org/stable/25051534.
15. Nayak, Pulin B. 2017. "A K Dasgupta on Gandhi and the Economies of Austerity." *Economic and Political Weekly* 52 (50): 40–45. https://www.jstor.org/stable/45132598.
16. Patnaik, Prabhat. 2018. "Gandhi, Technology and Employment." *Social Scientist* 46 (11–12): 27–36. https://www.jstor.org/stable/26599996.
17. Puri, Bindu. 2022. *The Ambedkar–Gandhi Debate: On Identity, Community and Justice*. Singapore: Springer Nature Singapore. https://doi.org/10.1007/978-981-16-8686-3.
18. Raj, K.N. 1973. "The Politics and Economics of 'Intermediate Regimes.'" *Economic and Political Weekly* 8 (27): 198–198.
19. Rao, Jaithirth. 2021. *Economist Gandhi: The Roots and the Relevance of the Political Economy of the Mahatma*. Gurugram, Haryana: Portpolio/Penguin, an imprint of Penguin Random House.
20. Rao, V. K. R. V. 1952. "Investment, Income and the Multiplier in an Under-Developed Economy." *Indian Economic Review* 1 (1): 55–67. https://www.jstor.org/stable/45149597.
21. Rao, V.K.R.V. 1940. *THE NATIONAL INCOME OF BRITISH INDIA, 1931-1932*. London: Macmillan. https://archive.org/details/in.ernet.dli.2015.50060/page/n5/mode/2up?view=theater.
22. Rudra, Ashok. 1991. "Privatisation and Deregulation." *Economic and Political Weekly* 26 (51): 2933–36. https://www.jstor.org/stable/41625455.

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Title of the Course	Behavioural Economics
Course Code	ECO-5207
Number of Credits	04
Theory	Theory
Level	400
Effective from AY	2025-26
New Course	Yes
Bridge Course/ Value added Course	No
Course for advanced learners	No

Pre-requisites for the Course:	Basic understanding of microeconomic theory and principles of decision-making.	
Course Objectives:	1. To understand the limits of traditional economic models of rational choice. 2. To study key behavioural biases and heuristics that shape economic decisions. 3. To evaluate the consequences of these deviations for markets, policy, and welfare. 4. To develop the ability to compare and contrast descriptive (behavioural) and normative (neoclassical) theories. 5. To equip students with conceptual tools for analysing real-world decision-making under scarcity.	
Course Outcomes:		**Mapped to PSO**
	CO 1. How people actually make decisions and why they often deviate from "perfectly rational" models.	PSO1,3,4

	CO 2. The main concepts of behavioural economics include heuristics, biases, prospect theory, and intertemporal choice.		PSO1,2,3,4	
	CO 3. How psychological factors influence individual and market behaviour under risk and uncertainty.		PSO1,2, 3,4	
	CO 4. How behavioural insights can be applied to design better policies, interventions, and welfare-improving strategies.		PSO1,2,3,4,5	
Content:		**No of hours**	**Mapped to CO**	**Cognitive Level**
Module 1:	**Foundations of Behavioural Economics** **Evolution & Scope:** History, nature, and growth of behavioural economics **Interdisciplinary Links:** Psychology, neuroscience, and sociology **Core Concepts:** Objectives, scope, and structure of the field **Methodology:** Theories, evidence, and consilience **Standard Model of Choice:** Rational choice, axioms, and assumptions **Utility & Preferences:** Types of utility, revealed preference, and limitations **Neuroscientific Basis:** Brain mechanisms and decision processes **Descriptive vs. Normative:** Bounded rationality and policy relevance	**15**	CO1,CO2, CO3, CO4	K1, K2, K3, K4, K5
Module 2:	**Beliefs, Biases & Risk Behaviour** **Beliefs & Judgments:** Formation of beliefs, probability estimation **Heuristics & Biases:** Availability, representativeness, anchoring, overconfidence **Irrationality Causes:** Emotional, cognitive, and contextual factors **Risk & Uncertainty:** Expected Utility Theory (EUT) and its anomalies **Prospect Theory:** Loss aversion, reference dependence, diminishing sensitivity **Policy Insights:** Applications of prospect theory **Mental Accounting:** Concept, mechanisms, and policy implications	**15**	CO1,CO2, CO3, CO4	K1, K2, K3, K4, K5
Module 3:	**Intertemporal Choice & Time Preferences Discounted Utility Model:** Origins, structure, and key assumptions	**15**	CO1,CO2, CO3, CO4	K1, K2, K3, K4,

	Anomalies: Preference reversals, impatience, dynamic inconsistency **Alternative Models:** Hyperbolic, quasi-hyperbolic, and time-inconsistent preferences **Determinants:** Psychological and contextual influences on time preference **Modified Utility Functions:** Adjustments to capture real-world behaviour **Policy Applications:** Savings behaviour, commitment devices, and nudges			K5
Module 4:	**Strategic Interaction, Social Preferences & Welfare** **Behavioural Game Theory:** Nature, equilibrium, bounded rationality **Strategic Behaviour:** Bargaining, signalling, and learning Social Preferences: Fairness, reciprocity, inequality aversion, altruism **Models of Social Preferences:** Inequality-aversion and reciprocity models **Behavioural Welfare Economics:** Nudges, choice architecture, libertarian paternalism **Applications & Future Directions:** Behavioural policy, finance, and development	**15**	CO1, CO2, CO3, CO4	K1, K2, K3, K4, K5
Pedagogy:	Chalk and talk aided by ICT enabled lectures ● Flipped Classroom ● PC lab exercises ● Assignments and presentations ● Group activity ● MOOC (or similar) Component			
Texts:	Core Readings 1. Angner, E. (2016). *A course in behavioral economics* (2nd ed.). Palgrave Macmillan. 2. Cartwright, E. (2018). *Behavioral economics* (3rd ed.). Routledge.			
References/ Readings:	Additional references 1. Ackert, L. F., & Deaves, R. (2010). *Behavioral finance: Psychology, decision-making, and markets*. South-Western Cengage Learning.			

	2. Akerlof, G. A., & Shiller, R. J. (2009). *Animal spirits: How human psychology drives the economy, and why it matters for global capitalism*. Princeton University Press.

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Title of the Course	Industrial Economics
Course Code	ECO-5208
Number of Credits	02
Theory	Theory
Level	400
Effective from AY	2025-26
New Course	Yes
Bridge Course/ Value added Course	NO
Course for advanced learners	NO

Pre-requisites for the Course:	Basic understanding of microeconomics and business fundamentals.	
Course Objectives:	1. To understand the scope, nature, and importance of Industrial Economics in analyzing industry behaviour and performance. 2. To study different market structures and their implications for competition and efficiency. 3. To examine industrial concentration, location patterns, and the role of finance in industrial development. 4. To evaluate the impact of productivity, technology, R&D, and innovation on industrial growth. 5. To analyze India's industrial policy reforms, sectoral growth experiences, and the influence of globalization and competition laws.	
Course Outcomes:		**Mapped to PSO**

	CO1. Understand the structural and organizational aspects of industries.		PSO1, PSO2, PSO3	
	CO2. Analyze the impact of market structures and government policies on industry.		PSO1, PSO2, PSO4	
	CO3. Evaluate industrial growth trends, financial sources, and productivity issues.		PSO1, PSO2, PSO3, PSO4, PSO5	
	CO4. Apply theoretical frameworks to case studies of Indian industries.		PSO1, PSO2, PSO3, PSO4, PSO5	
Content:		**No of hours**	**Mapped to CO**	**Cognitive Level**
Module 1:	**Foundations, Market Structures & Industrial Dynamics Foundations of Industrial Economics** Scope, nature, and importance of Industrial Economics Market Structures: Perfect competition, Monopoly, Monopolistic competition, Oligopoly Structure–Conduct–Performance (SCP) Paradigm **Market Concentration & Industrial Location** Measurement of Market Concentration: Herfindahl Index, Concentration Ratio Theories of Industrial Location: Weber's theory, Sargent Florence **Industrial Finance & Institutions** Sources of Industrial Finance: Equity, Debt, Retained Earnings Institutional Support: IFCI, SIDBI, EXIM Bank, NABARD Case study/examples of industrial financing	**15**	CO1, CO2, CO3, CO4	K1, K2, K3, K4, K5
Module 2:	**Productivity, Policy & Industrial Growth in India Productivity, Technology & Innovation** Industrial Productivity: Concepts, determinants, measurement basics Role of Technology, R&D, and Innovation in Industrial Development Trends in technology adoption and innovation management **Industrial Growth & Policy in India**	**15**	CO1, CO2, CO3, CO4	K1, K2, K3, K4, K5

	Evolution of India's Industrial Policy Sectoral Case Studies like Steel, Pharma, Gems and Jewellery, Textiles Industrial Sickness and Restructuring Globalization & Competition Policy: WTO and Competition Act in India Emerging challenges and opportunities for Indian industries, Role, place and structure of MSMEs			
Pedagogy:	Chalk and talk aided by ICT enabled lectures ● Flipped Classroom ● PC lab exercises ● Assignments and presentations ● Group activity ● MOOC (or similar) Component			
Texts:	Core readings Roger Ware, Church, J. R., & Ware, R. (2000). *Industrial Organization: a Strategic approach*. The McGraw-Hill Companies, Inc. https://jigjids.wordpress.com/wp-content/uploads/2011/02/indorg_strappoach.pdf			
References/ Readings:	Additional references 1. Devine, P. J., Lee, N., Jones, R. M., & Tyson, W. J. (2018). An Introduction to Industrial Economics. In *Routledge eBooks*. https://doi.org/10.4324/9781351244633 2. Juhász, R., Lane, N., & Rodrik, D. (2024). The new economics of industrial Policy. *Annual Review of Economics*, *16*(1), 213–242. https://doi.org/10.1146/annurev-economics-081023-024638			

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Title of the Course	Bayesian Statistics (Theory)
Course Code	ECO-5209
Number of Credits	01
Theory/Practical	Theory
Level	400
Effective from AY	2025-26
New Course:	Yes
Bridge Course/ Value added Course:	No
Course for advanced learners:	No

Pre-requisites for the Course:	Basic understanding of Mathematics and Statistics.	
Course Objectives:	To provide a solid foundation in Bayesian inference and equip students with practical skills for building and interpreting Bayesian models using modern computational tools, in the context of analytical and predictive tasks.	
Course Outcomes:		**Mapped to PSO**
	CO 1. Understand the foundation of Bayesian reasoning, express uncertainty using probability distributions, and	PSO 1, 2, 5

	CO 2. Apply Bayes' theorem to update prior beliefs with observed data.		PSO 1, 2, 5	
	CO 3. Estimate and interpret parameters using computational methods in R.		PSO 2, 5	
	CO 4. Perform Bayesian hypothesis testing and make informed decisions about model certainty and effect size.		PSO 2, 5	
Content:		**No of hours**	**Mapped to CO**	**Cognitive Level**
Module 1:	**Bayesian Foundations, Probability, and Core Estimation:** Foundations & Probability: Introduction to Bayesian thinking (intuition vs. logic). Measuring uncertainty (odds, counting). Probability rules (joint, marginal, conditional). Core Distributions & Bayes' Rule: Binomial distribution (fixed trials). The Beta distribution (modeling priors and posteriors). Formalizing Bayes' Theorem (Prior, Likelihood, Posterior).	**08**	CO1, CO2	K1, K2, K3, K4
Module 2:	**Intermediate Inference, Modeling, and Decision Making:** Sampling for Complex Models: Incorporating prior beliefs for better estimates. Sampling methods: convergence indicators (run-in period, visual checks). The concept of approximating a distribution with a sample (ESS). Bayesian Hypothesis Testing: Building an A/B Test (Monte Carlo simulation in R). Comparing hypotheses using Posterior Odds and the Bayes Factor (BF). Parameter estimation vs. Model comparison framework.	**07**	CO2, CO3, CO4	K3, K4, K5
Pedagogy:	● Chalk and talk aided by ICT enabled lectures			

	● PC lab exercises ● Assignments and presentations ● Group activity ● E-resources
Texts:	Core readings 1. Kruschke, J. K. (2014). *Doing bayesian data analysis: A tutorial with R, JAGS, and Stan* (2nd ed.). Academic Press. 2. Kurt, W. (2019). *Bayesian statistics the fun way: Understanding statistics and probability with Star Wars, LEGO, and rubber ducks*. No Starch Press.
References/ Readings:	Additional references 1. Mann, P.S. (2016). *Introductory Statistics*, Latest Edition, Wiley. 2. Grimmett, G., & Welsh, D. (2014). Probability: An introduction (2nd ed.). Oxford University Press.

