



CENTRAL UNIVERSITY OF TAMIL NADU DEPARTMENT OF ECONOMICS

DETAILED SYLLABUS AND CURRICULUM

OF

BA Honours (Economics)

BA Honours with Research (Economics)

Program Educational Objective (PEO)

After four years of successful completion of the program, the student will be able to

PEO1	To enrich the academic and research outcomes.
PEO2	To enhance the spirit of inquiry into economic issues and implications.
PEO3	To understand the regional, national, and international economic issues.
PEO4	To address the issues analytically and ensure a sustainable economy.
PEO5	To nurture human capital, employability, and responsible citizens.

Program Outcomes (PO)

On the successful completion of the program, the student will be able to

PO1	Students of this program will have an acquaintance with the concepts, theories, and applications of economics.
PO2	Students would have exposure to the current national or international economic policies and issues thereby developing their critical thinking.
PO3	The gap between theory and practice would be educated to contribute new ideas and theories in economics.
PO4	Students would have a foundation in applied econometric analysis and develop skills required for empirical research in economics
PO5	Create awareness of economic issues to become rational and enlightened students so that they can take the responsibility to work for the upliftment of society.

DEPARTMENT OF ECONOMICS

BA Honours / Honours with Research in Economics Programme (2026-27 onwards)

COURSE STRUCTURE

FIRST YEAR									
SEMESTER I									
S. No	Course Code	Course Title	Type	Credit	Hours / Week		Marks		Page No
					L	P	Int	Ext	
1.	ECO5011	Fundamentals of Economics	CC	2	2	-	40	60	07
2.	ECO5012	Principles of Microeconomics	CC	3	3	-	40	60	08
3.	ECO5013	Basic Mathematics for Economics	Minor	3	3	-	40	60	09
4.	ECO5014	Basic Mathematics for Economics (Lab)	Minor	2	-	4	100		10
5.	ECOOE01	Principles of Economics	OE	3	3	-	40	60	11
6.	ENGAE01	English/ Language	AEC	3	3	-	40	60	12
7.	DRRSEC	Disaster Risk Reduction	SEC	2	2	-	40	60	13
8.	CONVAC	Constitutional Values	VAC	3	3	-	40	60	14
Total Credit				21	19	4			
SEMESTER II									
S. No	Course Code	Course Title	Type	Credit	Hours / Week		Marks		Page No
					L	P	Int	Ext	
1.	ECO5021	Basic Statistics for Economics	Minor	3	3	-	40	60	15
2.	ECO5022	Basic Statistics for Economics (Lab)	Minor	2	-	4	100		16
3.	ECO5023	Demography	Minor	2	2	-	40	60	17
4.	ECO5024	Principles of Macroeconomics	Minor	3	3	-	40	60	18
5.	ECOOE02	Basic Data Analysis	OE	3	3	-	40	60	19
6.	TAMAE1 / HINAE1	English/ Language	AEC	3	3	-	40	60	20
7.	CYBSEC	Cyber Security	SEC	2	2	-	40	60	21
8.	ENSVAC	Environmental Science	VAC	3	3	-	40	60	22
Total Credit				21	19	4			
Cumulative Total				42					
For awarding a UG certificate Course (Additional credit from Vocational Course)									
9.		Skill Development of the Youths and their Livelihood (NPTEL)	Vocational Course	4	4		100		23
	Cumulative credit for the UG certificate course			46					

SECOND YEAR									
Semester III									
S.No	Course Code	Course Title	Type	Credit	Hour		Marks		Page No
					L	P	Int	Ext	
1.	ECO5031	Statistical Methods	Minor	3	3	-	40	60	24
2.	ECO5032	Statistical Methods (Lab)	Minor	2	-	4	100		25
3.	ECO5033	Microeconomics	CC	3	3	-	40	60	26
4.	ECO5034	Mathematical Methods for Economics	CC	3	3	-	40	60	27
5.	ECOOE03	Indian Economy	OE	3	3	-	40	60	28
6.	ECO5035	Cooperative Development	SEC (DS)	2	2	-	40	60	29
7.	TAMAE2/ HINAE2	Language	AEC	3	3	-	40	60	30
8.	YOFVAC	Yoga and Fitness	VAC	2	2	-	40	60	31
Total Credit				21	19	4			
Cumulative Total				63					
Semester IV									
S.No	Course Code	Course Title	Type	Credit	Hour/ Week		Marks		
					L	P	Int	Ext	
1.	ECO5041	Development Economics	CC	4	4	-	40	60	32
2.	ECO5042	Macroeconomics	CC	4	4	-	40	60	33
3.	ECO5043	Public Economics	CC	4	4	-	40	60	34
4.	ECO5044	Political Economy	CC	3	3	-	40	60	35
5.	ECO5045	Data Analysis with computer applications	SEC (DS)	3	3	-	40	60	36
6.	ENGAE2	Language	AEC	3	3	-	40	60	37
7.		Extension Activity (NCC, NSS, etc..)	-	1*	--	--	--	--	
Total Credit				21	21	-			
Cumulative Total				84					
	For awarding UG Diploma (Additional credit from Vocational Course)								
8.		Skill Development of the Youths and their Livelihood (NPTEL)	Vocational Course	4	4		100		38
Cumulative credit for UG certificate course				92					

***-Students have to enrol in any one of the following extension activities (NCC/NSS/Red Ribbon) in the first semester and attend the enrolled activity across all four semesters. The course will be evaluated in the fourth semester.**

THIRD YEAR									
Semester V									
S.No	Course Code	Course Title	Type	Credit	Hours / Week		Marks		Page No
					L	P	Int	Ext	
1.	ECO5051	International Economics	CC	4	4	-	40	60	39
2.	ECO5052	Introduction to Econometrics	CC	4	4	-	40	60	40
3.	ECO5053	Introduction to Econometrics (Lab)	CCP	2	-	4	100		41
4.	ECO5054	History of Economic Thought	CC	4	4	-	40	60	42
5.	ECO5055	Health Economics	CC	3	3	-	40	60	43
6.	ECO5056	Regional Economics	CC	3	3	-	40	60	44
7.	ECOON01	MOOCS-1 (NPTEL)	DSE	3	3	-	40	60	45
Total Credit				23	21	4			
Cumulative Total				107					
Semester VI									
S.No	Course Code	Course Title	Type	Credit	Hours / Week		Marks		Page No
					L	P	Int	Ext	
1.	ECO5061	Growth and Development	CC	4	4	-	40	60	46
2.	ECO5062	Monetary Economics	CC	4	4	-	40	60	47
3.	ECO5063	Environmental Economics	CC	4	4	-	40	60	48
4.	ECO5064	Industrial Economics	CC	4	4	-	40	60	49
5.	ECO5066 (I)*	Financial Economics	DSE-I	3	3	-	40	60	50
	ECO5066 (II)*	Unit Level Large Data Analysis							51
	ECO5066 (III)*	Experimental Economics							52
6.	ECO5067 (I)*	Rural Development	DSE-II	3	3	-	40	60	53
	ECO5067 (II)*	Economics of Education							54
	ECO5067 (III)*	Entrepreneurial Economics							55
7.	ECO5068	Internship	Internship	2	-	-	100		56
Total Credit				24	22	-			
Cumulative Total				131					

- *- Students can opt any one course from the Discipline Specific Elective
- Students can exit after three years with BA Economics degree (with 131 credits)
- Students who wish to continue for a fourth year will receive either a BA Honours / BA Honours with Research degree based on their total CGPA as follows:
- For BA Honours with Research degree, the student shall score more than 7.5 CGPA.

FOURTH YEAR									
Semester VII									
S.No	Course Code	Course Title	Type	Credit	Hours		Marks		Page No
					L	P	Int	Ext	
1.	ECO5071	Research Methodology	CC	4	4	-	40	60	57
2.	ECO5072	Econometrics	CC	4	4	-	40	60	58
3.	ECO5073	Econometrics (Lab)	CCP	2	-	4	100		59
4.	ECO5074	Industrial Economics	CC	3	3	-	40	60	60
5.	ECO5075	Institutional Economics`	CC	3	3	-	40	60	61
6.	ECO5076	Panel Data Analysis	CC	3	3	-	40	60	62
7.	ECOON02	MOOC-2 (NPTEL)	DSE	3	3	-	40	60	63
Total Credit				22	20	4			
Cumulative Total				153					
Semester VIII [Honours]									
S.No	Course Code	Course Title	Type	Credit	Hours		Marks		Page No
					L	P	Int	Ext	
1.	ECO5081	Behavioural Economics	CC	4	4	-	40	60	64
2.	ECO5082	Agricultural Economics	CC	4	4	-	40	60	65
3.	ECO5083(I)*	Investment Analysis and Portfolio Management	DSE	4	4	-	40	60	66
	ECO5083(II)*	Labour Economics							67
	ECO5083(III)*	Gender Economics							68
4.	ECO5084	Dissertation	Project	8	-	-	100		93
Total Credit				20	12	-			
Cumulative Total Credit				173					
Semester VIII [Honours with Research]									
S.No	Course Code	Course Title	Type	Credit	Hours		Marks		Page No
					L	P	Int	Ext	
1.	ECO5081	Behavioural Economics	CC	4	4	-	40	60	70
2.	ECO5082 (I)*	Investment Analysis and Portfolio Management	DSE	4	4	-	40	60	71
	ECO5082 (II)*	Labour Economics							72
	ECO5082 (III)*	Gender Economics							73
3.	ECO5083	Dissertation	Project	12	-	-	100		74
Total Credit				20	8	-			
Cumulative Total Credit				173					

Note: *- Students can opt any one course from the Discipline Specific Elective

SEMESTER – I

ECO5011-FUNDAMENTALS OF ECONOMICS

Type: CC

Credit: 2

Course objective:

This course is designed to provide students with a foundational understanding of basic economic concepts. To help students understand microeconomics, macroeconomics, and development economics, as well as the structure and concepts of the Indian economy.

Course outcomes:

- To understand the fundamental concepts of economics and act as an economist.
- Learn basic concepts of microeconomics and market equilibrium.
- Explain the macroeconomics, money and banking, and international trade ideas.
- Students must think about the role of government and its interconnection with policies.
- The primary level discusses the development economics subject.

Unit 1: Economy and Economics

What an economy, economic activities, agents of economy, sectors, and sub-sectors in economy – Central problems of economy – Economics: Definitions, Scope, and Branches - Fundamental Principles of economics - Think like an economist

Unit 2: Micro aspects of economics

Consumer and Producers - Households and their activities and preferences, Business Firms their activities and preferences – Demand – Supply – Market - Microeconomic equilibriums of consumer and producer

Unit 3: Macro aspects of economics

Circular flow of economy - National income, Employment, Investment – Aggregate demand, Aggregate supply and macroeconomic equilibrium - Money, Interest rates, Prices, Inflation and RBI - Growth and Development - Global economy and International Trade & Finance

Unit 4: Indian economy

Role of Government in the economy, Budget & Taxes, Revenue and expenditure, government schemes.

Unit 5: Development Economic Issues

Poverty, Unemployment, Inequalities, Regional Imbalances, Environment and Sustainability – Understanding Economic Survey and Union Budget

Reference:

- Karl E. Case and Ray C. Fair (2002), Principles of Economics, 6th Edition, Pearson Education Asia Low Price Edition.
- The Economy by CORECON, <https://core-econ.org/the-economy/>
- Gregory Mankiw (2002), Principles of Economics, Thomson.
- J.E. Stiglitz and C.E. Walsh (2002), Principles of Economics, 3rd Edition, W.W. Norton & Company, New York.
- Mankiw, N. (2016). Macroeconomics, 9th ed. Worth Publishers.
- Dominick Salvatore (2020). International economics, Thirteenth edition, Wiley publication.
- Economic survey in India (reports in different periods)

ECO5012-PRINCIPLES OF MICROECONOMICS

Type: CC

Credit: 3

Course Objectives:

To educate students on the fundamental theories, concepts, and frameworks of microeconomics, enabling them to understand market structures, price determination, and production efficiency.

Learning Outcomes:

- Differentiate between micro statics, dynamics, and comparative statics, and apply the concept of equilibrium in analysing partial and general equilibrium conditions.
- Analyse consumer behaviour using indifference curve theory, derive demand curves, and assess the effects of changes in income and prices through substitution and income effects.
- Explain the production function and laws of production, and determine producer equilibrium using the iso-quant, Iso-cost approach, and factor substitution concepts.
- Distinguish between different types of costs and construct cost curves, evaluating short-run and long-run cost behaviour for effective cost minimisation.
- Interpret average and marginal revenue relationships and determine a firm's equilibrium by analysing the interaction between revenue and cost conditions.

Unit 1: Introduction to Microeconomics

Nature and scope of microeconomics – important and limitations of microeconomics- micro statics- micro dynamics – comparative statics – the concept of equilibrium – static, dynamic, and neutral equilibrium – Partial Vs. General equilibrium.

Unit 2: Demand Function and Consumer Behavior

Assumptions on preference ordering, indifference curve, marginal rate of substitution, and convexity of Indifference Curve, budget constraint, consumers' equilibrium – interior and corner, Derivation of Demand Curves, Engel curve, Application: Cash subsidy versus subsidy in kind. Income and price consumption curves, Price effect - substitution effect (Hicks and Slutsky), inferior goods and Giffen goods, income effect, ordinary and compensated demand curves. Consumer surplus.

Unit 3: Supply and Production

Supply and law of supply elasticity of supply – production decision-factors of production – production function – law of variable proportion – returns to scale –economies of scale – Iso quant approach and producer's equilibrium – factor substitution, elasticity of factor substitution. Cobb-Douglas production and its essential properties.

Unit 4: Cost structure

Implicit cost, explicit cost, accounting cost, sunk cost, economic cost, fixed cost, variable cost, total, average and marginal cost. Determinants of Short run cost, Cost Curves, cost minimization and expansion path, Short-run versus long-run cost curves, cost curves and their shapes –the relationship between the short-run and long-run average total cost – elasticity of cost, economies of scope.

Unit 5: Theory of Revenue and Equilibrium

What are revenues – average and marginal revenue – relation between AR and MR Curves, AR, MR, and elasticity- the importance of revenue curves-interactions of cost and revenues, conditions of equilibrium of a firm.

Reference Text:

1. Mankiw, N. G. (2009). Economics: Principles and applications. Cengage Learning.
2. Pindyck, R. S., & Rubinfeld, D. L. (2017). Microeconomics. Prentice Hall India.
3. Koutsoyannis, A. (1979). Modern microeconomics. Macmillan Press.
4. Salvatore, D. (2011). Microeconomic theory (Schaum's outline series). McGraw-Hill.
5. Stigler, G. J. (1996). The theory of price (4th ed.). Prentice-Hall of India.

ECO5013-BASIC MATHEMATICS FOR ECONOMICS

Type: Minor

Credit: 3

Course Objective:

To introduce students to the fundamental concepts of linear algebra, single and multivariable calculus, including functions, limits, continuity, and derivatives, with applications to optimisation and approximation.

Learning Outcomes:

- Analyse the behaviour of various types of functions and determine limits and continuity
- Compute higher-order derivatives, identify extrema, and solve single-variable optimisation problems.
- Apply Rolle's, Lagrange's, and Cauchy's Mean Value Theorems, and use Taylor and Maclaurin series to approximate functions and interpret the significance of derivatives.
- Evaluate partial derivatives of functions of two variables, and apply Euler's theorem and total differentials in multivariable analysis.
- Perform operations on matrices and use determinants and matrix inversion methods, including Cramer's Rule, to solve systems of linear equations.

Unit-1: Functions, Limit and Continuity: Domain and range of a function, independent and dependent variables, polynomial functions and rational functions, constant functions and identity functions, one-one functions, onto function, invertible functions, composite function, Limit of a function, left handed and right handed limits, non-existence of limit, theorems on limits (statements only), theorems on continuity (statements only), discontinuity, types of discontinuity.