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Title of the Course	Bayesian Statistics (Practical)
Course Code	ECO-5210
Number of Credits	01
Theory/Practical	Practical
Level	400
Effective from AY	2025-26
New Course	Yes
Bridge Course/ Value added Cours e	No
Course for advanced learners	No

Pre-requisites for the Course:	Basic understanding of Mathematics and Statistics and ECO-5209 (Bayseian Statistics, Theory).	
Course Objectives:	To provide a practical exposure to Bayesian inference and equip students with practical skills for building and interpreting Bayesian models using modern computational tools, in the context of analytical and predictive tasks.	
Course Outcomes:		**Mapped to PSO**
	CO1. Understand the foundation of Bayesian reasoning, express uncertainty using probability distributions, and	PSO 1, 2, 5
	CO2. Apply Bayes' theorem to update prior beliefs with observed data.	PSO 1, 2, 5

	CO3. Estimate and interpret parameters using computational methods in R.		PSO 2, 5	
	CO4: Perform Bayesian hypothesis testing and make informed decisions about model certainty and effect size.		PSO 2, 5	
Content:		**No of hours**	**Mapped to CO**	**Cognitive Level**
Module 1:	**Bayesian Foundations, Probability, and Core Estimation:** **Practical**: Parameter Estimation Tools: Estimating central tendency (mean, expectation). Quantifying and visualizing spread (Variance, SD). Normal and t-Distributions. Practical tools: PDF, CDF, and Quantile functions in R.	**15**	CO1, CO2	K1, K2, K3, K4
Module 2:	**Intermediate Inference, Modeling, and Decision Making:** **Practical:** Applied Modeling & Decision Rules: Simple linear regression (Bayesian approach). Interpreting uncertainty: Credible Intervals and Effect Size. Introduction to generalized sampling methods in R.	**15**	CO2, CO3, CO4	K3, K4, K5
Pedagogy:	● Chalk and talk aided by ICT enabled lectures ● PC lab exercises ● Assignments and presentations ● Group activity ● E-resources			
Texts:	Core readings 1. Kruschke, J. K. (2014). *Doing bayesian data analysis: A tutorial with R, JAGS, and Stan* (2nd ed.). Academic Press. 2. Kurt, W. (2019). *Bayesian statistics the fun way: Understanding statistics and probability with Star Wars, LEGO, and rubber ducks*. No Starch Press.			
References/ Readings:	Additional references			

	1. Mann, P.S. (2016). *Introductory Statistics*, Latest Edition, Wiley. 2. Grimmett, G., & Welsh, D. (2014). Probability: An introduction (2nd ed.). Oxford University Press.

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Title of the Course	Sustainable Development and Resource Management
Course Code	ECO-5211
Number of Credits	03
Theory/Practical	Theory
Level	400
Effective from AY	2025-26
New Course	Yes
Bridge Course/ Value added Course	No
Course for advanced learners	No

Pre-requisites for the Course:	Nil	
Course Objectives:	1. Introduce the ideas of Sustainable Development and resource management for a developing world. 2. Explain the goals and targets of UN's Sustainable Development Goals Teach how to measure the achievements of SDGs. 3. Explain the trade-offs involved in operationalizing sustainability planning. 4. Familiarise with the plural perspectives on the environment. 5. Examine the role of markets and policies in resource management.	
Course Outcomes:		**Mapped to PSO**

	CO1 Explain and critically analyze the SDGs		PSO 1	
	CO2 Measure the achievements in the SDGs, especially in the Indian context.		PSO 1	
	CO3 Critically evaluate the role of markets and policies in resource management.		PSO 1	
	CO4 Apply the economic tools for the preliminary application of policies for sustainable resource use.		PSO 1	
	CO5 Analyze the trade-offs in sustainability planning.		PSO 1	
	CO6 Explain the plural perspectives on the environment		PSO 1	
Content:		**No of hours**	**Mapped to CO**	**Cognitive Level**
Module 1:	Introduction to Sustainable Development: Definition and concept of sustainable development, measures of sustainable development – the UN Sustainable Development Goals (SDGs); objectives of Sustainable development, Policy options for Sustainable growth. Role of Industry, Agriculture and Services in sustainability. Link between Sustainable Development and Climate Change, Implementation of Sustainable Development and Climate Change Policies.	**15**	CO1, CO2	K2, K5
Module 2:	Sustainable development in India: India's efforts at achieving SDGs; technology transformation, industrial development and environmental pollution, Sustainable management of land, water and air. Equity and resource management. Role of communities in environmental management. Environmental movements and community restoration.	**15**	CO2, CO3	K5
Module 3:	Resource Management: Management of environmental resources. Understanding the role of markets, government and communities. Meaning of externalities, environmental policy in the presence of externalities. Missing Markets. Public	**15**	CO3, CO4, CO5,	K2, K3, K4 K5

	Goods, Common Property Resources, Coase Theorem and Issues in Property Rights; Pigouvian Taxes, Subsidies, Tradable Permits, Price v/s Quantity tools		CO6	
Pedagogy:	● Chalk and talk aided by ICT enabled lectures ● PC lab exercises ● Assignments and presentations ● Group activity ● E-resources			
Texts:	Core reading Conrad, J. M., & Rondeau, D. (2020). *Natural resource economics: Analysis, theory, and applications*. Cambridge University Press.			
References/ Readings:	Additional references 1. Carson, R. (2012). *Silent spring* (50th anniversary ed.). Penguin Classics. 2. Gadgil, M., & Guha, R. (2000). *Use and abuse of nature*. Oxford University Press. 3. Gadgil, M., & Guha, R. (1995). *Ecology and equity*. Oxford University Press. 4. Haque, A. K. E., Mukhopadhyay, P., Nepal, M., & Shammin, M. R. (Eds.). (2021). *Climate change and community resilience: Insights from South Asia*. Springer. 5. Hardin, G. (1968). *The tragedy of the commons*. Science, 162(3859), 1243–1248. 6. Harris, J. M., & Roach, B. (2022). *Environmental and natural resource economics: A contemporary approach*. Routledge. 7. Leopold, A. (1972). *A Sand County almanac and sketches here and there*. Oxford University Press 8. Prasad, R., Jhariya, M. K., & Banerjee, A. (Eds.). (2022). *Advances in sustainable development and management of environmental and natural resources: Economic outlook and opinions* (1st ed.). Apple Academic Press, 9. Rangarajan, M. (Ed.). (2007). *Environmental issues in India: A reader*. Dorling Kindersley.			

Title of the Course	Sustainable Development and Resource Management (Practical)
Course Code	ECO-5212
Number of Credits	01
Theory/Practical	Practical
Level	400
Effective from AY	2025-26
New Course	Yes
Bridge Course/ Value added Course	No
Course for advanced learners	No

Pre-requisites for the Course:	Nil	
Course Objectives:	1. Introduce simple computational models of resource management. 2. To understand resource allocation problems using numerical models. • To explore optimal depletion and optimal harvest of renewable and non-renewable resources	
Course Outcomes:		**Mapped to PSO**
	CO1 Create simple models of resource management.	PSO 1
	CO2 Apply economic principles to forest management, including growth evaluation, optimal rotation analysis, and old-growth forest valuation	PSO 1

	CO3 Identify the role of different institutional rules in fostering sustainable development		PSO 1	
	CO4 Evaluate the transition paths for renewable and non-renewable resources.		PSO 1	
Content:		**No of hours**	**Mapped to CO**	**Cognitive Level**
Module 1:	1. Optimal Depletion Problem and Optimal Harvest Problem. 2. Economics of Fisheries, Fishery Production Functions, The Yield–Effort Function, Static and Dynamic Model of Open Access, Present Value Maximization. 3. The Economics of Forestry, The Volume Function and Mean Annual Increment, The Optimal Single Rotation, The Faustmann Rotation, the Optimal Stock of Old Growth Forest. 4. The Economics of non-renewable Resources, Solving a Simple Model, Hotelling's Rule, Estimating the Inverse Demand Curve, Extraction and Price Paths in the Competitive Industry, Extraction and Price Paths under Monopoly, Reserve-Dependent Costs, Exploration, The Economic Measure of Scarcity.	**30**	CO1 CO1 CO2 CO1 CO3 CO4	K6 K3, K6 K3 K2, K5
Pedagogy:	● Chalk and talk aided by ICT enabled lectures ● PC lab exercises ● Assignments and presentations ● Group activity ● E-resources			
Texts:	Core reading Conrad, J. M. (2006). *Resource economics* (Reprint ed.). Cambridge University Press.			
References/ Readings:	Additional references 1. Conrad, J. M., & Rondeau, D. (2020). *Natural resource economics: Analysis, theory, and applications* (1st ed.).			

	Cambridge University Press.. 2. Dayal, V. (2014). *The environment in economics and development: Pluralist extensions of core economic models*. Springer.

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SEMESTER III

Research Specific Elective (RSE) Courses

Title of the Course	Environmental Economics
Course Code	ECO-6000
Number of Credits	04
Theory/Practical	Theory
Level	500
Effective from AY	2025-26
New Course	No
Bridge Course/ Value added Course	No
Course for advanced learners	No

Pre-requisites for the Course:	Nil	
Course Objectives:	To understand the implications of production and consumption outcomes on the environment and how market and non-market tools can be used in policy-making to move towards sustainable development.	
Course Outcomes:		**Mapped to**
	CO1. Undertake basic environmental valuation,	**PSO PSO 2**

	CO2. Explore cost-benefit analysis of projects		**PSO 1**	
	CO3. Analyse implications of alternate environmental policies		**PSO 4**	
	CO4. Explain economic implications of climate change		**PSO 3, 5**	
Content:		**No of hours**	**Mapped to CO**	**Cognitive Level**
Module 1:	Perspectives On The Environment Economics and the Environment; A Framework for Environmental Analysis; Environmental Microeconomics and Macroeconomics Resources, Environment, And Economic Development A Brief History of Economic Growth and the Environment; A Summary of Recent Growth; The Future of Economic Growth and the Environment; Sustainable Development The Theory Of Environmental Externalities The Theory of Externalities; Welfare Analysis of Externalities; Property Rights and the Environment Common Property Resources And Public Goods Common Property, Open Access, and Property Rights; The Environment as a Public Good; The Global Commons	**15**	CO1, CO2, CO3, CO4	K1,2,3,4,5
Module 2:	Resource Allocation Over Time Allocation of Nonrenewable Resources; Hotelling's Rule and Time Discounting Valuing The Environment Total Economic Value; Overview of Valuation Techniques: Revealed Preference Methods, Stated Preference Methods; Cost-Benefit Analysis and its role in Policy Decisions Ecological Economics: Basic Concepts An Ecological Perspective; Natural Capital; Issues of Macroeconomic Scale; Long-Term Sustainability; Energy and Entropy	**15**	CO1, CO2, CO3, CO4	K1,2,3,4,5
Module 3:	Ecosystem Management And Biodiversity The Economics of Biodiversity;	**15**	CO1,	K1,2,3,4,5

	Reconciling Economic and Ecological Principles Pollution: Impacts And Policy Responses The Economics of Pollution Control; Policies for Pollution Control; The Scale of Pollution Impacts; Assessing Pollution Control Policies; Pollution Control Policies in Practice National Income And Environmental Accounting Greening the National Income Accounts; Environmentally Adjusted Net Domestic Product; Adjusted Net Saving; The Genuine Progress Indicator; The Better Life Index; Environmental Asset Accounts; The Future of Alternative Indicators		CO2, CO3, CO4	
Module 4:	Global Climate Change Causes and Consequences of Climate Change; Responses to Climate Change; Economic Analysis of Climate Change; Adaptation and Mitigation; Climate Change Mitigation: Economic Policy Options; Climate Change: The Technical Challenge; Climate Change Policy in Practice; Economic Policy Proposals Institutions And Policies For Sustainable Development The Concept of Sustainable Development; The Economics of Sustainable Development; Reforming Global Institutions; New Goals and New Production Methods	**15**	CO1, CO2, CO3, CO4	K1,2,3,4,5
Pedagogy:	● Chalk and talk aided by ICT enabled lectures ● Flipped Classroom ● PC lab exercises ● Assignments and presentations ● Group activity ● MOOC (or similar) Component			
Texts:	Core readings 1. Dasgupta, P. (2021). The economics of biodiversity: The Dasgupta review (Abridged version). HM Treasury. https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/957292/Dasgupta_Review_-_Abridged_Version.pdf 2. Harris, J. M., & Roach, B. (2018). Environmental and natural resource economics: A contemporary approach (4th ed.). Taylor & Francis. 3. Lewis, L., & Tietenberg, T. H. (2020). Environmental economics and policy. Routledge. 4. Jonathan M. Harris and Brian Roach (2018) Environmental and Natural Resource Economics A Contemporary			

	Approach, Fourth Edition, Taylor and Francis, New York 5. Partha Dasgupta (2021), The Economics of Biodiversity: The Dasgupta Review. Abridged Version. (London: HM Treasury) https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/957292/Das gupta_Review_-_Abridged_Version.pdf 6. Lynne Lewis, Thomas H. Tietenberg (2020) Environmental Economics and Policy, Routledge, London
References/ Readings:	Additional references 1. Kolstad, C. D. (2012). Intermediate environmental economics. Oxford University Press. 2. Smith, S. (2011). Environmental economics: A very short introduction. Oxford University Press.
Web Resources:	World Bank Group. (n.d.). *Climate change knowledge portal*. Retrieved June 12, 2026, from https://climateknowledgeportal.worldbank.org/

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Title of the Course	Economics of Regional Integration
Course Code	ECO-6001
Number of Credits	04
Theory/Practical	Theory
Level	500
Effective from AY	2025-26
New Course	No
Bridge Course/ Value added Course	No
Course for advanced learners	No

Pre-requisites for the Course:	Nil	
Course Objectives:	To provide a theoretical understanding on the rationale of forming regional economic grouping and their likely welfare implications, especially in the context of India. It will also introduce students to different databases, tools and techniques to understand regional grouping.	
Course Outcomes:		**Mapped to PSO**
	CO1. Explain dynamics of the integration process of various types of regional trade and investment agreements.	PSO 2, PSO 3, PSO5
	CO2. Analyse costs and benefits of various integration schemes in terms of trade creation	PSO 2, PSO 3, PSO5

	CO3. Assess India's trade agreements and benefits thereof		PSO 2, PSO 3, PSO5	
	CO4. Evaluate trade diversion due to regional trade groups		PSO 2, PSO 3, PSO5	
Content:		**No of hours**	**Mapped to CO**	**Cognitive Level**
Module 1:	Theoretical foundations of Regional Economic Integration- definition, forms of regional integration. Basic Viner model, Modern static theory of regional integration – Regional integration with imperfect competition - Domino Theory and Reciprocity; Natural Trading Partners; Implications of Regionalism on the Global Trading system- Rules of Origin, Labour mobility, investment, services, Environment, trade facilitation, IPRs and Global Value Chains.	**15**	CO1, CO2, CO3, CO4	K1,2,3,4,5
Module 2:	Emerging landscape of bilateral, regional and plurilateral trade agreements - growth of RTAs – three waves, proliferation of RTAs in the post WTO period, Notifications under GATT, GATS and enabling clause, bilateral and plurilateral agreements, north – south and south-south trade agreements; Regional groupings – SAFTA BIMSTEC, ASEAN, EU, NAFTA, RCEP and TPP	**15**	CO1, CO2, CO3, CO4	K1,2,3,4,5
Module 3:	Methods to assess Regional Economic Integration - database to analyse the RTAs – COMTRADE, DOTS, WITS, WTO, UNCTAD, WTC, WDIs. Tools and Techniques – Trade Indicators - Trade Intensity Index, Trade complementarity index, Revealed Comparative Advantage (RCA) index; Trade Models - Gravity Model, Structural Gravity Model; Simulation Techniques - WITS SMART analysis.	**15**	CO1, CO2, CO3, CO4	K1,2,3,4,5
Module 4:	India's Engagements with regional trade agreements - India's bilateral trade agreements- Singapore, Korea, Japan, Thailand, UAE and Australia; India's trade agreements with regional groupings – SAFTA, ASEAN. Trade agreements currently initiated/under consideration. The political economy of Regional Trade Agreements	**15**	CO1, CO2, CO3, CO4	K1,2,3,4,5

Pedagogy:	● Chalk and talk aided by ICT enabled lectures ● Flipped Classroom ● PC lab exercises ● Assignments and presentations ● Group activity ● MOOC (or similar) Component
Texts:	Core readings 1. DeRosa, D. A. (2013). *Regional integration arrangements: Static economic theory, quantitative findings, and policy guidelines* (Policy Research Working Paper No. 2013). World Bank. 2. Panagariya, A. (2000). Preferential trade liberalization: The traditional theory and new developments. *Journal of Economic Literature*, 38(2), 287–331.
References/ Readings:	Additional references 1. Baldwin, R., & Venables, A. (1996). Regional economic integration. In G. Grossman & K. Rogoff (Eds.), *Handbook of international economics* (Vol. 3, pp. 1597–1644). North-Holland. 2. Mikic, M., & Gilbert, J. (2009). *Trade statistics in policymaking: A handbook of commonly used trade indices and indicators* (Rev. ed.). United Nations. 3. Ministry of Finance. (2020). *Economic survey 2019-20* (Chapter 5). Government of India. 4. Nag, B., & Chakraborty, D. (2019). *India's trade analytics: Patterns and opportunities* (1st ed.). Sage Publishing. 5. Shepherd, B. (2013). *The gravity model of international trade: A user guide. ARTNeT Gravity Modelling Initiative, UNESCAP*. https://artnet.unescap.org/publications/booksreports/gravity-model-international-trade-user-guide-updatedversion 6. Van Bergeijk, P. A. G., & Brakman, S. (2010). *The gravity model in international trade: Advances and applications.* Cambridge University Press.

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Title of the Course	Research Methodology in Economics
Course Code	ECO-6002
Number of Credits	04
Theory/Practical	Theory
Level	500
Effective from AY	2025-26
New Course:	No
Bridge Course/ Value added Course:	No
Course for advanced learners:	NO

Pre-requisites for the Course:	Nil	
Course Objectives:	Expose students 1. To the methodological approaches to research 2. Techniques to formulate a research problem 3. To Scientific methods for sampling and data collection 4. Steps to Writing a research report/thesis/paper	
Course Outcomes:		**Mapped to PSO**
	CO1 Understand the foundational concepts, types, and approaches in research, including scientific reasoning and the qualitative-quantitative spectrum	PSO 1,2,3,4,5

	CO2 Formulate research problems, objectives, questions, hypotheses, and appropriate theoretical frameworks in a structured and logical manner		PSO 1,2,3,4,5	
	CO3 Apply appropriate sampling techniques, tools, and data collection methods in designing and conducting survey-based research.		PSO 1,2,3,4,5	
	CO4 Develop a well-structured research report or thesis following ethical standards and academic writing conventions including citation styles		PSO 1,2,3,4,5	
Content:		**No of hours**	**Mapped to CO**	**Cognitive Level**
Module 1:	Introduction to Research The meaning of research - types of research - importance of research- research and policy- Deductive and Inductive Reasoning – Steps of scientific methods in research – Qualitative and Quantitative Approach - Mixed Methods.	**15**	CO1	K1, K2, K3, K4, K5
Module 2:	Steps in Research The Research Process: Formulation of a Research problem – Guiding principles in the choice of a Research topic and Formulation of Research Questions – Writing a Proposal - Review of Literature and identification of research gap – Theoretical and Conceptual Framework-Formulation of Research	**15**	CO2	K1, K2, K3, K4, K5
Module 3:	Survey-based research Sampling Techniques - field survey - Primary Data Collection - Tools – Observation, Schedule, Questionnaire – principles underlying construction of a questionnaire – data processing and Analysis – Use of Statistical packages.	**15**	CO3	K1, K2, K3, K4, K5
Module 4:	Writing a Research Report Writing a Research report - research paper – Bibliography – reference styles - Ethics in Research - Plagiarism - Writing a thesis - Do's and Dont's.	**15**	CO4	K1, K2, K3, K4, K5

Pedagogy:	● Chalk and talk aided by ICT enabled lectures ● Flipped Classroom ● PC lab exercises ● Assignments and presentations ● Group activity ● MOOC (or similar) Component
Texts:	Core readings 1. Kothari, C. R., & Garg, G. (2020). Research methodology (4th ed.). New Age International. 2. Panneerselvam, R. (2013). Research methodology. Prentice Hall of India. 3. Wilkinson, T. S., & Bhandarkar, P. L. (2016). Methodology and techniques of social science research. Himalaya Publishing House.
References/ Readings:	Additional references 1. Babbie, E. R. (2013). The practice of social research. Cengage Learning. 2. Blaug, M. (2009). The methodology of economics. Cambridge University Press. 3. Creswell, J. W. (2014). Research design: Qualitative, quantitative, and mixed methods approaches. Sage Publications. 4. Hausman, D. M. (2007). The philosophy of economics: An anthology. Cambridge University Press. 5. Parsons, C. J. (2006). Thesis and project work. Allen & Unwin. 6. Turabian, K. L. (2006). A manual for writers of term papers, theses, and dissertations. The University of Chicago Press. 7. Young, P. V. (2012). Scientific social surveys and research. Prentice Hall of India.

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Title of the Course	Data Sources for the Indian Economy
Course Code	ECO-6003
Number of Credits	04
Theory/Practical	Theory
Level	500
Effective from AY	2025-26
New Course	No
Bridge Course/ Value added Course	No
Course for advanced learners	No

Pre-requisites for the Course:	Nil	
Course Objectives:	To learn the different sources of data available in the public domain both in India and globally. This will cover different domains of data requirements for economics research. Students would learn the extent and limitations of different data sources.	
Course Outcomes:		**Mapped to PSO**
	CO1. Identify potential databases for research	PSO 2
	CO2. Access data from open-domain data sources	PSO 2

	CO3. Explain the strengths and weaknesses of different databases		PSO 2	
	CO4. Analyse raw data for economic analysis		PSO 2	
Content:		**No of hours**	**Mapped to CO**	**Cognitive Level**
Module 1:	Macroeconomic Data Source Sources of the Government of India – Ministry of Finance, Reserve Bank of India, Niti Ayog Sources of Multilateral agencies – World Bank, International Financial Statistics, United Nations Subscription Sources – CMIE, EPWRF	**15**	CO1, CO2, CO3, CO4	K2,3,4
Module 2:	Microeconomic Data Sources (including Demography, Labour, Agriculture and Industry) Sources of the Government of India – National Sample Organisation (NSSO data), Ministries of GoI, Census of India, Annual Survey of Industries, NFHS Sources of Multilateral agencies – Living Standards Subscription Sources – CMIE, IHDS, NCAER, IIPS, EPWRF	**15**	CO1, CO2, CO3, CO4	K2,3,4
Module 3:	International Trade Data Sources Sources of the Government of India – Government of India (DGCIS, Ministry of Commerce, RBI) Sources of Multilateral agencies – United Nations (COMTRADE, WITS, UNCTAD, UNEP), World Bank (WDI), IMF (DOTS), WTO Subscription Sources – CMIE, EPWRF, WTC, GTAP, CEIC	**15**	CO1, CO2, CO3, CO4	K2,3,4
Module 4:	Public Finance, and natural resources Sources of the Government of India – Finance Commission reports, Budget of the government of India and state governments, MOSPI, MOEFCC, RBI, DPSE Sources of Multilateral agencies –	**15**	CO1, CO2, CO3,	K2,3,4

	IBRD, UNEP, IPCC, Subscription Sources – CMIE, EPWRF		CO4	
Pedagogy:	● Chalk and talk aided by ICT enabled lectures ● Flipped Classroom ● PC lab exercises ● Assignments and presentations ● Group activity ● MOOC (or similar) Component			
Texts:	Core readings 1. Ministry of Finance. (n.d.). *Economic survey*. Government of India. 2. Reserve Bank of India. (n.d.-a). *Handbook of statistics on Indian economy*. 3. Reserve Bank of India. (n.d.-b). *Handbook of statistics on Indian states*. 4. Reserve Bank of India. (n.d.-c). *Report on currency and finance*.			
References/ Readings:	Additional references 1. Auffhammer, M., Hsiang, S. M., Schlenker, W., & Sobel, A. (2013). Using weather data and climate model output in economic analyses of climate change. *Review of Environmental Economics and Policy*, 7(2), 181–198. https://doi.org/10.1093/reep/ret016 2. Donaldson, D., & Storeygard, A. (2016). The view from above: Applications of satellite data in economics. *Journal of Economic Perspectives*, 30(4), 171–198. https://doi.org/10.1257/jep.30.4.171 3. Egger, P., & Wolfmayr, Y. (2014). *What economists should know about international goods trade data* (WIFO Working Paper No. 475). Austrian Institute of Economic Research. https://www.econstor.eu/handle/10419/129020 4. National Sample Survey Organisation. (2001). *Concepts and definitions used in NSS*. Ministry of Statistics & Programme Implementation, Government of India. https://mospi.gov.in/documents/213904/0/concepts_golden.pdf/e98fc072-8660-edd9-f179ce95674f4ca5?t=1615539414160 5. United Nations Development Programme. (n.d.). *Human development report*. 6. World Bank. (2021). *World development report 2021: Data for better lives*. https://openknowledge.worldbank.org/handle/10986/35218			

	7. World Trade Organization. (n.d.). *World trade statistical review*.

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Title of the Course	Introduction to Law and Economics
Course Code	ECO-6004
Number of Credits	02
Theory/Practical	Theory
Level	500
Effective from AY	2025-26
New Course	Yes
Bridge Course/ Value added Cours	NO
Course for advanced learners	NO

Pre-requisites for the Course:	Nil
Course Objectives:	The course aims to: 1. Introduce the economic approach to law — to understand how legal rules influence human behavior and resource allocation. 2. Familiarize students with key concepts such as efficiency, incentives, property rights, transaction costs, and externalities, and how these shape legal outcomes. 3. Develop the ability to critically evaluate legal rules and institutions in terms of efficiency, fairness, and social welfare. 4. Encourage interdisciplinary thinking by integrating principles from microeconomics, public policy, and legal studies.

Course Outcomes:			**Mapped to PSO**	
	CO 1. Understand the basic principles of economic analysis applied to legal systems.		PSO 5	
	CO 2. Analyze how legal rules affect individual and institutional behavior.		PSO 5	
	CO 3. Evaluate legal outcomes using concepts like efficiency, incentives, and welfare.		PSO 1	
	CO 4. Apply economic reasoning to real-world legal problems and policy debates.		PSO 4	
Content:		**No of hours**	**Mapped to CO**	**Cognitive Level**
Module 1:	Introduction to Law & Economics: Origins, scope, methodology; Economic Foundations: Rational choice, opportunity cost, marginal analysis; Efficiency & Welfare: Pareto efficiency, Kaldor-Hicks criterion; Property Rights: Coase Theorem, externalities, transaction costs; Contract Law: Bargaining, enforcement, remedies	**15**	CO1, CO2, CO3, CO4	K1, K2, K3, K4, K5
Module 2:	Criminal Law: Deterrence theory, punishment economics; Public Law & Regulation: Market failures, regulation, cost-benefit analysis; Antitrust & Competition Law: Monopoly, oligopoly, consumer welfare; Behavioural Law & Economics: Bounded rationality, heuristics, nudges; Legal Reform & Policy Design: Incentives, unintended consequences	**15**	CO1, CO2, CO3, CO4	K1, K2, K3, K4, K5
Pedagogy:	Chalk and talk aided by ICT enabled lectures ● Flipped Classroom ● PC lab exercises ● Assignments and presentations ● Group activity ● MOOC (or similar) Component			
References/ Readings:	**Core Textbooks** Cooter, R., & Ulen, T. (2016). *Law and economics* (6th ed.). Pearson Education.			

	http://www.econ.jku.at/t3/staff/winterebmer/teaching/law_economics/ss19/6th_edition.pdf
Additional references	Additional references 1. Mercuro, N., & Medema, S. G. (2006). *Economics and the law: From Posner to post-modernism and beyond* (2nd ed.). Princeton University Press. 2. Miceli, T. J. (2008). *The economic approach to law*. Stanford University Press. 3. Polinsky, A. M. (2011). *An introduction to law and economics* (4th ed.). Aspen Publishers. 4. Posner, R. A. (2014). *Economic analysis of law* (9th ed.). Wolters Kluwer Law & Business. 5. Shavell, S. (2004). *Foundations of economic analysis of law*. Harvard University Press.
Web Resources:	1. Coase, R. H. (1960). The Problem of Social Cost. *Journal of Law and Economics*, 3, 1–44. ➤ Available via JSTOR Open Access 2. Kaplow, L., & Shavell, S. (2002). *Economic Analysis of Law*. Harvard Law School Discussion Paper Series. ➤ Available via Harvard Law School Covers efficiency, fairness, and legal design.