Unit-2: derivatives of a function of one variable; higher order derivatives; Intermediate value and mean value theorems; Concave and convex functions; zeroes of a function, critical values, and stationary points. Optimization in one variable: absolute and relative optima. Polynomial approximation and Taylor expansion, Leibniz's theorem: nth derivative of the product of two functions

Unit-3: Mean Value Theorems: Rolle's Theorem, Lagrange's Mean Value Theorem, meaning of the sign of the derivative, Cauchy's Mean Value Theorem, higher derivatives, Taylor's theorem, Maclaurin's theorem, Maclaurin's power series for a given function

Unit-4: Function of two variables, limit of a function of two variables, continuity of a function of two variables at a point, limit of a continuous function, partial derivatives, partial derivatives of higher order, homogeneous function, Euler's theorem on homogeneous function, total differentials, differentiation of composite function and implicit function

Unit-5: Matrices and determinants: Concept of Matrices, types of matrices, simple operations on matrices (Addition, subtraction, and multiplication), matrices-determinants and basic properties, matrix inversion, Solution of simultaneous equations through Crammer's rule.

Reference Text:

1. Allen, R. G. D. (2022). Mathematical analysis for economists. Macmillan Press and ELBS.
2. Chiang, A. C. (2017). Fundamental methods of mathematical economics. McGraw-Hill.
3. Dowling, E. T. (2020). Introduction to Mathematical Economics (2nd ed.). McGraw-Hill.
4. George, M., Thomaskutty, P.G. (2024). A Text Book of Mathematical Economics. Discovery Publishing House Pvt.Ltd.

ECO5014- BASIC MATHEMATICS FOR ECONOMICS (LAB)

Type: Minor

Credit: 2

Course Objective:

To equip students with the skills to apply mathematical methods using Excel for solving and analysing economic problems. The course aims to develop competency in utilising Excel for operations such as estimation, forecasting, matrix algebra, and optimisation, all within the context of economic theory.

Learning Outcomes:

1. Compute arithmetic, geometric, and harmonic means, as well as growth rates for economic variables, and evaluate their uses and limitations in economic analysis.
2. Apply economic theories to functional forms and estimate and forecast economic parameters using linear and nonlinear equation models.
3. Perform basic matrix operations, including determinants and inverses, and solve systems of simultaneous equations using Cramer's Rule for economic problem-solving.
4. Apply linear programming and constrained optimisation techniques, including the Lagrangian method and the simplex algorithm, to solve utility and profit maximisation problems.
5. Analyse different market structures using Excel-based quantitative techniques and evaluate their implications for pricing, output, and economic efficiency.

Unit-1: Estimating Arithmetic, Geometric, and Harmonic means and growth rates for various economic variables. Uses and limitations of AM, GM, and HM.

Unit-2: Application of economics theories (demand, supply, equilibrium, cost, revenue) to Various functions. Estimating and forecasting various parameter values using linear and non-linear equation models for various economic variables.

Unit-3: Simple operations on matrices, matrices-determinants, matrix inversion, Simultaneous equations through Crammer's rule.

Unit-4: Introduction to linear programming, its nature of the feasible, basic, and optimal solutions. Constrained optimization, Lagrangian function, and simple economic applications. Maximization of utility and maximization of profits. A simplex method for solving L.P.P.

Unit 5: Market Structure and Economic Application

References Sources:

1. Allen, R.G.D. Mathematical Analysis for Economists, Mac Millian Press and ELBS, London.
2. Chiang, A.C. Fundamental Methods of Mathematical Economics, McGraw-Hill, New York
3. Dowling, E.T. Mathematical Economics 2nd Edition, McGraw-Hill, New York.
4. Gupta, S.P. Statistical Methods, Sultan Chand and Sons, New Delhi.
5. Monga, G.S. Mathematics and Statistics for Economists, Vikas Publishing House, New Delhi.

ECOOE01-PRINCIPLES OF ECONOMICS

Type: OE

Credit: 3

Course Objective

To provide non-economics students with an understanding of economics concepts, principles, and fundamental theories in microeconomics, macroeconomics, and public economics. This subject theme comprehends basic theories and the functioning of an individual, aggregate, and government revenue and expenditure.

Course Outcomes:

- Understand the microeconomic issues with theoretical concepts
- Learn the basic idea of behavioural economics, like the utility function.
- Understanding the foundations of firm and market theories
- Described the macroeconomic indicators and theory.
- Explain the role of government and public finance systems

Unit 1 Introduction to Microeconomics: Problem of Scarcity and Choice: Scarcity, Choice, and Opportunity Cost; Production Possibility Frontier; Economic Systems. Conceptualise and graph supply and demand curves, as well as find equilibria for individual markets -Budget constraint, concept of utility, diminishing marginal utility, Diamond-Water paradox.

Unit 2: Utility function: Indifference curves and the process of constrained optimisation, consumer and producer surplus, and assess the impact of various government policies on overall welfare (i.e., partial equilibrium welfare analysis)

Unit 3: Theory of Firm and Market: Concepts of firm and markets, cost types and functions, differentiate between the costs firms face over the short and long run, different markets, calculate how a firm will maximise profits when operating under perfect competition.

Unit 4: Macroeconomics: Conceptually define, calculate, and critically evaluate three key domestic macroeconomic variables: GDP, unemployment, and inflation, concepts of trade-international trade, and economic relations: interest rates and exchange rates

Unit 5: Public Economics: Concepts of Govt. revenue and expenditure- Tax system- fiscal and monetary policy tools, balance of payments (i.e., trade and capital flows).

Reference:

- Karl E. Case and Ray C. Fair (2002), Principles of Economics, 6th Edition, Pearson Education Asia Low Price Edition.
- Gregory N. Mankiw (2003), Principles of Economics, South-Western College Pub
- J.E.Stiglitz and C.E. Walsh (2002), Principles of Economics, 3rd Edition, W.W. Norton & Company, New York.
- Mankiw, N. (2016). Macroeconomics, 9th ed. Worth Publishers.
- Hindriks, J., Myles, G. (2013). Intermediate public economics, 2nd ed. MIT Press.

ENGLISH / LANGUAGE

Type: AEC

Credit: 3

This Course is offered by another department.

DRRSEC-Disaster Risk Reduction

Type: SEC

Credit: 2

The Course is offered by another department.

CONVAC-Constitutional Values

Type: VAC

Credit: 3

UNIT I

Constitution – Historical perspective of Indian Constitution –Philosophy of Indian constitution- Constitutional Assembly Debate - written constitution - Features of Indian Constitution – Federal features

UNIT II

Constitutional values —Preamble of Indian Constitution – values enshrined in the constitution - Sovereignty - Socialism, Secularism- Democracy- Justice – liberty - equality and fraternity

UNIT III

Constitutionalism – Transformative Constitutionalism – Morality – Constitutional morality – Separation of Powers – Judicial review – Basic Structure Doctrine

UNIT IV

Rule of Law – Article 21 of Indian Constitution – Due process of Law – right to education – Right to clean environment - Right against Climate Change – Right to Privacy

UNIT V

Fundamental Rights –Equality and Equity-Protective discrimination -Directive Principles of State Policy-Constitutional Duties

SEMESTER-II

ECO5021-BASIC STATISTICS FOR ECONOMICS

Type: Minor

Credit: 3

Course Objective:

To give input to the students on the understanding of conceptually based quantitative problems and solutions with different statistical aspects. To enable students to prepare an index and corrections on their studies.

Course Outcome:

- The students are taught basic concepts of parametric and non-parametric statistics and research foundations.
- To present data and a presentation.
- Experimenting with the central tendency measurement and dispersion with the economics subject.
- To explain the correlation concepts with different research approaches.
- To prepare different models of the index and applied economic subjects.
- Students can use these statistical tools to analyse data and research.

Unit 1: Definition of Statistics, concepts of parametric and non-parametric- Methods of collecting data – census and sampling – their Advantages and disadvantages. Design and Principal Steps in a sample survey, Sampling methods and their advantages & disadvantages.

Unit 2: Data- quantitative and qualitative, attributes, variables, scales of measurement, Nominal, ordinal, interval, and ratio. Presentation: tabular and graphical, including histograms and ogives. Frequency distributions.