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Title of the Course	Gender Economics
Course Code	ECO-6005
Number of Credits	02
Theory	Theory
Level	500
Effective from AY	2025-26
New Course	Yes
Bridge Course/ Value added Course	NO
Course for advanced learners	NO

Pre-requisites for the Course:	Nil	
Course Objectives:	1. To enable students to critically understand and analyse the conceptual, theoretical, and practical dimensions of gender and development 2. To examine the evolution of gender theories, women's role in the economy 3. To integrate gender perspectives into national and global development planning and policy	
Course Outcomes:		**Mapped to PSO**
	CO1: Explain the difference between sex and gender and the main concepts in gender and development.	PSO 3

	CO 2: Explain major theories and global initiatives on gender.		PSO 4	
	CO3: Analyze key issues of gender inequality in work, poverty, and globalization.		PSO 3	
	CO4: Examine the participation of women in the economy		PSO 4	
Content:		**No of hours**	**Mapped to CO**	**Cognitive Level**
Module 1:	**Conceptualizing and theorizing gender and development:** Concepts in gender and development studies, Distinction between gender and sex. Gender on the International Agenda-The 4th World Conference on Women held in Beijing (1995), Theories on Gender development-From Women in Development (WID) to Gender and Development (GID). Gender in Economic Planning.	**15**	CO1, CO2	K1, K2, K3, K4
Module 2:	**Women and the Economy:** Women's contribution to GDP, Gender dynamics within a household. Intersectionality. Conceptualising Women's Work-paid and unpaid work, the gendered nature of work. Concept of the "feminisation of poverty". Globalisation and gender status. Labour Market Dynamics: Inequality, Occupational Segregation, and Wage Gap. Female workforce participation rate. Gender Mainstreaming and Gender Budgeting	**15**	CO1, CO2, CO3, CO4	K1, K2, K3, K4,
Pedagogy:	Chalk and talk aided by ICT enabled lectures ● Flipped Classroom ● PC lab exercises ● Assignments and presentations ● Group activity ● MOOC (or similar) Component			
Texts:	Core readings 1. Boserup, E., Tan, S. F., Kanji, N., & Toulmin, C. (2007). *Women's role in Economic Development* (Reprinted			

	with new introduction). Earthscan. 2. Momsen, J. H. (2020). Gender and Development (Third Edition). Routledge. 3. Becchio, G. (2019). A History of Feminist and Gender Economics (1st ed.). Routledge. https://doi.org/10.4324/9781315102559
References/ Readings:	Additional references 1. Roberts, B. (1996). The Beijing Fourth World Conference on Women. Canadian Journal of Sociology / Cahiers Canadiens de Sociologie, 21(2), 237. https://doi.org/10.2307/3341979 2. Benería, L. (1995). Toward a greater integration of gender in economics. *World Development*, *23*(11), 1839–1850. https://doi.org/10.1016/0305-750X(95)00095-T 3. Goldin, C. (2023). *Why Women Won* (w31762). National Bureau of Economic Research. https://doi.org/10.3386/w31762 4. Hensman, R. (2004). Globalisation, Women and Work: What Are We Talking About? *Economic and Political Weekly*, 39(10), 1030–1034.

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Title of the Course	Economics of Crime
Course Code	ECO-6006
Number of Credits	02
Theory	Theory
Level	500
Effective from AY	2025-26
New Course	Yes
Bridge Course/ Value added Course	NO
Course for advanced learners	NO

Pre-requisites for the Course:	Nil	
Course Objectives:	1. To provide students with a comprehensive understanding of crime from an economic perspective by integrating theoretical insights, empirical evidence, and policy analysis. 2. To critically examine the determinants, patterns, and consequences of crime and to formulate evidence-based strategies for crime prevention and social welfare enhancement.	
Course Outcomes:		**Mapped to PSO**
	CO1: Understand the concept, scope, and determinants of crime from an economic perspective.	**PSO 3**

	CO 2: Explain major theories of criminal behaviour		**PSO 4**	
	CO3: Analyse crime trends using data sources and classifications at national and state levels.		**PSO 3**	
	CO4: Evaluate the relationship between crime, economic development, and policy interventions.		**PSO 4**	
Content:		**No of hours**	**Mapped to CO**	**Cognitive Level**
Module 1:	**Introduction to Economics of Crime:** Concept of Crime, Nature and scope of the economics of crime, Determinants of crime-Social, Economic, Demographic. Theories on economics of criminal behavior- Classical foundations to crime, Rational Choice Model, Deterrence Model.	**15**	CO1, CO2	K1, K2, K3
Module 2:	**Empirical Analysis, Policy, and Applications**: Sources of crime data, Classification of crimes, Trends in crimes (India and States), Challenges of under-reporting, Crime and Economic development, Crime and Policy Interventions.	**15**	CO1, CO2, CO3, CO4	K3, K4, K5
Pedagogy:	Chalk and talk aided by ICT enabled lectures ● Flipped Classroom ● PC lab exercises ● Assignments and presentations ● Group activity ● MOOC (or similar) Component			
Texts:	Core readings 1. Albertson, K., & Fox, C. (2011). Crime and economics: An introduction. Willan. https://doi.org/10.4324/9780203813041 2. Rosenfeld, R., & Messner, S. F. (2013). *Crime and the economy*. SAGE.			

References/ Readings:	Additional references 1. Becker, G. S. (1968). Crime and punishment: An economic approach. *Journal of Political Economy*, 76(2), 169–217. https://doi.org/10.1086/259394 2. Brookman, F., Maguire, M., Pierpoint, H., & Bennett, T. (2010). *Handbook on crime*. Routledge. 3. Ehrlich, I. (1996). Crime, punishment, and the market for offenses. *Journal of Economic Perspectives*, 10(1), 43–67. https://doi.org/10.1257/jep.10.1.43 4. Ellis, L., Farrington, D. P., & Hoskin, A. W. (2019). *Handbook of crime correlates* (2nd ed.). Academic Press. 5. Storkey, E. (2018). *Scars across humanity: Understanding and overcoming violence against women*. InterVarsity Press. 6. Wilson, J. Q., & Petersilia, J. (2012). *Crime and public policy*. Oxford University Press.
Web Resources:	1. National Bureau of Economic Research. (n.d.). *Economics of crime*. https://www.nber.org/programs-projects/programs-working-groups%23Groups/economics-crime?page=1&perPage=50 2. National Crime Records Bureau. (n.d.). *Crime in India*. Ministry of Home Affairs, Government of India. https://ncrb.gov.in/en/crime-india

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Title of the Course	Economics of Multinational Enterprises
Course Code	ECO-6007
Number of Credits	04
Theory/Practical	Theory
Level	500
Effective from AY	2025-26
New Course	Yes
Bridge Course/ Value added Course	NA
Course for advanced learners	No

Pre-requisites for the Course:	Nil	
Course Objectives:	1. Understand the theoretical foundations and evolution of MNEs in international economics. 2. Analyze the role of MNEs in global production, investment, and trade. 3. Evaluate the economic and policy implications of MNEs on host and home economies. 4. Examine India's experience as both a host and source country for multinational enterprises. 5. Critically assess contemporary challenges faced by MNEs in the context of FDI, global value chains, offshoring, and geopolitics.	
Course Outcomes:		**Mapped to PSO**
	CO 1. Apply economic theories to explain MNE behavior and investment decisions.	PSO 1, 5

	CO 2. Assess the developmental, technological, and employment impacts of MNEs.		PSO 3	
	CO 3. Examine India's policy frameworks and performance in attracting and regulating MNEs.		PSO 4	
	CO 4. Engage with current global debates on taxation, regulation, and sustainability of MNEs.		PSO 3, 4	
Content:		**No of hours**	**Mapped to CO**	**Cognitive Level**
Module 1:	**Module I: Theoretical Foundations and Evolution of MNEs** Introduction to Multinational Enterprises: Definitions, characteristics, and typologies. Theories of MNEs and FDI: Hymer's Theory, Product Life Cycle, Internalization Theory, Dunning's Eclectic Paradigm (OLI Framework), Resource-Based View. Globalization and structural transformation; MNEs in developing economies.	**15**	CO1, CO2, CO3, CO4, CO5	K1,2
Module 2:	**Module II: MNEs, FDI, and Host Country Impacts** MNEs and FDI Linkages: Types, spillovers, and balance of payments. MNEs and Host Country Development: Employment, technology transfer, governance, and India's FDI policy. Case Studies: Sectoral FDI trends and policy incentives in India.	**15**	CO1, CO2, CO3, CO4, CO5	K2,3,4
Module 3:	**Module III: Indian Multinational Enterprises and Global Competitiveness** Emergence of Indian MNEs: Drivers, ownership, and strategies. Performance and Challenges: Case studies of Tata, Infosys, Mahindra, Reliance, Wipro. Implications for Home Country: Reverse technology transfer, R&D, and policy support.	**15**	CO1, CO2, CO3, CO4, CO5	K3,4,5
Module 4:	**Module IV: Contemporary Issues, Challenges, and Policy Perspectives** Contemporary Issues: GVCs, offshoring, digital MNEs, taxation, and BEPS. Geopolitical and Regulatory Challenges: Trade wars, ESG, CSR, and post-COVID	**15**	CO1, CO2, CO3,	K,3,4,5

	trends. Policy Perspectives: Role of WTO, OECD, UNCTAD, and India's strategic approach.		CO4, CO5	
Pedagogy:	Lectures, Case Studies, Group Discussions, and assignments.			
Texts:	Core readings 1. Caves, R. E. (1996). Multinational enterprise and economic analysis (2nd ed.). Cambridge University Press. 2. Dunning, J. H., & Lundan, S. M. (2008). Multinational enterprises and the global economy (2nd ed.). Edward Elgar Publishing. 3. Pradhan, J. P. (2008). Indian multinationals in the world economy: Implications for development. Bookwell Publishers.			
References/ Readings:	Additional references 1. Baldwin, R. (2016). *The great convergence: Information technology and the new globalization*. The Belknap Press of Harvard University Press. 2. Hymer, S. H. (1976). *The international operations of national firms: A study of direct foreign investment*. The MIT Press. 3. Narula, R. (2014). *Exploring the paradox of competitiveness and globalization*. Oxford University Press. 4. Sauvant, K. P., & Pradhan, J. P. (Eds.). (2010). *The rise of Indian multinationals: Perspectives on Indian outward foreign direct investment*. Palgrave Macmillan. 5. United Nations Conference on Trade and Development. (2025). *World investment report 2025: International investment in the digital economy*. United Nations.			
Web Resources:	1. Organisation for Economic Co-operation and Development. (2021). *Tax challenges arising from the digitalisation of the economy – Global anti-base erosion model rules* (Pillar Two). OECD Publishing. https://www.oecd.org/tax/beps/tax-challenges-arising-from-the-digitalisation-of-the-economy-global-anti-base-erosion-model-rules-pillar-two.htm 2. Organisation for Economic Co-operation and Development. (2023). *OECD investment policy reviews: India 2023*. OECD Publishing. https://doi.org/10.1787/4747c441-en 3. Reserve Bank of India. (2023). *Annual report 2022-23*. https://rbi.org.in/Scripts/AnnualReportPublications.aspx?year=2023			

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Discipline Specific Vocational Elective (DSVE) Courses

Title of the Course	Techniques of Geo-spatial Analysis
Course Code	ECO-6401
Number of Credits	2T+2P
Theory/Practical	Theory & Practical
Level	500
Effective from AY	2025-26
New Course	No
Bridge Course/ Value added Course	No
Course for advanced learners	No

Pre-requisites for the Course:	Nil	
Course Objectives:	To provide students a comprehensive understanding of India's economic development in recent years and to familiarize them with the growth, development, and contribution of various sectors to the Indian economy.	
Course Outcomes:		**Mapped to PSO**
	CO1. Recall major phases and reforms in India's post-independence economy.	PSO 1, PSO 3