Unit-3: Measures of Central tendency and dispersion: – mean, median, and mode. Geometric mean and Harmonic. Uses and applications of AM, GM, and HM. Measures of Dispersion – range, quartile deviation, mean deviation, standard Deviation, variance, coefficient of variation.

Unit 4: Concept of correlation, types of correlation, estimation of correlation. Uses and Limitations of Statistics in Economics.

Unit 5: Index Numbers -Concept, price relative, quantity relative, and value relative, Laspeyer's, Paasche's, and Fisher's index numbers; Consumer and Wholesale Price Indices in India.

Reference Text:

1. A.N. Arora, P.N. Arora and Sumeet Arora (2010) "Comprehensive Statistical Methods", S Chand & Company publication, 1659 pages.
2. D.R. Agarwal (2006) "Elementary Mathematics and Statistics for Economics", Vrinda Publications (P) Ltd, New Delhi.1036 pages
3. Monga, G.S. (2000) "Mathematics and Statistics for Economists", Vikas Publishing House, New Delhi, 912 pages.
4. S.C. Gupta and V.K. Kapoor (2003) "Fundamentals of Applied Statistics", Sultan Chand and Sons, Educational Publishers, New Delhi, Third Revised Edition,1303 pages.

ECO5022- BASIC STATISTICS FOR ECONOMICS (LAB)

Type: Minor

Credit: 2

Course Objective:

To give input to the students on the basic theory of research-based quantitative problems and solutions with different statistical aspects. Institutional environment under different settings. To make the students capable of using basic time series theory to analyse institutions.

Course Outcomes:

- The students can use the basic statistics in the lab to do a preliminary analysis of different research work. In particular use of descriptive, tabulation, and graphs in primary data analysis through basic statistics.
- The explanation and practical understanding of the central tendency subject.
- The students can get ideas on how to prepare the Lorenz curve and coefficient.
- To understand correlation and its use with the analytical aspect.
- To learn how to construct an index number with various forms.

Unit 1: Learning Statistics

Frequency distribution, Cumulative frequency distribution; Graphic and diagrammatic representation of data; Cross tabulation.

Unit 2: Central Tendency

Measures of Central tendency: Mean, Median, Mode, Geometric mean, Harmonic mean;

Unit 3: Measures of dispersion

Range, Quartile deviation, Mean deviation, Standard deviation; Skewness and Kurtosis, Measurement of Economic Inequality: Measurement of Economic Inequality – Lorenz Curve and Gini Coefficient.

Unit 4: Correlation

Concept of correlation, types of correlation, estimation of correlation. Uses and Limitations of Statistics in Economics

Unit-5: Index Numbers

Concept, price relative, quantity relative, and value relative, Laspeyer's, Paasche's, and Fisher's index numbers; Family budget method; Consumer and Wholesale Price Indices in India

Reference Sources:

1. Goon, A.M., M.K. Gupta, and B. Dasgupta, (1968) Fundamentals of Statistics, Vol I, World Press Private limited
2. Levin, Richard I, and David S. Rubin, (1998) Statistics for Management, Pearson
3. McClave, J. T., Benson, P. G., and Sincich, T., (2008) Statistics for business and economics, Pearson International Edition
4. T. Bradley, Essential Statistics for Economics, Business and Management, Wiley
5. Gerald Keller and Gunjan Malhotra (2018) Statistics for Management and Economics, CENGAGE Indian Private Limited, India

ECO5023-DEMOGRAPHY
Type: Minor Credit: 2

Course Objective:

To understand the concepts and theories of population growth and development, and their analysis.

Course Outcomes

- Understand the theoretical aspects of population growth
- Understand the linkages between population and development.
- Discuss the human development data.
- Familiarise the students with population data.
- Population growth rate analysis.

Unit 1: Demography

Concepts- Population size, birth rate, death rate, migration, dependency ratio. Socio-demographic variables.

Demographic Theories: Malthusian theory, demographic transition theory, and zero population growth theory.

Unit 2: Demography and development

Demographic dividend - Migration and urbanisation – Impact of migration on development perspective.

Unit 3: Human development data

Indices- Human Development Index (HDI) – Gender Development Index (GDI)- Inequality-adjusted HDI (IHDI) – Planetary Pressures-adjusted HDI (PHDI), Multi-Dimensional Poverty (MDP).

Unit 4: Population data analysis

coding – categorisation – Use of Census & survey data- An overview of NSSO & NFHS data sources. Labour market data analysis – The Periodic Labour Force Survey (PLFS). Vital statistics to study population trends

Unit 5: Population projection techniques

Population growth rate analysis – Changes in the population structure and ageing- Population policies.

References

- **Arun Kumar Sharma** – Chief Editor of *Demography India*, a journal that publishes interdisciplinary research on population studies
- Brown, L. M. (2018). *Understanding population dynamics: A global perspective*. Cambridge University Press.
- Jackson, P. (2021). *Human development and population studies*. Springer.
- Patel, R., & Singh, A. (2019). *Migration and urban growth: Economic consequences*. Routledge.
- Poston, D. L. (2023). *Handbook of Population* (2nd ed.). Springer.
<https://link.springer.com/book/10.1007/978-3-030-10910-3>
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<https://www.amazon.in/Demography-Economics-V-C-Sinha-Pushpa/dp/9384223360>
- Smith, J. K. (2020). *Demographic trends and economic implications*. Oxford University Press.
- **Journals**
- Journal of Demographic Economics, <https://www.cambridge.org/core/journals/journal-of-demographic-economics>
- Journal of Population Economics, <https://link.springer.com/journal/148>
- Population studies <https://oair.org/journals.php?field=Social+Sciences&category=Dem>
- Journal of Economics of Ageing
<https://oair.org/journals.php?field=Social+Sciences&category=Demography>

Other Sources:

- | | | | |
|----------------|-----------------------------|--------------|--------------------|
| 1. Census data | 2. Human development report | 3. NFHS data | 4. World Bank Data |
| 5. OECD data | 6. NSSO | 7. PLFS | |

ECO5024-PRINCIPLES OF MACROECONOMICS

Type: Minor

Credit: 3

Course Objective: To provide students with an understanding of concepts, principles, and basic theories in macroeconomics and enable them to comprehend the functioning of a macroeconomy.

Course Outcomes:

- Understand the importance of macroeconomics and national income concepts and measurements.
- Learn basic concepts of consumption and investment in a macro economy.
- Understand the foundations of Classical and Keynesian theories of employment.
- Describe basic concepts and theories of money and the elements of banking.
- Explain the elements of inflation, business cycles, and macroeconomic policies.

Unit 1: Introduction to Macroeconomics and National Income

Macroeconomics: Meaning, Goals and Instruments - Brief History and Schools of Macroeconomics - Circular Flow of Income: Two, Three and Four Sector Models - National Income: Concepts and Measurements - Economic Growth and Development

Unit 2: Concepts of Consumption and Investment

Consumption: Meaning, Concepts of APC & MPC, Consumption Function, Psychological Law of Consumption, Importance in macroeconomy - Investment: Meaning, Types, Investment Function, Marginal Efficiency of Capital, Investment Multiplier and Accelerator, Importance in macroeconomy

Unit 3: Macroeconomic Theories: Classical and Keynesian

Classical Theory of Employment: Assumptions, Say's Law of Market, Wage-Price Flexibility, Determination of output and employment in Classical Model, Criticism - Keynesian Theory of Employment: Assumptions, Concepts of Effective demand, Aggregate demand and Aggregate supply, Determination of output and employment in Keynes Model

Unit 4: Money and Banking

Money: Definition, Types, Functions; RBI classification of Money - Theories of Money: Quantity Theory and Cambridge Theory - Role of Money under Classical and Keynesian Systems - Banking: Definition, Types, Functions of Commercial Banking, Functions of Central Banking and RBI

Unit 5: Inflation, Business Cycles, and Macroeconomic Policies

Inflation: Meaning, Types, Measurements, Factors, Consequences, and Controlling Measures - Inflation-Unemployment trade-off: Phillips' Curve Analysis - Business Cycles: Meaning, Phases, Causes and Controlling Measures - Goals and Instruments of Monetary and Fiscal Policies

References:

1. Richard T Froyen (2022). *Macroeconomics: Theories and Policies* (10th ed.). Pearson Education.
2. Rudiger Dornbusch, Stanley Fischer and Richard Startz (2018). *Macroeconomics* (13th ed.). McGraw Hill Education.
3. Errol D' Souza (2012). *Macroeconomics* (2nd ed.). Pearson Education.
4. H.L. Ahuja (2020). *Principles of Macroeconomics*. S. Chand Publishing.
5. D. M. Mithani (2018). *Macro Economics*, Himalaya Publishing House.
6. CORE Econ. *The Economy 2.0: Macroeconomics*. <https://core-econ.org/the-economy/macroeconomics>
7. *Economic Surveys*. Ministry of Finance, Government of India.

ECOOE02-BASIC DATA ANALYSIS

Type: OE

Credit: 3

Course Objectives:

To equip students with foundational and applied knowledge of descriptive and inferential statistical techniques relevant to economic, commercial, and policy analysis, enabling them to critically analyse and interpret quantitative data in real-world contexts.

Course Outcome:

- Given economic datasets, students will be able to identify the appropriate level of measurement and compute measures of central tendency.
- Using summary economic data, students will be able to calculate and interpret measures of dispersion and determine the degree of relationship using correlation methods.
- Given an economic policy-related or general hypothesis, students will be able to formulate null and alternative hypotheses and conduct parametric tests at various levels of significance.
- With real behavioural economic data, students will be able to apply appropriate non-parametric tests to evaluate hypotheses when parametric assumptions are not met.
- Using economic time series data, students will be able to estimate regression coefficients, assess model fit (R^2 and Adjusted R^2), and check model assumptions using residual plots.

Unit-1: Levels of Measurement & Measures of Location: Understanding the nature of economic data: Levels of measurement – nominal, ordinal, interval, and ratio. Preliminary data analysis-frequency distribution, Cumulative frequency distribution; Graphic and diagrammatic representation of data; Arithmetic Mean (AM), Geometric Mean (GM), Harmonic Mean (HM), Weighted Mean (WM), Median and Mode. Applications in growth rate analysis, speed or efficiency, index number construction, income distribution, wage analysis.

Unit-2: Measures of Dispersion & Relationship: Measures of economic inequality and variability: Range, Quartile Deviation (QD), Mean Deviation (MD), Standard Deviation (SD), Variance, Coefficient of Variation (CV); Scatter plot; Estimation of correlation (Karl Pearson's Coefficient of correlation, Spearman's rank coefficient of correlation).

Unit-3: Inferential Statistics-I: Concepts of economic/commerce/management hypothesis testing; One-tailed versus two-tailed tests; significance level and critical region; P-Values; Parametric tests for Mean, Variance, Proportion. Applications in policy analysis.

Unit-4: Inferential Statistics-II: Concepts of economic/commerce/management hypothesis testing; One-tailed versus two-tailed tests; significance level and critical region; P-Values; Non-Parametric tests. Applications in policy (especially behavioural economic) analysis.

Unit-5: Inferential Statistics-III: Estimation of regression coefficients; trend line (economic time series (GDP growth, inflation, employment trends); Model fit (R-Square, and Adjusted R-Square); Residual plots-check linearity, homoscedasticity, and outliers.

References:

1. Allen, R.G.D. *Mathematical Analysis for Economists*, Mac Millian Press and ELBS, London.
2. Anderson, D. R., Sweeney, D. J., Williams, T. A., Camm, J. D., Cochran, J. J., Fry, M. J., & Ohlmann, J. W. (2021). *Statistics for Business And Economics* (14th ed.). Cengage Learning.
3. Chiang, A.C. *Fundamental Methods of Mathematical Economics*, Mac Graw Hill, New York.
4. D.R. Agarwal. *Elementary Mathematics and Statistics for Economists*, Vrinda Publications (P), New Delhi, Reprint: 2002
5. Gujarati, D. N., & Porter, D. C. (2020). *Basic Econometrics* (6th ed.). McGraw-Hill Education.
6. Monga, G.S. *Mathematics and Statistics for Economists*, Vikas Publishing House, New Delhi
7. S.C. Gupta and V.K. Kapoor. *Fundamentals of Applied Statistics*, Sultan Chand and Sons, Educational Publishers, New Delhi, Third Revised Edition, Reprint: 2003.
8. Stock, J. H., & Watson, M. W. (2020). *Introduction to Econometrics* (4th ed.). Pearson.

ENGLISH / LANGUAGE

Type: AEC

Credit: 3

The Course is offered by another department.

CYBSEC-Cyber Security

Type: SEC

Credit: 2

This Course is offered by another department.

ENSVAC-Environmental Sciences

Type: VAC

Credit: 3

The Course is offered by another department.

CERTIFICATE PROGRAMME

FOR AWARDING A UG CERTIFICATE COURSE

(ADDITIONAL CREDIT FROM VOCATIONAL COURSE)

SKILL DEVELOPMENT OF THE YOUTHS AND THEIR LIVELIHOOD (NPTEL)

SEMESTER-III
ECO5031- STATISTICAL METHODS

Type: Minor

Credit: 3

Course Objectives:

To equip students with a solid grounding in probability theory, sampling methods, estimation techniques, and hypothesis testing, with a strong focus on their applications in economic analysis. The course aims to enhance students' analytical capabilities to interpret data, assess uncertainty, and make informed decisions using both descriptive and inferential statistical tools.

Course Outcome:

- Given different economic datasets, students will be able to apply the basic rules of probability and Bayes' theorem to evaluate the likelihood of economic events and decision outcomes.
- Students will be able to identify and use appropriate probability distributions to model and interpret real-world economic data.
- Students will be able to design appropriate sampling strategies and apply sampling distribution theories for economic inference.
- Students will be able to compute and interpret point and interval estimates of population parameters using sample data and evaluate estimator properties.
- Students will be able to formulate hypotheses and perform relevant statistical tests, including parametric and non-parametric tests, to validate assumptions and support evidence-based economic decision-making.

Unit-1: Probability Theory: Concepts of probability; Addition and Multiplication theorems of probability; Permutation and Combination; Conditional probability and Bayes' theorem; Random variables; distribution of discrete and continuous; Density and distribution functions.

Unit-2: Probability Distributions: Discrete versus continuous distribution, Uniform, Binomial, Poisson, Hyper-geometric, Exponential, and Normal Distribution; Bi-variate probability distribution, Marginal and Conditional Distribution.

Unit-3: Sampling Methods and Distributions: Probability and non-probability sampling methods, Statistic and sample moments, sampling distributions: Standard Normal (Z), Student's-t, Chi-square and F-distribution, determinants of sample size, the law of large numbers and Central Limit theorem.

Unit-4: Sampling Estimation: Point and Interval Estimation, estimator vs estimation, Properties of a good estimator, estimation of population mean for large sample and small sample, estimation of population proportion and population variance; introducing alternate estimation techniques.

Unit-5: Hypothesis Testing: Types and formulation of hypothesis, critical region and size of error – type-I and type-II error, power of a test, p-value, Hypothesis test about a population mean, population proportions, the difference between two population means, proportions, variance, Tests of Goodness of fit, the analysis of contingency tables (Chi-square test for testing independence of two-classification criteria), tests for bivariate correlation and regression analysis.

References:

- Anderson, D. R., Sweeney, D. J., Williams, T. A., Camm, J. D., Cochran, J. J., Fry, M. J., & Ohlmann, J. W. (2021). *Statistics for business and economics* (14th ed.). Cengage Learning.
- Black, K. (2004). *Business statistics* (Student ed.). John Wiley.
- Clark, M. J., & Randal, J. A. (2011). *A first course in applied statistics*. Pearson Education.
- Gupta, S. C., & Kapoor, V. K. (2003). *Fundamentals of applied statistics* (3rd rev. ed.). Sultan Chand & Sons.
- Monga, G. S. (1972). *Mathematics and statistics for economists*. Vikas Publishing House.
- Mood, A. M., Graybill, R. A., & Boes, R. C. (1974). *Introduction to the theory of statistics*. McGraw-Hill.
- Nagar, A. L., & Das, R. K. (1983). *Basic statistics*. Oxford University Press.
- Webster, A. (1998). *Applied statistics for business and economics*. McGraw-Hill International Edition.