	CO2. Analyze trends and policies in agriculture, industry, and services.		PSO 1, PSO 3	
	CO3. Evaluate India's trade structure and balance of payments.		PSO 3, PSO 4	
	CO4. Assess debates on poverty, employment, inequality, and sustainability.		PSO 3, PSO 5	
	CO5. Apply economic data to interpret India's development outcomes.		PSO 2, PSO 3	
Content:		**No. of hours 30T+60P**	**Mapped to CO**	**Cognitive Level**
Module 1:	Use of spatial data in economic analysis- Introduction to QGIS - its graphical user interface. Fundamentals of Remote Sensing Signals, Electromagnetic Spectrum, Terms and Units of Measurement, Electromagnetic Radiation Laws, Resolution of a Sensor System,-Spatial, Spectral, Radiometric, Temporal and Angular resolution, sources of information remote sensing data	**15T**	CO1	K1, K2
Module 2:	Raster and Vector Data formats- Interacting with data identifying features, measuring and selecting data, creating shapefile, snapping, topology, attribute table and filed calculator, data joins, projections, clipping, analyzing elevation, terrain **Practical** Interacting with data identifying features, measuring and selecting data, creating shapefile, snapping, topology, attribute table and filed calculator, data joins, projections, clipping, analyzing elevation, terrain	**5T+ 20P**	CO2, CO5	K3, K4
Module 3:	Interpolation, buffer, Styling layers- raster, terrain, satellite images and landcover map, styling and labeling vector layers- point, line and polygon style, creating 3D map, print layout map creation, 3D map view. **Practical** Interpolation, buffer, Styling layers- raster, terrain, satellite images and	**5T+ 20P**	CO3, CO5	K3, K4, K5

	landcover map, styling and labeling vector layers- point, line and polygon style, creating 3D map, print layout map creation, 3D map view.			
Module 4:	Analyzing raster data- raster calculator, Combining raster and vector data-converting between raster and vector and zonal statistics, Advanced raster and vector analysis **Practical** Combining raster and vector data-converting between raster and vector and zonal statistics, Advanced raster and vector analysis	**5T+ 20P**	CO4	K4, K5
Pedagogy:	● Chalk and talk aided by ICT enabled lectures ● Flipped Classroom ● PC lab exercises ● Assignments and presentations ● Group activity ● MOOC (or similar) Component			
Texts:	Core readings 1. Chuvieco, E. (2016). Fundamentals of satellite remote sensing: An environmental approach. CRC Press. 2. Cutts, A., & Graser, A. (2018). Learn QGIS: Your step-by-step guide to the fundamental of QGIS 3.4 (4th ed.). Packt Publishing. 3. QGIS Project. (2020). QGIS training manual. https://docs.qgis.org/3.10/en/docs/training_manual/index.html			
References/ Readings:	Additional resources 1. Gatrell, J. D., & Jensen, R. R. (2009). Planning and socioeconomic applications (Geotechnologies and the environment). Springer Science & Business Media. 2. Huisman, O., & de By, R. A. (Eds.). (2009). Principles of geographic information systems: An introductory textbook. International Institute for Geo-Information Science and Earth Observation. 3. Menke, K., Smith, R., Luigi, P., & Tatsudo, H. (2016). Mastering QGIS. Packt Publishing. 4. Pogodzinski, J. M., & Kos, R. M. (2013). Economic development & GIS. Esri Press. 5. Sherman, G. E. (2008). Desktop GIS: Mapping the planet with open source tools. Pragmatic Bookshelf. 6. Westra, E. (2014). Building mapping applications with QGIS: Create your own sophisticated applications to			

	analyze and display geospatial information using QGIS and Python (4th ed.). Packt Publishing.

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Title of the Course	Time Series Econometrics
Course Code	ECO-6402
Number of Credits	2T+2P
Theory/Practical	Theory & Practical
Level	500
Effective from AY	2025-26
New Course	Yes
Bridge Course/ Value added Course	No
Course for advanced learners	Yes

Pre-requisites for the Course:	Understanding of probability, statistics and basic Econometrics or equivalent	
Course Objectives:	To develop students' ability to apply advanced econometric methods for time series and panel data analysis, enabling them to critically evaluate economic relationships and forecast to inform real-world decisions.	
Course Outcomes:		**Mapped to PSO**
	CO 1. Analyze time series data by correctly identifying and modeling trends and seasonality using regression analysis, and evaluate the appropriateness of OLS assumptions for time-dependent data.	PSO 2, 5

	CO 2. Diagnose and correct for serial correlation and heteroskedasticity in time series regression models, justifying the use of specific diagnostic tests and correction methods to ensure robust inference.		PSO 2	
	CO 3. Compare and contrast fixed and random effects models for analyzing panel data, and select the most appropriate model for a given research question.		PSO 2, 3	
	CO 4. Construct and evaluate simultaneous equation models to identify relationships between mutually influential variables, and create reliable forecasts for future outcomes using advanced time series techniques like error correction models.		PSO 2, 5	
Content:		**No of hours**	**Mapped to CO**	**Cognitive Level**
Module 1:	**Basic Regression Analysis with Time Series Data:** The Nature of Time Series Data, Static Models, Finite Distributed Lag Models, A Convention about the Time Index, Finite Sample Properties of OLS under Classical Assumptions, Functional Form, Dummy Variables, and Index Numbers, Trends and Seasonality, Characterizing Trending Time Series, Using Trending Variables in Regression Analysis, A Detrending Interpretation of Regressions with a Time Trend. Stationary and Weakly Dependent Time Series, Highly Persistent Time Series, Transformations on Highly Persistent Time Series, Dynamically Complete Models and the Absence of Serial Correlation **Practical:** Organizing and visualizing time series data to identify patterns like trends and seasonality. Constructing regression models that include variables to account for time-based effects. Analysing and interpreting the results of these regressions to understand the relationships between variables over time.	**08(T) + 15(P)**	CO1	K1, K2, K3, K4, K5
Module 2:	**Serial Correlation and Heteroskedasticity in Time Series Regressions:** Properties of OLS with Serially Correlated Errors, Serial Correlation in the Presence of Lagged Dependent Variables, Testing for Serial Correlation, The Durbin-Watson Test under Classical Assumptions, Testing for AR(1) Serial	**07(T) + 15(P)**	CO2	K1, K2, K3, K4, K5

	Correlation without Strictly Exogenous Regressors, Testing for Higher Order Serial Correlation, Correcting for Serial Correlation with Strictly Exogenous Regressors, Feasible GLS Estimation with AR(1) Errors, Comparing OLS and FGLS, Correcting for Higher Order Serial Correlation, Differencing and Serial Correlation, Serial Correlation-Robust Inference after OLS, Heteroskedasticity in Time Series Regressions, Heteroskedasticity-Robust Statistics, Testing for Heteroskedasticity Autoregressive Conditional Heteroskedasticity, Heteroskedasticity and Serial Correlation in Regression **Practical:** Diagnostic Testing: Running tests to detect the presence of serial correlation and heteroskedasticity. Correction Methods: Applying various methods to correct for these issues, such as using robust standard errors or re-estimating the model with a different technique, to ensure reliable model results			
Module 3:	**Models Pooling Cross Sections across Time:** Simple Panel Data Methods, Pooling Independent Cross Sections across Time, The Chow Test for Structural Change across Time, Policy Analysis with Pooled Cross Sections, Two-Period Panel Data Analysis, Organizing Panel Data, Policy Analysis with Two-Period Panel Data, Differencing with More Than Two Time Periods, Fixed Effects Estimation, The Dummy Variable Regression, Fixed Effects or First Differencing? Fixed Effects with Unbalanced Panels, Random Effects Models, Random Effects or Fixed Effects? The Correlated Random Effects Approach, Applying Panel Data Methods to Other Data Structures **Practical:** Preparing datasets that combine information from different entities (e.g., people, firms) over multiple time periods. Estimating different models like Fixed Effects and Random Effects to analyze the data. Using statistical tests to determine which of these models is more appropriate for a given dataset.	**07(T) + 15(P)**	CO3	K1, K2, K3, K4, K5
Module 4:	**Simultaneous Equations Models:**	**08(T) +**	CO4	K1, K2, K3, K4, K5

	The Nature of Simultaneous Equations Models, Simultaneity Bias in OLS, Identifying and Estimating a Structural Equation, Identification in a Two-Equation System, Estimation by 2SLS, Systems with More Than Two Equations, Identification in Systems with Three or More Equations, Estimation of Simultaneous Equations Models with Time Series, Simultaneous Equations Models with Panel Data, Infinite Distributed Lag Models, The Geometric (or Koyck) Distributed Lag, Rational Distributed Lag Models, Testing for Unit Roots, Spurious Regression, Cointegration and Error Correction Models, Cointegration, Error Correction Models, Forecasting, Types of Regression Models Used for Forecasting, One-Step-Ahead Forecasting, Comparing One-Step-Ahead Forecasts, Multiple-Step Ahead Forecasts, Forecasting Trending, Seasonal, and Integrated Processes **Practical:** Using specialized estimation techniques, like Two-Stage Least Squares, to build models where variables are determined simultaneously. Building models that can predict future values based on past and present data. Conducting tests for unit roots and cointegration to understand the long-term relationships between variables.	**15(P)**		
Pedagogy:	● Chalk and talk aided by ICT enabled lectures ● PC lab exercises ● Assignments and presentations ● Group activity ● E-resources			
Texts:	Core reading Wooldridge, J. (2018). *Introductory econometrics: A modern approach* (7th edition). Cengage Learning.			
References/ Readings:	Additional resources 1. Angrist, J. D., & Pischke, J.-S. (2009). *Mostly harmless econometrics: An empiricist's companion*. Princeton University Press.			

	2. Heiss, F. (2020). *Using R for introductory econometrics* (2nd ed.). CreateSpace Independent Publishing Platform. http://www.urfie.net/

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Title of the Course	Introduction to Finance
Course Code	ECO-6403
Number of Credits	2T+2P
Theory/Practical	Theory & Practical
Level	500
Effective from AY	2025-26
New Course	No
Bridge Course/ Value added Course	No
Course for advanced learners	NO

Pre-requisites for the Course:	Nil	
Course Objectives:	The course provides a thorough coverage of finance theories applied to investment analysis while providing the fundamental base for optimal financial decision-making; as well as the components, behaviour and working of financial institutions and markets.	
Course Outcomes:		**Mapped to PSO**
	CO1. Describe the financial institutional framework in India	PSO1, PSO 2
	CO2. Asses the financial ratios, risks and capital budgeting.	PSO1, PSO 2, PSO 3

	CO3. Apply quantitative techniques to analyse cash flows and understand the principles of financial assets.		PSO1, PSO 2, PSO4	
	CO4. Evaluate the optimization strategies in the derivatives and crypto-currency markets		PSO1, PSO 2, PSO5	
Content:		**No of hours**	**Mapped to CO**	**Cognitive Level**
Module 1:	Module 1 Significance of Banking, Insurance and Financial Institutions, Structure of the Financial system, Financial Markets and Instruments, Financial Intermediaries, Financial market securities: Equity shares, Bonds and Mutual Funds, Regulating and promotional institutions in Indian Financial system : IRDA, RBI and SEBI **Practicals:** Map the flow of real-world capital through banks, NBFCs, and financial intermediaries by dissecting corporate funding structures. Read market tickers, evaluate equity share performance, and calculate bond yields using live financial metrics. Evaluate asset management products, calculate Net Asset Value (NAV) metrics, and understand risk diversification.	**8T + 15P**	CO1, CO2	K1,2,3,4,5
Module 2:	Module 2 Introduction to Financial Statements, Structure of Financial Statements: Balance Sheet, Income Statement, Statement of Cash Flow. Financial Ratios: Liquidity ratios, Leverage ratios, Turnover ratios, Profitability ratios, Capital Gearing ratios, Limitations. Capital Budgeting Decision of firms, Introduction to risk and risk factors, Measuring investment risks, Diversification, Systematic and idiosyncratic risk. **Practicals**: To construct and link a multi-period, dynamic corporate financial model in a spreadsheet environment. Students will ingest raw trial balance data to generate an interconnected Income Statement, Balance Sheet, and Statement of Cash Flows (utilizing both the direct and indirect methods). Extract, calculate, and systematically evaluate a firm's operational liquidity, asset velocity, profitability profiles, and financial solvency using cross-sectional and time-series industry benchmarks	**7T + 15P**	CO1, CO2	K1,2,3,4,5

Module 3:	Module 3 Discount rates and the Time Value of Money: Present value and Net Present Value, Compound interest, annuity and perpetuity formulas, Real and Nominal cash flows, Bond Valuation and Yield Curve. Asset Pricing Theories and Portfolio Analysis: Mean Variance Portfolio theory, Portfolio Optimization, Single Index Model, Capital Asset Pricing Model, Arbitrage Pricing Theory. **Practicals**: To build a dynamic financial math engine in a spreadsheet or programming environment (such as Python/R) that automates deterministic cash flow projections. Students will write, evaluate, and stress-test the mathematical structures of Compound Interest, Annuity, and Perpetuity variations (including ordinary, due, deferred, and growing structures).	**7T + 15P**	CO3, CO4	K1,2,3,4,5
Module 4:	Module 4 The Derivatives and commodities markets: Forwards and Futures, Spot and Forward prices, Arbitrage, Hedging, Introduction to the Swaps market, Options: Call and Put Options, Pricing of stock options. Role of digital currencies and cryptocurrencies **Practicals:** Model the mathematical relationship between spot and forward/futures prices, and build an automated cash-and-carry arbitrage detection script. Navigate commodity and derivative exchanges (e.g., MCX, CME Group) to extract live spot prices, futures tickers, and contract specifications. Programme a spreadsheet engine to calculate the theoretical futures price of a commodity/stock using the continuous compounding cost-of-carry model. Execute optimal hedging strategies using futures contracts to mitigate price risk, and design vanilla Interest Rate Swap configurations.	**8T + 15P**	CO3, CO4	K1,2,3,4,5
Pedagogy:	● Chalk and talk aided by ICT enabled lectures ● Flipped Classroom ● PC lab exercises ● Assignments and presentations ● Group activity ● MOOC (or similar) Component			
Texts:	Core reading			

	Luenberger, D. (2013). *Investment Science*. Oxford University Press.
References/ Readings:	Additional references 1. Bailey, R.E. (2005). *The Economics of Financial Markets*. Cambridge University Press. 2. Sharpe, W.F., Alexander, G.J. & Bailey, J.F. (2002) *Investments*. Prentice Hall. 3. Hull, John C. (2022). *Fundamentals of Futures and Options Markets*. Pearson. 4. Shapiro, A.C. & Hanouna, P. (2019). *Multinational Financial Management*. Wiley and Sons.