ECO5032- STATISTICAL METHODS (LAB)

Type: Minor

Credit: 2

Course Objectives:

To provide students with hands-on experience in applying statistical techniques using real and simulated data through statistical software. The lab aims to strengthen students' practical skills in calculating probabilities, analysing probability distributions, conducting hypothesis testing, and performing bivariate analysis for informed economic and policy-related decisions.

Course Outcome:

- Students will be able to compute probabilities using addition, multiplication, permutations, and combinations through software tools and interpret their relevance to real-world scenarios.
- Students will be able to calculate and visualize the mean and variance of key probability distributions and simulate bi-variate distributions using appropriate statistical packages.
- Students will be able to perform parametric hypothesis tests using software, interpret p-values, and draw statistical inferences.
- Students will be able to apply non-parametric tests to test hypotheses when assumptions of parametric tests are violated.
- Students will be able to construct scatter plots, calculate correlation coefficients, run linear regression models, assess model fit (R^2 and Adjusted R^2), and interpret residual plots for diagnostic purposes using statistical software.

Unit-1: Calculation of Probability: Addition, subtraction, multiplication, Permutations, Combinations, and Standard Probability Distributions.

Unit-2: Probability Distribution: Calculation of Mean and Variance of Uniform, Binomial, Poisson, Hypergeometric, Exponential, and Normal Distribution; Bi-variate probability distribution, Marginal and Conditional Distribution.

Unit-3: Testing of Hypotheses-I: One-tailed versus two-tailed tests; significance level and critical region; P-Values; Parametric tests for Mean, Variance, Proportion.

Unit-4: Testing of Hypotheses-II: One-tailed versus two-tailed tests; significance level and critical region; P-Values; Non-Parametric tests.

Unit-5: Bivariate Variable Analysis: Scatter plot; Bi-variate correlation; regression coefficients; trend line; Model fit (R-Square, and Adjusted R-Square); Residual plots-check linearity, homoscedasticity, and outliers.

References:

- Anderson, D. R., Sweeney, D. J., Williams, T. A., Camm, J. D., Cochran, J. J., Fry, M. J., & Ohlmann, J. W. (2021). *Statistics for business and economics* (14th ed.). Cengage Learning.
- Black, K. (2017). *Business statistics: For contemporary decision making* (9th ed.). Wiley.
- Clark, M. J., & Randal, J. A. (2011). *A first course in applied statistics*. Pearson Education.
- Levine, D. M., Stephan, D., Szabat, K. A., & Berenson, M. L. (2020). *Statistics for managers using Microsoft Excel* (9th ed.). Pearson.
- Moore, D. S., McCabe, G. P., Alwan, L. C., Craig, B. A., & Duckworth, W. M. (2017). *The practice of statistics for business and economics* (4th ed.). W. H. Freeman.
- Pallant, J. (2020). *SPSS survival manual: A step by step guide to data analysis using IBM SPSS* (7th ed.). McGraw-Hill Education.
- Siegel, S., & Castellan, N. J. (1988). *Nonparametric statistics for the behavioral sciences* (2nd ed.). McGraw-Hill.

Course objectives:

To equip students with a deep understanding of core microeconomic theories, including consumer behaviour, preferences, producer decision-making, and the functioning of competitive and non-competitive markets, and develop students' ability to analyse the causes and consequences of market failures, with particular focus on public goods, externalities, and asymmetric information.

Learning outcomes:

- Students will be able to analyse consumer choices using utility theory and apply the concepts of income and substitution effects to interpret consumer behaviour.
- Evaluate different production and cost functions, including short-run and long-run cost structures, and apply optimisation techniques to understand firm behaviour in input and output decisions.
- Examine the functioning of perfectly competitive markets and analyze the effects of taxation, subsidies, and price controls on market equilibrium.
- Assess how firms operate under monopoly, oligopoly, and monopolistic competition, and apply relevant models to understand pricing strategies and strategic firm behaviour.
- Explain the causes of market failure, including externalities and asymmetric information, and evaluate policy measures like Pigovian taxes, Coasian bargaining, and signalling mechanisms.

Unit 1: Consumer Behaviors and Demand Consumer preferences

opportunity sets, optimum choices, indirect utility demand functions, income and substitution effects, Slutsky equation, normal versus inferior goods, types of demand functions, elasticity, welfare evaluation, consumer surplus, equivalent variation and compensating variation, revealed preference (weak and strong axioms).

Unit 2: Production and Cost

Production functions, types of production functions (Cobb-Douglas, CES, etc.), marginal products, rate of technical substitution, technical progress, cost functions, average and marginal costs, short-run versus long-run costs, economies of scale and scope, profit maximization, cost minimization, derivation of input demand.

Unit 3: Competitive Markets

Assumptions of a perfect market, competitive markets – demand and supply, demand and supply curves of individual firms, short-run versus long-run, competitive market equilibrium, tax incidence analysis, price controls, and shortages.

Unit 4: Imperfect Competition

Market failure, imperfect markets, sources of monopoly power, monopoly market equilibrium, price discrimination – first, second, and third degree, tax incidence, oligopoly, Cournot Model, Stackelberg model, Bertrand Model, Monopolistic Competition.

Unit 5: Market Failure and Asymmetric Information

Reasons for market failure – market imperfections, public goods, types of public goods, second-best solution, free riding, externality, types of externalities – production and consumption externalities, Pigovian and Coasian solutions, Moral hazard problem, adverse selection, the market for lemons, implications of asymmetric information, market signalling, hidden information modelling, efficiency wage theory.

Reference

1. Varian, H. R. (2019). Microeconomic analysis (3rd ed.). W. W. Norton & Company.
2. Nicholson, W. (2017). Microeconomic theory: Basic principles and extensions (12th ed.).
3. Gravelle, H., & Rees, R. (2004). Microeconomics (3rd ed.). Pearson Education.
4. Koutsoyiannis, A. (1979). Modern microeconomics. Macmillan Press Limited.

Additional Readings:

1. Varian, H. R. (2010). Intermediate microeconomics: A modern approach (8th ed.). W. W. Norton
2. Salvatore, D. (2003). Microeconomics: Theory and applications. Oxford University Press.
3. Sen, A. (1999). Microeconomic theory and applications. Oxford University Press.
4. Stigler, G. J. (1996). The theory of price (4th ed.). Prentice-Hall of India.

ECO5034- MATHEMATICAL METHODS FOR ECONOMICS

Type: CC

Credit: 3

Course Objective:

To develop students' analytical understanding of core mathematical techniques, such as differential calculus, linear algebra, and optimisation, and their application to fundamental economic theories. The course also aims to train students in modelling, analysing, and solving real-world economic problems, including equilibrium determination, forecasting, and policy evaluation, using appropriate mathematical methods.

Learning Outcome:

- Apply differential calculus, including partial and total derivatives, and Euler's theorem, to analyse economic models involving marginal analysis and multivariable functions.
- Solve systems of linear equations using matrix methods, interpret input-output economic models, and apply concepts like eigenvalues and the Hawkins-Simon condition to assess economic viability.
- Perform unconstrained and equality-constrained optimisation using the Lagrangian method, and apply these techniques to economic problems.
- Formulate and solve linear and nonlinear optimisation problems using methods such as Kuhn-Tucker conditions, Simplex, and Big M methods, and interpret solutions in the context of economic and financial applications.
- Apply integration techniques and differential equations to analyse dynamic economic models, including consumer/producer surplus, interest calculations, and macroeconomic growth models like Harrod-Domar and Solow.

Unit 1: Differential Calculus

Introduction to Functions; Derivatives – partial and total, economic applications, marginal and elasticity concepts, functions of several variables, implicit function theorem, higher order derivatives and Young's theorem, Taylor's approximation, convex sets, convex and concave functions, properties of linear homogeneous functions, Euler's theorem

Unit 2: Linear Algebra

Matrices, inverse, simultaneous linear equations, Cramer's Rule for solving systems of linear equations, input-output model, Hawkin-Simon condition, open and closed models, quadratic equation, characteristic (eigen) roots value

Unit 3: Classical Optimization and Applications

Introduction to quadratic forms, unconstrained optimization, constrained optimization with equality constraints, Lagrangian method, Hessian and Jacobian matrices, applications – utility maximization, cost minimization, profit–output maximization

Unit 4: Linear and Non-linear Optimization

Duality theory, constrained optimization with inequality and non-negativity constraints, Kuhn-Tucker formulation, linear programming – Formulation, primal and dual solutions using graphical, Simplex methods, and Big Crane's Method, applications from economics and Finance

Unit 5: Integration and Economic Application

Definite and indefinite integrals, applications – measuring consumer and producer surplus, continuous interest–discount calculations, difference and differential equations, phase diagrams, Cobweb model, multiplier accelerator, Harrod-Domar and Solow model.

Reference Text:

- Allen, R. G. D. (2022). Mathematical analysis for economists. Macmillan Press and ELBS.
- Chiang, A. C. (2017). Fundamental methods of mathematical economics. McGraw-Hill.
- Dowling, E. T. (2020). Introduction to Mathematical Economics (2nd ed.). McGraw-Hill.
- Sydsaeter, K., Hammond, P., Strøm, A., & Carvajal, A. (2016). Essential mathematics for economic analysis (5th ed.). Pearson.
- Gupta, S. P. (2018). Statistical methods. Sultan Chand & Sons.
- Monga, G. S. (2002). Mathematics and statistics for economists. Vikas Publishing House.
- M.D. Intriligator (1971). Mathematical Optimisation and Economic Theory, Prentice-Hall.

ECOOE03-INDIAN ECONOMY

Type: OE

Credit: 3

Course objectives:

- To give orientation to the students about the development path of India since independence. To enhance the understanding of the students about the sector-wise development of the country. To educate the students about the demographic aspects of the country

Course Outcomes:

- Students will understand the overall development of the Indian economy since Independence
- Students will get a detailed understanding of the agriculture sector in India
- Students will get an understanding of the Industrial sector in India
- Students will get an understanding of the infrastructure sector in India
- Students will get an understanding of the problems of the increasing population in India

Unit 1: Development Phases of the Indian Economy

The Colonial Legacy - State of the economy at Independence - A Policy of Planned Development – New Economic Policy – Understanding critical sectors of Indian Economy: Primary, secondary, and tertiary sector – structural transformation since independence.

Unit-2: Agricultural Sector

Agricultural Productivity – Meaning and Concept - Causes of Low Productivity - Comparison with Developed Countries - Green Revolution – Achievement and Failures. Organic Farming: Meaning & Scope - Recent deceleration of agricultural growth and public investment in agriculture, Agricultural price policy.

Unit-3: Industrial Sector

Industrial growth and diversification - Policy changes and industrial growth – Sources of Industrial finances - Industrial price regulations and subsidies through price controls, examples of oil and petroleum and fertilizer sectors - Indian industry since liberalisation – productivity growth and rise in competitiveness – exports – rise of service industry – India and I.T. – policy regarding public enterprises – disinvestment and privatisation – impact of WTO and trade liberalisation; Issues facing small scale sector-unorganized sector-Reservation policy relating to small scale Industries-Industrial relations and Labour welfare-National commission on labour-issues in labour market reforms.

Unit-4: Infrastructure Sector

State of infrastructure – reforms: restructuring, pricing and regulation – Investment requirements of roads, power, ports and other infrastructure sectors; Policy initiatives to bridge the gaps, e.g., allowing foreign investment and private-public partnership mode.

Unit-5: Population and Development

Population and Development- population growth -Components of population growth and their interdependence; Malthus -post-Malthus theories, Measures of the population -sources of population data - Census, Population policy in India, Culture and fertility; Education and fertility; Demographic Dividend.

Reference Text:

1. Basu, Kaushik (2004): India's Emerging Economy: Performance and Prospects in the 1990s and Beyond, The MIT Press.
2. Krueger A. (ed.) (2003): Economic Policy Reforms and the Indian Economy, Oxford University Press.
3. Drèze, Jean and Sen, Amartya (2002), India: Development and Participation, Oxford University Press, New Delhi, Ch.3 titled 'India in a Comparative Perspective'.
4. Panagariya, Arvind (2008), India: The Emerging Giant, Oxford University Press, New York. Ch.12 ('International Trade: Carrying Liberalization Forward'), especially pp. 259-68 and 276-81.
5. India Development Report, Oxford University Press, Various Issues

ECO5035- COOPERATIVE DEVELOPMENT

Type: SEC (DS)

Credit: 2

Course Objective: To equip the students to understand the principles and theories of cooperation, analyze forms, structures, and functioning of various types of cooperative organizations.

Course Outcomes:

- Understand the principles, theories of cooperation
- Describe the forms and structures of cooperative organizations
- Comprehend the history of cooperatives and the rules and regulations for cooperatives in India
- Analyze the functioning of credit, agricultural, and dairy cooperatives
- Analyze the functioning of non-credit cooperatives and institutions for cooperative development in India

Unit 1: Principles and Theories of Cooperation

Cooperatives: Definition, Concept and Cooperative Values - Principles of Cooperation: Rochdale and ICA Principles - Cooperative Doctrines: Robert Owen, Theory of Workers Control of Cooperatives, Fair Price Theory - Cooperation as an Alternative to Problems in Capitalism and Socialist Economies.

Unit 2: Forms and Structure of Cooperative organisations

Forms of Cooperatives: Formal & Informal, Single & Multi-purpose, Producers & Consumers, State Cooperatives - Organizational Structure of a Cooperative - Role of General Body and Officials in Cooperative Management - Importance of Leadership in Cooperative Management – Pricing in Cooperative enterprises.

Unit 3: Cooperative Development, Laws and Institutions in India

History of Cooperative Movements in India - Constitutional Provisions for Cooperatives - National Policy on Cooperation - Important rules and regulations for cooperatives in India - Role of State in Cooperation Development in India – Organisations for Development of Cooperatives in India

Unit 4: Credit and Agricultural & Dairy Cooperatives in India

Types of Cooperatives in India: Credit and Non-Credit Cooperatives - Issues and Challenges of Credit Cooperatives in India - Vaidyanathan Committee Recommendation for Revival of Credit Cooperatives - Micro Finance Cooperatives and SHGs - Cooperative Farming & FPOs: Issues and Challenges - Dairy Cooperatives and White Revolution in India: Success Story of Amul Dairy

Unit 5: Non-Credit Cooperatives and Institutional and Government Programs for Cooperatives Development in India

Marketing Cooperatives, Cooperative Housing, Consumers Cooperatives, Service Cooperatives - Initiatives of NCD, NAFED, NABARD in Development of Cooperatives - Government Programs and Schemes for Development of Cooperatives in India - Two Success stories of Cooperatives Marketing and Consumer Cooperatives

References:

1. K. Ravichandran, and S. Nakkiran, S (2009). *Cooperation: Theory and Practice*. Abijit Publications.
2. Jerome Nikolai Warren, Biggiero and Ogunyemi (edt)(2025). *The Routledge Handbook on Cooperative Economics and Management*. Routledge Publication.
3. Dovev Lavie (2023). *The Cooperative Economy: A Solution to Societal Grand Challenges*. Routledge Publication.
4. Gert van Dijk, Sergaki and Baourakis (2023): *The Cooperative Enterprise*. Springer Publication
5. S Rajendran (2011). *Cooperative innovation and rural transformation: Evidences from Indian Villages*.
6. T.N. Hajela (2015). *Cooperation: Principles, Problems and Practice* (8th ed.). One Books Pvt Ltd

LANGUAGE

Type: AEC

Credit: 3

This Course is offered by another department.

YOFVAC-YOGA AND FITNESS

Type: VAC

Credit: 2

This Course is offered by another department.