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Title of the Course	Resource Economics
Course Code	ECO-6404
Number of Credits	1T+1P
Theory/Practical	Theory & Practical
Level	500
Effective from AY	2025-26
New Course	Yes
Bridge Course/ Value added Course	NO
Course for advanced learners	NO

Pre-requisites for the Course:	Nil	
Course Objectives:	1. Introduce the basic principles and frameworks of resource economics. 2. Develop understanding of economic models for renewable and non-renewable resources. 3. Equip students to analyze real-world resource use and conservation issues using simple data and tools. 4. Build awareness of policy instructions for sustainable resource management.	
Course Outcomes:		**Mapped to PSO**
	CO 1. Convey the key concepts and theoretical underpinnings of resource economics.	PSO 1
	CO 2. Apply basic models to analyze optimal use and depletion of natural resources.	PSO 2

	CO 3. Undertake simple empirical analyses using secondary data.		PSO 2	
	CO 4. Evaluate policy options for sustainable resource management.		PSO 3, PSO 4	
	CO 5. Demonstrate the ability to prepare concise analytical and policy-oriented reports.		PSO 3, PSO 4	
Content:		**No of hours**	**Mapped to CO**	**Cognitive Level**
Module 1:	Introduction to Resource Economics: Definition, scope, and evolution of Resource Economics; Resource scarcity, sustainability, and intergenerational equity; Economics of Renewable and Non-Renewable Resources; Classification and characteristics of resources; Optimal extraction of non-renewable resources – introduction to Hotelling's rule; **Practicals:** Classify regional and global resources, track the historical evolution of resource consumption data, and calculate fundamental dynamic scarcity indexes. Accessing and extracting global mineral, fossil fuel, and forestry inventories from open databases Classifying extracted assets into matrix frameworks based on physical and economic traits: Renewable vs. Non-Renewable, Exhaustible vs. Reproducible, and Common-Pool vs. Private. Calculate the Static Reserve-to-Production (R/P) Ratio for a selected mineral asset	**7T + 15P**	CO1, CO2, CO3	K1, K2, K3, K4,
Module 2:	Renewable resource management: forests, fisheries, and water; Common property resources and the "tragedy of the commons". Policy instruments: taxes, subsidies, tradable permits, and regulation **Practicals**: Model the biological and economic dynamics of a fishery to calculate maximum sustainable yield versus open-access collapse. Programme a multi-period biological growth engine using the classic Schaefer Logistic Growth Model:	**8T + 15P**	CO2, CO3, CO4 CO1	K2, K3, K4, K5
Pedagogy:	Chalk and talk aided by ICT enabled lectures ● Flipped Classroom			

	● PC lab exercises ● Assignments and presentations ● Group activity ● MOOC (or similar) Component
Texts:	Core readings Conrad, J. (2021), Resource Economics, Cambridge University Press.
References/ Readings:	Additional references 1. Tietenberg, T. & Lewis, L. (2018). *Environmental and Natural Resource Economics*. Pearson. 2. Hartwick, J.M. & Olewiler, N.D. (1998). *The Economics of Natural Resource Use* Addison-Wesley. 4. Perman, R. et al. (2011). *Natural Resource and Environmental Economics*. Pearson. 5. Hanley, N., Shogren, J., & White, B. (2013). *Introduction to Environmental Economics*. Oxford University Press.

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Title of the Course	Financial Econometrics
Course Code	ECO-6405
Number of Credits	1T+1P
Theory/Practical	Theory & Practical
Level	500
Effective from AY	2025-26
New Course	Yes
Bridge Course/ Value added Course	No
Course for advanced learners	No

Pre-requisites for the Course:	A basic understanding of Mathematics, Statistics, and Finance.	
Course Objectives:	To introduce students to the fundamental concepts and practical applications of econometrics in finance, equipping them with the skills to analyze financial data, test market efficiency, and evaluate asset pricing and present-value models.	
Course Outcomes:		**Mapped to PSO**
	CO 1. Understand the characteristics of financial data,	PSO 1, PSO 2, PSO 5
	CO 2. Apply statistical tests to evaluate market efficiency and rational bubbles, and explain present-value models.	PSO 1, PSO 2, PSO 5

	CO 3. Explain the principles of portfolio theory and the Capital Asset Pricing Model (CAPM), and validate these models using econometric techniques.		PSO 1, PSO 2, PSO 5	
	CO 4. Construct and analyze efficient portfolios by calculating expected returns, risks, and the Sharpe ratio.		PSO 1, PSO 2, PSO 5	
Content:		**No of hours**	**Mapped to CO**	**Cognitive Level**
Module 1:	**Financial Data, Market Efficiency & Present-Value Models:** Financial Data: Characteristics (non-normality, volatility clustering), Returns (simple vs. continuously compounded), Bond yields and prices, Stylized features of financial returns. Efficient Markets Hypothesis and Statistical Models: Tests for white noise (Ljung-Box test) and random walks (Dickey-Fuller test). Present-Value Models: Fundamental price, rational bubbles, time-varying expected returns, and empirical evidence from linear regression under dependence. **Practicals**: Import raw financial asset price series, calculate and compare distinct return conventions, and statistically prove the non-normality and volatility clustering profiles of financial markets. Ingest live or historical daily closing price series (P_t) from public market API feeds (e.g., Yahoo Finance, Bloomberg, or Google Finance). Programme calculations to isolate Simple Returns (R_t) vs. Continuously Compounded (Log) Returns	**(08T+15P)**	CO1, CO2	K1, K2, K3, K4, K5
Module 2:	**Portfolio Theory & Capital Asset Pricing** Efficient Portfolios: Returns and risks, portfolio optimization, efficient frontiers, and Sharpe ratios. Capital Asset Pricing Model (CAPM): Derivation of the model, market portfolio, and market beta. Validating CAPM: Econometric formulation, maximum likelihood estimation, and testing statistics.	**(07T+15P)**	CO3, CO4	K2, K3, K4, K5

	Practicals: Import multi-asset equity data, construct variance-covariance matrices, and utilize numerical optimization solvers to map out the Markowitz Efficient Frontier. Ingest daily closing price series for a designated basket of equities via public financial APIs (e.g., Yahoo Finance). Convert raw prices into log returns and calculating expected returns alongside annualized standard deviations Introduce a risk-free asset to construct the Capital Allocation Line (CAL) and isolate the precise asset weights that maximize portfolio risk-adjusted returns.			
Pedagogy:	● Chalk and talk aided by ICT enabled lectures ● PC lab exercises ● Assignments and presentations ● Group activity ● E-resources			
Texts:	Core readings Fan, J., & Yao, Q. (2015). *The Elements of Financial Econometrics*. Science Press.			
References/ Readings:	Additional references Brooks, C. (2019). *Introductory Econometrics for Finance*. Cambridge University Press.			

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SEMESTER IV

Generic Elective (GE) Courses

Title of the Course	Introduction to Game Theory
Course Code	ECO-6201
Number of Credits	04
Theory/Practical	Theory
Level	500
Effective from AY	2025-26
New Course:	Yes
Bridge Course/ Value added Course:	No
Course for advanced learners:	No

Pre-requisites for the Course:	Nil
Course Objectives:	1. Introduce concepts of strategic behaviour 2. explain two and multiple person games 3. introduce theory of basic game theory 4. explain basic application in Economics

Course Outcomes:			**Mapped to PSO**	
	CO 1. Discuss the various nuances of the theoretical basis of Nash equilibrium		PSO 1,2,3,4	
	CO 2. Illustrate the different applications of Nash equilibrium in the oligopolistic market		PSO 1,2,3,4	
	CO 3. Deduce the subgame equilibria for games entailing perfect information		PSO 1,2,3,4	
	CO 4. Explain the decision-making strategies in coalitional games		PSO 1,2,3,4	
Content:		**No of hours**	**Mapped to CO**	**Cognitive Level**
Module 1:	Introduction to Game Theory Nash Equilibrium: Theory, Strategic games, Best response functions, Dominated actions, Equilibrium in a single population: symmetric games and symmetric equilibria	**15**	CO1, CO2	K1,2,3,4,5
Module 2:	Module 2 Nash Equilibrium applications Illustrations; Cournot's model of oligopoly, Bertrand's model of oligopoly, Electoral competition, The War of Attrition, Auctions. Mixed Strategy Nash equilibrium, Dominated actions, Pure equilibria when randomization is allowed, Equilibrium in a single population, The ultimatum game and the holdup game, Stackelberg's model of duopoly	**15**	CO1, CO2	K1,2,3,4,5
Module 3:	Module 3 Extensive Games with Perfect Information Theory, Extensive games with perfect information, Strategies and outcomes, Nash equilibrium, Subgame perfect equilibrium, Finding subgame perfect equilibria of finite horizon games, backward induction	**15**	CO3, CO4	K1,2,3,4,5
Module 4:	Module 4 Extensive Games with Perfect Information: Extensions and Discussion, Allowing for simultaneous moves, Coalitional Games and the Core, Coalitional games, The core	**15**	CO3, CO4	K1,2,3,4,5

Pedagogy:	● Chalk and talk aided by ICT enabled lectures ● Flipped Classroom ● PC lab exercises ● Assignments and presentations ● Group activity ● MOOC (or similar) Component
Texts:	Core readings 1. Dutta, P. K., Vergote, W. (2022). *Strategies and Games: Theory and Practice*. MIT Press. 2. Martine,O. (2009). *An Introduction to Game Theory*. Oxford University Press.
References/ Readings:	Additional references 1. Dixit, A..Skeath, S. & Reliey, D.H. (2015), *Games of Strategy*, W. W. Norton. 2. Rasmusen, E. (2007). *Games and Information*. Blackwell.

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Title of the Course	Introduction to Spatial Economics
Course Code	ECO-6202
Number of Credits	04
Theory/Practical	Theory
Level	500
Effective from AY	2025-26
New Course	No
Bridge Course/ Value added Course	No
Course for advanced learners	No

Pre-requisites for the Course:	Nil	
Course Objectives:	Introduce students to understanding the role of the spatial dimension in economic analysis. This will provide students an integrative approach that bridges the conventional analytical notions of development with tools of GIS (Geographic Information System) and Remote sensing.	
Course Outcomes:		**Mapped to PSO**
	CO1. Explain the basics concept and structure of remote sensing and GIS	PSO 1, PSO 2
	CO2. Use remote sensing data in economics analysis and to combine remote sensing data with socio-economics data.	PSO 1, PSO 2

	CO3. Use of remote sensing and GIS data in decision making for sustainable urban planning.		PSO 1, PSO 2	
	CO4. Use remote sensing and GIS data in mapping ecological zone and analysing ecosystem services		PSO 1, PSO 2	
Content:		**No of hours**	**Mapped to CO**	**Cognitive Level**
Module 1:	Concepts in Spatial analysis: Geographic Information System- remote sensing, Multiscale analysis, Data models and scales of measurement- Raster imagery and Vector Data – Meaning and its objects- Base model- Scale of measurement, Spatial variation. Land use land cover classification method	**15**	CO1, CO2	K 1,2,3,4,5
Module 2:	Remote sensing application in socio-economic planning Principles of Socio-Economic studies using remote sensing technologies, Socio-Economic information estimation- estimation of Population, Employment, GDP and Electric power consumption, Socio-Economic activity modelling, Advantages and limitations of remote sensing technologies in socio-economic application.	**15**	CO1, CO2	K 1,2,3,4,5
Module 3:	Sustainable planning Sustainable demographic growth, Change analysis, Dynamic spatial modelling, case study, Vulnerability analysis: Conceptual framework, GIS – remote sensing place based modelling	**15**	CO3, CO4	K 1,2,3,4,5
Module 4:	Ecological mapping and monitoring GIS & Remote sensing for ecological mapping & monitoring, Use of GIS data ecological application- gradient analysis, climate, topography, Remote sense data for ecological application, spectral enhancements, land cover, Habitat Structure, Biophysical process, Species distribution model, Biodiversity mapping, change detection	**15**	CO3, CO4	K 1,2,3,4,5
Pedagogy:	● Chalk and talk aided by ICT enabled lectures ● Flipped Classroom ● PC lab exercises			

	● Assignments and presentations ● Group activity ● MOOC (or similar) Component
Texts:	Core reading Mesev, V. (2007). *Integration of GIS and remote sensing*. John Wiley & Sons.
References/ Readings:	Additional references 1. Gatrell, J. D., & Jensen, R. R. (2009). *Planning and socioeconomic applications*. Springer Science & Business Media. 2. Huisman, O., & de By, R. A. (Eds.). (2009). *Principles of geographic information systems: An introductory textbook*. International Institute for Geo-Information Science and Earth Observation. 3. Overman, H. G. (2009). *What uses geographical information systems in spatial economics?* [Conference paper]. London School of Economics / Federal Reserve Bank of New York. https://www.newyorkfed.org/medialibrary/media/research/conference/2009/jrs/Overman.pdf 4. Parker, R. N., & Asencio, E. K. (2009). *GIS and spatial analysis for the social sciences: Coding, mapping, and modeling*. Routledge. 5. Pogodzinski, J. M., & Kos, R. M. (2013). *Economic development & GIS*. ESRI Press. 6. QGIS Project. (2020). *QGIS training manual*. https://docs.qgis.org/3.10/en/docs/training_manual/index.html 7. Wang, F. (2014). *Quantitative methods and socio-economic applications in GIS* (2nd ed.). CRC Press. 8. Wegmann, M., Leutner, B., & Dech, S. (2016). *Remote sensing and GIS for ecologists: Using open source software*. Pelagic Publishing.

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Title of the Course	Comparative Economic Systems
Course Code	ECO-6203
Number of Credits	04
Theory/Practical	Theory
Level	500
Effective from AY	2025-26
New Course:	No
Bridge Course/ Value added Course:	No
Course for advanced learners:	No

Pre-requisites for the Course:	Nil	
Course Objectives:	The course content enables the students to undertake a comparative analysis of institutions of existing economic systems, understand the evolution of institutions and appreciate the importance of history in determining contemporary outcomes.	
Course Outcomes:		**Mapped to PSO**
	CO1. undertake a comparative analysis of institutions of existing economic systems	PSO 1, 4
	CO2. to understand the evolution of institutions	PSO 3
	CO3. explore the different trajectories that different regions of the world have taken	PSO 3, 4

	CO4. appreciate the importance of history in determining contemporary outcomes		PSO 5	
Content:		**No of hours**	**Mapped to CO**	**Cognitive Level**
Module 1:	AN OVERVIEW OF ECONOMIC SYSTEMS A Brief History Of Economic Systems, Major Types of Economic Systems, Patterns of Ownership, Defining Characteristics of Capitalism, Defining Characteristics of Socialism	**15**	CO1, CO2	K1,2
Module 2:	ECONOMIC SYSTEMS IN PRACTICE Market Capitalism in the United States, Market Socialism in Sweden, State Capitalism in China, Planned Socialism in the Soviet Union, Mixed Economies of South Korea and India	**15**	CO3, CO4	K1,2
Module 3:	SPECIAL ISSUES FOR THE 21ST CENTURY Inequality, Environmental Sustainability, Sustainable development Goals, Intergovernmental Panels on Climate Change (IPCC), and Biodiversity (IPBES)	**15**	CO3, CO4	K1,2, 3
Module 4:	Alec Nove's Feasible Socialism, Eric Olin Wright's Realistic Utopias, Elinor Ostrom and The Commons, Pickety and global inequality	**15**	CO1, CO2	K 3,4,5
Pedagogy:	● Chalk and talk aided by ICT enabled lectures ● Flipped Classroom ● PC lab exercises ● Assignments and presentations ● Group activity ● MOOC (or similar) Component			
Texts:	Core readings			

	1. Global Development Policy Center. (2021). Comparative economic systems: Capitalism and socialism in the 21st century [ECI teaching module on social and economic issues]. Boston University. 2. https://www.bu.edu/eci/files/2021/08/Comparative-Economic-Systems.pdf
References/ Readings:	Additional references 1. Aligică, P. D. (Ed.). (2018). *Comparative economic systems*. Edward Elgar Publishing. 2. Dallago, B., & Casagrande, S. (Eds.). (2023). *The Routledge handbook of comparative economic systems* (1st ed.). Routledge. 3. Rosefielde, S. (2015). *Comparative economic systems: Culture, wealth, and power in the 21st century*. Wiley-Blackwell.

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Title of the Course	Indian Agriculture
Course Code	ECO-6204
Number of Credits	04
Theory/Practical	Theory
Level	500
Effective from AY	2025-26
New Course	No
Bridge Course/ Value added Course	No
Course for advanced learners	No

Pre-requisites for the Course:	Nil	
Course Objectives:	To understand the agricultural development, problems faced and Government policies in India	
Course Outcomes:		**Mapped to PSO**
	CO1 Explain the significance of agriculture in India's economic development and analyze key historical and policy-driven factors affecting its performance	PSO 1,2,3,4,5
	CO2 Assess the sustainability of resource use and agricultural practices including biotechnology, organic farming, and food security in India	PSO 1,2,3,4,5
	CO3 Evaluate the structure of agricultural finance, marketing systems, and insurance	PSO 1,2,3,4,5

	mechanisms with emphasis on institutional support and reforms.			
	CO4 Analyze the current state of agriculture in Goa		PSO 1,2,3,4,5	
Content:		**No of hours**	**Mapped to CO**	**Cognitive Level**
Module 1:	Role and Importance of Agriculture Agricultural Growth in India - pre and post-Independence period. Factors responsible for agricultural development – technology (seed, fertilizers), infrastructure (irrigation), policies (agricultural price support, subsidy, credit, land reforms). Agrarian distress and reforms	**15**	CO1	K1,2,3,4,5
Module 2:	Resource use, Technology and Sustainable growth Land and water resources- Land Utilization and irrigation cover, Cropping Patterns in different regions in India, Changes in agrarian structure in India. Bio-Technology - Trends and issues, Organic Farming - Present status and Future, Contract Farming, Agricultural Management – Concept, Recent trends and Problems- Food Security in India.	**15**	CO2	K1,2,3,4,5
Module 3:	Credit, Marketing and Insurance Credit in Indian agriculture: Sources of finance, factors determining the demand for credit, recent policy changes in regard to farm credit and their implications, Role of NABARD; Marketing: Regulated markets and market intervention, Marketing Channels and Functionaries, e-NAM, FPC and other initiatives Risk Mitigating Strategies, Need for Agricultural Insurance and Issues Involved, Schemes	**15**	CO3	K1,2,3,4,5
Module 4:	Agriculture in Goa Trends in agricultural growth rate, Gross Value Added in agriculture and allied sectors- crops, livestock, forestry and logging, fishing and aquaculture; Factors for decline of	**15**	CO4	K1,2,3,4,5

	agriculture in Goa; Gaunkaris, Goa Tenancy Act and its implications for agriculture			
Pedagogy:	● Chalk and talk aided by ICT enabled lectures ● Flipped Classroom ● PC lab exercises ● Assignments and presentations ● Group activity ● MOOC (or similar) Component			
Texts:	Core readings 1. Indian Council of Agricultural Research. (2006). *Handbook of agriculture* (6th ed.). 2. Reddy, S. S., Ram, P. R., Sastry, T. V. N., & Devi, I. B. (2017). *Agricultural economics*. Oxford & IBH Publishing.			
References/ Readings:	Additional references 1. Dantwala, M. L. (Ed.). (1991). *Indian agricultural development since independence: A collection of essays*. Oxford & IBH Publishing. 2. Directorate of Planning, Statistics & Evaluation. (n.d.). *Economic survey*. Government of Goa.			

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Title of the Course	Health Economics
Course Code	ECO-6205
Number of Credits	04
Theory/Practical	Theory
Level	500
Effective from AY	2025-26
New Course	No
Bridge Course/ Value added Course	No
Course for advanced learners	No

Pre-requisites for the Course:	Nil	
Course Objectives:	Provide an understanding of health as human capital and recognise how health care markets differ from other conventional markets.	
Course Outcomes:		**Mapped to PSO**
	CO1 Explain the scope of health economics and the role of health as human capital, including models of health demand and resource allocation	PSO 1,2,3,4,5
	CO2 Analyze how quality of healthcare is measured using utility-based methods	PSO 1,2,3,4,5
	CO3 Evaluate the structure, financing, and key issues in India's healthcare system, including	PSO 1,2,3,4,5

	intrahousehold inequalities and out-of-pocket expenditures.			
	CO4 Examine the economics of health insurance.		PSO 1,2,3,4,5	
Content:		**No of hours**	**Mapped to CO**	**Cognitive Level**
Module 1:	Economic Development and Health Meaning, Relevance and Scope of Health Economics, General problems of Resource allocation in health care sector. Need versus demand. The demand for health as human capital. Models of demand – Grossman, Needs model and Components of costs. Supplier-induced demand. Role of pharmaceutical and medical equipment industries on demand.	**15**	CO1	K1,2,3,4,5
Module 2:	Quality of Healthcare Measurement of quality of care, Measurement of health state utilities - rating scales, standard gamble, and time trade-off; QALYs and its alternatives- different approaches of valuing health, Multi-attribute utility instruments and their development.	**15**	CO2	K1,2,3,4,5
Module 3:	Healthcare in India Demand and supply of healthcare in India, Different types of healthcare systems and Issues in Healthcare Delivery System, Share of GDP, Trends in cost of health care in India, National Health Policy – objectives and features, Financing health services- Sources of finance, Changes in Healthcare Finance, Public and private finance and provision; Healthcare Utilization & Expenditure in India. Intrahousehold inequality in health, Out of pocket expenditures.	**15**	CO3	K1,2,3,4,5
Module 4:	Economics of Health Insurance Competitive health insurance and risk adjustment, standard and substandard risk, Demand and supply of health insurance, asymmetric information and agency, market insurance, Adverse selection, the market for lemons, moral hazard; Health insurance in India: Private insurance,	**15**	CO4	K1,2,3,4,5

	community-based insurance schemes – Issues in coverage: services covered and individual eligibility.			
Pedagogy:	● Chalk and talk aided by ICT enabled lectures ● Flipped Classroom ● PC lab exercises ● Assignments and presentations ● Group activity ● MOOC (or similar) Component			
Texts:	Core readings 1. Bhattacharya, J., Hyde, T., & Tu, P. (2013). *Health economics*. Palgrave Macmillan. 2. Zweifel, P., Breyer, F., & Kifmann, M. (2009). *Health economics* (2nd ed.). Springer.			
References/ Readings:	Additional references 1. Donaldson, C., & Gerard, K. (2004). Economics of health care financing: The visible hand (2nd ed.). Palgrave Macmillan. 2. Johnson-Lans, S. (2005). A health economics primer. Pearson Addison Wesley. 3. McPake, B., Kumaranayake, L., & Normand, C. (2008). Health economics: An international perspective (2nd ed.). Routledge. 4. Phelps, C. E. (2017). Health economics (6th ed.). Routledge.			

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Title of the Course	Evolution of Economic Thought
Course Code	ECO-6206
Number of Credits	4
Theory/Practical	Theory
Level	500
Effective from AY	2025-26
New Course:	No
Bridge Course/ Value added Course:	No
Course for advanced learners:	No

Pre-requisites for the Course:	Nil	
Course Objectives:	The Objective of this course is to give students an overview of the different schools of economic thought and an insight into the evolution of modem economic ideas.	
Course Outcomes:		**Mapped to PSO**
	CO1 Explain the key ideas and contributions of Pre-Classical economists and Classical economists to economic thought	PSO1, PSO2
	CO2 Analyze the Marxian challenge and compare it with Classical economic theories, focusing on Karl Marx's critique of capitalism	PSO3, PSO5

	CO3 Examine the Neoclassical revolution and the contributions of economists to the marginalist school of though		PSO1, PSO2	
	CO4 Critically assess Modern Macroeconomic theory		PSO3, PSO5	
	CO5 Evaluate the evolution of Indian economic thought, from early Indian perspectives to post-independence debates		PSO 3	
Content:		**No of hours**	**Mapped to CO**	**Cognitive Level**
Module 1:	Pre classical economic thought -Thomas Mun (1571–1641), Physiocrats and mercantilism: François Quesnay (1694–1774), The Classical School - Adam Smith (1723–1790), Thomas Robert Malthus (1766–1834), David Ricardo (1772–1823), The Marxian Challenge : Karl Marx (1818–1883)	**15**	CO1, CO2	K1,2,3,4,5
Module 2:	Neoclassical Economics and The Marginal Revolution : Carl Menger (1840–1921) , Léon Walras (1834–1910), Alfred Marshall (1842–1924)	**15**	CO3	K1,2,3,4,5
Module 3:	The Modern Macroeconomics theory : John Maynard Keynes (1883–1946), Paul A. Samuelson (1915–2009), A.W. Phillips (1914–1975), Milton Friedman (1912–2006)	**15**	CO4	K1,2,3,4,5
Module 4:	Indian economic thought: Early Indian thought, Economic debates during Independence (Gandhian Economics, Ambedkar's ideas, Mahalanobis model), Post-independence ideas (Stagnation debate, Poverty debate, Liberalisation and Privatisation debate)	**15**	CO5	K1,2,3,4,5
Pedagogy:	● Chalk and talk aided by ICT enabled lectures ● Flipped Classroom ● PC lab exercises ● Assignments and presentations ● Group activity ● MOOC (or similar) Component			

Texts:	Core readings 1. Dasgupta, A. (1993). *A history of Indian economic thought.* Routledge. 2. Medema, S. G., & Samuels, W. J. (Eds.). (2013). *The history of economic thought: A reader* (2nd ed.). Routledge. https://doi.org/10.4324/9780203568477
References/ Readings:	Additional references 1. Aiyangar, K. V. R. (1934). *Aspects of ancient Indian economic thought*. Benaras Hindu University. https://ignca.gov.in/Asi_data/7536.pdf 2. Bowles, S., & Gintis, H. (1988). Contested exchange: Political economy and modern economic theory. *The American Economic Review*, 78(2), 145–150. 3. Ghate, C., Gopalakrishnan, P., & Grover, S. (2022). *The Mahalanobis growth model: A macrodynamics approach.* Springer Nature. https://doi.org/10.1007/978-981-16-8980-2 4. Gordon, D. F. (1965). The role of the history of economic thought in the understanding of modern economic theory. *The American Economic Review*, 55(1/2), 119–127. 5. Heilbroner, R. L. (1980). Modern economics as a chapter in the history of economic thought. *Challenge*, 22(6), 20–24. 6. Hunt, E. K. (2015). *History of economic thought: A critical perspective* (3rd ed.). Routledge.

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Title of the Course	Data Visualisation
Course Code	ECO-6207
Number of Credits	02
Theory/Practical	Practical
Level	500
Effective from AY	2025-26
New Course	Yes
Bridge Course/ Value added Course	NO
Course for advanced learners	NO

Pre-requisites for the Course:	Nil	
Course Objectives:	To develop students' ability to understand, design, and critically evaluate effective data visualisations	
Course Outcomes:		**Mapped to PSO**
	CO 1. Understand fundamental principles of data visualisation	PSO 2
	CO 2. Apply appropriate visualisation techniques (e.g., histograms, density plots, scatterplots, time series) for different types of datasets.	PSO 2, 5
	CO 3. Compare different visualisation options	PSO 2
	CO 4. Evaluate the effectiveness of visualizations in communicating uncertainty, proportions, and multivariate associations.	PSO 2, 4

Content:		No of hours	Mapped to CO	Cognitive Level
Module 1:	Communicating Data: Introduction; Ratio and rates, proportion and percentage; mean & median -normal distribution and non-normal distribution; Variation and Uncertainty;Multiple Quantities- scooter plot, stacked bar, Quadrant Chart; Changes Over Time-line chart, dual axis line chart, connected scatter plot, slopegraph; Maps and Location - Circle Maps, Filled Maps, A Dual-Axis Map.	**60**	CO1 ,CO2, CO3, CO4	K1, K2, K3, K4, K5
Pedagogy:	Chalk and talk aided by ICT enabled lectures ● Flipped Classroom ● PC lab exercises ● Assignments and presentations ● Group activity ● MOOC (or similar) Component			
Texts:	Core readings Jones, B. (2014). *Communicating data with Tableau: Designing, developing, and delivering data visualizations*. O'Reilly Media.			
References/ Readings:	Additional references 1. Baldwin, D. (2016). *Mastering Tableau*. Packt Publishing. 2. Murray, D. G. (2013). *Tableau your data!: Fast and easy visual analysis with Tableau software*. John Wiley & Sons.			

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Title of the Course	AI and Economics
Course Code	ECO-6208
Number of Credits	01
Theory/Practical	Theory
Level	500
Effective from AY	2025-26
New Course	Yes
Bridge Course/ Value added Course	NO
Course for advanced learners	NO

Pre-requisites for the Course:	Nil
Course Objectives:	1. **Understand Core Concepts:** Introduce students to the fundamental principles of Artificial Intelligence and Machine Learning and their theoretical foundations relevant to economic analysis. 2. **Apply AI/ML Techniques in Economics:** Enable students to apply AI and ML algorithms such as optimization, prediction, and classification to real-world economic and financial problems. 3. **Explore Data-Driven Economic Insights:** Develop students' ability to use computational and data-driven methods for forecasting, policy evaluation, and decision-making in economics and finance. 4. **Integrate Mechanism Design:** Examine how AI integrates with economic models of strategic behavior, markets, and incentives through Mechanism Design. 5. **Engage with Research and Applications:** Expose students to modern research and case studies demonstrating how AI and ML are transforming economic analysis, policymaking, and financial systems.

Course Outcomes:			**Mapped to PSO**	
	CO 1. By the end of the course, students will be able to explain the fundamental concepts of Artificial Intelligence and Machine Learning and their relevance to economic analysis.		PSO1,2	
	CO 2. Students will be able to apply optimization, predictive, and causal inference techniques to analyze and interpret economic and financial data.		PSO2,3,4,5	
	CO 3. Students will be able to evaluate strategic interactions and design mechanisms.		PSO2,3,4,5	
	CO 4. Students will be able to critically assess research papers and case studies that apply AI/ML methods to economics, finance, and public policy.		PSO2,3,4,5	
	CO 5. Students will be able to design data-driven models and simulations for decision-making, forecasting, and policy evaluation in economic systems.		PSO2,3,4,5	
Content:		**No of hours**	**Mapped to CO**	**Cognitive Level**
Module 1:	**Foundations of AI/ML and Economic Applications** **Theory:** Concepts of AI/ML, Formulating economic problems, Optimization & Search, Pareto-optimality	**8**	CO1,CO 2, CO3, CO4	K1
Module 2:	**Predictive & Causal Analysis** **Theory:** Regression, Decision Trees, Random Forests, Neural Networks, Granger Causality, do-Calculus, RCTs	**7**	CO1,CO 2, CO3, CO4	K2
Pedagogy:	Chalk and talk aided by ICT enabled lectures ● Flipped Classroom ● PC lab exercises ● Assignments and presentations ● Group activity ● MOOC (or similar) Component			

Texts:	Core readings 1. Athey, S., & Imbens, G. W. (2019). Machine learning methods that economists should know about. *Annual Review of Economics*, 11(1), 685–725. https://doi.org/10.1146/annurev-economics-080217-053433 2. Mullainathan, S., & Spiess, J. (2017). Machine learning: An applied econometric approach. *Journal of Economic Perspectives*, 31(2), 87–106. https://doi.org/10.1257/jep.31.2.87
References/ Readings:	Additional references Goulet Coulombe, P., Leroux, M., Stevanovic, D., & Surprenant, S. (2022). How is machine learning useful for macroeconomic forecasting? *Journal of Applied Econometrics*, 37(5), 920–964. 2.https://doi.org/10.1002/jae.2910

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Title of the Course	AI and Economics Practical
Course Code	ECO-6209
Number of Credits	01
Theory/Practical	Practical
Level	500
Effective from AY	2025-26
New Course	Yes
Bridge Course/ Value added Course	NO
Course for advanced learners	NO

Pre-requisites for the Course:	Basic understanding of mathematics and statistics
Course Objectives:	1. **Understand Core Concepts:** Introduce students to the fundamental principles of Artificial Intelligence and Machine Learning and their theoretical foundations relevant to economic analysis. 2. **Apply AI/ML Techniques in Economics:** Enable students to apply AI and ML algorithms such as optimization, prediction, and classification to real-world economic and financial problems. 3. **Explore Data-Driven Economic Insights:** Develop students' ability to use computational and data-driven methods for forecasting, policy evaluation, and decision-making in economics and finance. 4. **Integrate Mechanism Design:** Examine how AI integrates with economic models of strategic behavior, markets, and incentives through Mechanism Design. 5. **Engage with Research and Applications:** Expose students to modern research and case studies demonstrating how AI and ML are transforming economic analysis, policymaking, and financial systems.

Course Outcomes:			**Mapped to PSO**	
	CO1. Students will be able to apply optimization, predictive, and causal inference techniques to analyze and interpret economic and financial data.		PSO2,3,4,5	
	CO2. Students will be able to evaluate strategic interactions and design mechanisms.		PSO2,3,4,5	
	CO3. Students will be able to critically assess research papers and case studies that apply AI/ML methods to economics, finance, and public policy.		PSO2,3,4,5	
	CO4. Students will be able to design data-driven models and simulations for decision-making, forecasting, and policy evaluation in economic systems.		PSO2,3,4,5	
Content:		**No of hours**	**Mapped to CO**	**Cognitive Level**
Module 1:	**Foundations of AI/ML and Economic Applications** **Practical**: Python introduction to optimization problems, heuristic search demos, basic data handling using pandas/scikit-learn	**15**	CO1, CO2, CO3, CO4	K1
Module 2:	**Predictive & Causal Analysis** **Practical:** Hands-on in Python/R: model building using scikit-learn/statsmodels; causality analysis with example economic datasets.	**15**	CO1, CO2, CO3, CO4	K2
Pedagogy:	Chalk and talk aided by ICT enabled lectures ● Flipped Classroom ● PC lab exercises ● Assignments and presentations ● Group activity ● MOOC (or similar) Component			
Texts:	Core readings 1. Athey, S., & Imbens, G. W. (2019). Machine learning methods that economists should know about. Annual Review of Economics, 11(1), 685–725. https://doi.org/10.1146/annurev-economics-080217-053433			

	2. Mullainathan, S., & Spiess, J. (2017). Machine learning: An applied econometric approach. *Journal of Economic Perspectives*, 31(2), 87–106. https://doi.org/10.1257/jep.31.2.87
References/ Readings:	Additional references Goulet Coulombe, P., Leroux, M., Stevanovic, D., & Surprenant, S. (2022). How is machine learning useful for macroeconomic forecasting? Journal of Applied Econometrics, 37(5), 920–964. https://doi.org/10.1002/jae.2910

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Title of the Course	Introduction to Environmental Valuation
Course Code	ECO-6210
Number of Credits	01
Theory/Practical	Theory
Level	500
Effective from AY	2025-26
New Course	No
Bridge Course/ Value added Course	No
Course for advanced learners	No

Pre-requisites for the Course:	Nil	
Course Objectives:	The course aims to: 1. Introduce the need and theoretical basis for valuing environmental goods and services. 2. Familiarize students with key valuation methods used in environmental economics. 3. Develop the ability to critically interpret and apply valuation results in policy contexts. 4. Provide exposure to case studies and simple empirical exercises relevant to India.	
		Mapped to PSO
Course Outcomes:	CO1 Explain why environmental valuation is necessary in economic decision-making.	PSO 1, PSO 4, PSO 6
	CO2 Distinguish between different valuation methods and understand their applicability.	PSO 1, PSO 2
	CO3 Interpret valuation estimates and their implications for environmental policy.	PSO 4, PSO 6

	CO4 Apply simple valuation approaches using real or secondary data.		PSO 1, PSO 6	
Content:		**No of hours**	**Mapped to CO**	**Cognitive Levels**
Module 1:	**Introduction to Environmental Valuation** • The need for valuation of environmental goods • Market failure and externalities • Total Economic Value (TEV) framework: use and non-use values **Direct Market Methods** • Market price method, productivity approach, replacement cost • Applications to forest products, water, and ecosystem services **Revealed Preference Methods** • Travel Cost Method (TCM): concept, data needs, applications • Hedonic Pricing Method (HPM): property values and environmental quality **Stated Preference Methods** • Contingent Valuation Method (CVM): designing a survey, willingness to pay (WTP) and willingness to accept (WTA) • Choice Modelling (basic idea and applications) **Policy and Case Applications** • Use of valuation in Cost–Benefit Analysis (CBA) • Case studies from India (e.g., river cleaning projects, biodiversity valuation)	**15**	CO1, CO2, CO3, CO4	K1
Pedagogy:	● Chalk and talk aided by ICT enabled lectures ● Flipped Classroom ● PC lab exercises ● Assignments and presentations ● Group activity ● MOOC (or similar) Component			

References/ Readings:	1. Freeman, A.M. (2003). *The Measurement of Environmental and Resource Values: Theory and Methods*. RFF Press. 2. Pearce, D.W. & Turner, R.K. (1990). *Economics of Natural Resources and the Environment*. Harvester Wheatsheaf. 3. Carson, R.T. (2012). *Contingent Valuation: A Comprehensive Bibliography and History*. Edward Elgar.

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Title of the Course	Spatial Economic Analysis
Course Code	ECO-6211
Number of Credits	01
Theory/Practical	Theory
Level	500
Effective from AY	2025-2026
New Course	No
Bridge Course/ Value added Course	No
Course for advanced learners	No

Pre-requisites for the Course:	Nil	
Course Objectives:	1. To introduce spatial economic analysis to the students to make them understand the development and growth process. 2. To expose the students to tools that integrate GIS (Geographic Information System) and remote sensing in order to analyse economic change.	
Course Outcomes:	Student will learn to:	**Mapped to PSO**
	CO 1. The students will to understand basics of satellite data imaging.	PSO 1
	CO 2. The students will learn application of remote sensing in socio-economic analysis.	PSO 1, PSO 4, PSO 5
	CO 3. The students will learn socio economic models.	PSO 4, PSO 5
	CO 4. The students will learn limitation of remote sensing in socio-economic analysis.	PSO 1

Content:		No. of Hours	Mapped to CO	Cognitive Level
Module 1:	Remote sensing applications in urban socio-economic analysis: Introduction to Remote Sensing, Principles of urban socio-economic studies using remote sensing technologies, Socio-economic information estimation- Population estimation, Employment estimation, GDP estimation, Electrical power consumption estimation, Land use land cover, Advantages and limitations of remote sensing technologies in socio-economic applications.	**15**	CO 1, CO 2, CO 3, CO 4	K1, K2, K3
Pedagogy:	Lectures/ class discussion/Lab/ assignments			
Texts:	Mesev, V. (2007). *Integration of GIS and Remote Sensing*. John Wiley & Sons.			
References/ Readings:	1. Chuvieco, E. (2016). *Fundamentals of satellite remote sensing: An environmental approach.* CRC Press, Boca Raton, FL, USA. 2. Cutts, A., & Graser, A. (2018). *Learn QGIS: Your step-by-step guide to the fundamentals of QGIS 3.4* (4th ed.). Packt Publishing, Livery Place, UK.			

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