Type: CC

ECO5042-MACROECONOMICS

Type: CC

Credit: 4

Course Objective:

The objective of this course is to provide students with a comprehensive understanding of macroeconomic theories, models, and their applications. To provide students with an in-depth understanding of both classical and modern approaches to economic growth, aggregate demand and supply, consumption and investment behaviour, and macroeconomic policy frameworks within closed and open economies

Course Outcomes:

- Understand and analyze economic growth models, and evaluate their empirical relevance to real-world development contexts
- Analyze the functioning of aggregate demand and supply, and interpret macroeconomic equilibrium in the short run and long run using the AD-AS framework.
- Critically assess various consumption theories and understand their relevance in economic decision-making.
- Evaluate different theories of investment and understand their policy implications.
- Compare and contrast neoclassical and Keynesian macroeconomic models, including their policy tools and effectiveness under different economic conditions and exchange rate regimes.

Unit-1: Growth Theories

Economic growth and economic development, Harrod-Domar model, Solow model, empirics of economic growth - Foundation of neoclassical growth- Ramsey-Cass-Koopmans model, growth with overlapping generations, applications of neoclassical growth model - Basics of endogenous growth, the AK-Model, Putty-Clay model, human capital and economic growth.

Unit-2: Aggregate Demand and Aggregate Supply

Aggregate Demand - The Aggregate Demand Curve and The Income-Expenditure Model – Shifts In Aggregate Demand Curve – Aggregate Supply – The Short Run and Long Run Aggregate Supply Curve – Shifts In Aggregate Supply Curve – Aggregate Demand and Supply Model – Short Run and Long Run Macroeconomic Equilibrium.

Unit-3: Theories of Consumption

The Psychological Law of Consumption – Kuznets's Consumption Puzzle – Fisher's Inter-Temporal Choice Model – Permanent Income Hypothesis – Life Cycle Hypothesis – Relative Income Cycle Hypothesis.

Unit-4: Theories of Investment

The Neoclassical Theory of Investment – Capital Theory and Theory of the Firm – Finance and the Cost of Capital – The Accelerator Theory of Investment – The Stock Market And Tobin's Q Theory – Inflation and Investment – Policies Affecting Investment.

Unit-5: Neoclassical and Keynesian Macroeconomic Models

The Neoclassical and Keynesian Version of IS-LM Model – Fiscal and Monetary Policy in ISLM Model – Fiscal Policy and Crowding Out – Barro Ricardian Equivalence – The Relative Efficacy of Fiscal and Monetary Policy – Pigou Effect and Real Balance Effect in IS-LM Model – Aggregate Demand in the Open Economy – The Mundell-Fleming Model – The Fiscal and Monetary Policy Operation Under Fixed and Floating Exchange Rate Regime.

References

1. Barro, Robert J. and Sala-i-Martin, Xavier (2007). Economic Growth, Prentice Hall of India Private Limited, 2nd edition.
2. Blanchard, O., and S. Fischer (1989) "Lectures on Macroeconomics". Cambridge, MA: MIT Press
3. Blanchard, O., and S. Fischer (1989) "Lectures on Macroeconomics". Cambridge, MA: MIT Press.
4. David Romer (2012) "Advanced Macroeconomics", 4th edition, McGraw-Hill Irwin.
5. Dornbusch et al (2008): Macroeconomics 10th ed, Tata McGraw Hill, New Delhi
6. Mankiw, N. Gregory (2014), Principals of Macroeconomics, Seventh edition, Cengage Learning.
7. Obstfeld, M., and K. Rogoff (1996). Foundations of International Macroeconomics. Cambridge, MIT Press.
8. R T Froyen (2022), Macroeconomics, Theory and policies, Prentice Hall
9. Sargent, T., (1987) Macroeconomic Theory, Academic Press.
10. Scarth, W. (2007), Macroeconomics: An Introduction to Advanced Methods, third edition, Thomson,

ECO5043-PUBLIC ECONOMICS

Type: CC

Credit: 4

Course Objectives

To familiarise the students with the concepts, principles, and theories of Public Economics. Also, to enrich the students' ability in public economics and their relevance for the Government and the Economy.

Learning Outcomes

- The students would understand the basics of public economics and the role of the government.
- Students would understand the theory of taxation and the effect of taxation.
- Students enrich their knowledge on the impact of public expenditure and its impact health and education.
- Students would analyse the federal fiscal relations and their impact.
- Fiscal policy instruments and their impact on the macroeconomy will be analysed.

Unit-1: Public Economics, Government, and Theory of Public Goods

Introduction to Public Economics, Role of State, Market versus Government, Public Goods and Externalities, merit goods, Samuelson Theory.

Unit-2: Theory of Taxation

Direct and indirect taxes, efficiency and equity, deadweight loss, Theory of taxation, tax incidence and shifting, Optimal taxation, measuring progressivity and effect of taxation, and Tax reforms.

Unit-3: Public Expenditure and the Macro-economy

Growth of expenditure, theories of expenditure, debt versus tax financing, designing optimal government expenditure policy, designing subsidy policy: health and education expenditure policy in India.

Unit-4: Federal Fiscal Relations

Federal fiscal transfers, issues of equity and efficiency, Fiscal federalism in India, the role of the Finance Commission and other resource mediating agencies, and Issues of Implicit transfers.

Unit-5: Fiscal Policy Issues

Budget deficit and public debt: Keynesian, neo-classical, and Ricardian equivalence, debt dynamics and sustainability, Fiscal policy and objectives, the interdependence of fiscal and monetary policies, Rule-based fiscal policy and budget management.

Reference

- Gruber, Jonathan (2022). *Public Finance and Public Policy*, 6th Edition W.W. Norton & Company.
- Rosen, Harvey S., and Ted Gayer (2014). *Public Finance*, 11th Edition, McGraw-Hill Education.
- Browning, Edgar K., and J. Bradford Jensen. (2020). *Public Economics*, 2nd Edition, Cambridge University Press.
- Auerbach, Alan J., and Kevin A. Hassett (Editors) (2019). *Handbook of Public Economics*, Volumes 5 & 6 Elsevier.
- Atkinson, Anthony B., and Joseph E. Stiglitz (2015). *Lectures on Public Economics*, Princeton University Press.
- Fullerton, Don (2020). *Public Finance in Theory and Practice*, 2nd Edition, Routledge.

ECO5044-POLITICAL ECONOMY

Type: CC

Credit: 3

Course Objective

The course is intended to give an overall orientation to the history, approaches, and various issues related to economic development.

Course Outcome

- Students will get an understanding of the major schools of thought in economic development.
- Students will get an understanding of the role of the state in market economies.
- Students will get an understanding of the significance of the finance capitalistic mode of economic development.
- Students will get an understanding of the failures of market economies in addressing fundamental economic problems such as fair distribution of income, increasing income inequality, welfare maximization, and issues of sustainable development
- Students will get an understanding of the contemporary developmental problems, particularly in the context of environmental management

Unit 1

Overview of political economy – Historical development – classical view on political economy – Marxian thinking on political economy.

Unit 2

Role of state – public goods – neo-liberal state - capitalist production process- multinational corporations – changing organisational structure – labour reforms and labour rights

Unit 3

Role of finance – capital accumulation strategies – public and private – corporate finance – government funding on developmental activities

Units 4

Income distribution – inequality and poverty – social welfare –gender discrimination – sustainable growth and equity

Unit 5

Challenges of political economy - contemporary economic and technological advancement and environmental issues – millennium development goals.

Reference Texts:

1. Beaud, M. (2001). A History of Capitalism, 1500-2000 (T. Dickman & A. Lefebvre, Trans.). New York, NY: Monthly Review Press.
2. Dymksy, G. (2005). Financial Globalization, Social Exclusion and Financial Crisis. International Review of Applied Economics, 19, 439-457.
3. Tonkiss, F. (2006). Contemporary Economic Sociology: Globalisation, Production, Inequality (Chapter 4: Fordism and After). Routledge India.
4. Harvey, D. (2005). A Brief History of Neoliberalism. Oxford University Press.
5. Dore, R. (2008). Financialisation of the global economy. Industrial and Corporate Change, 17, 1097-1112.
4. Hayami, Y., & Godo, Y. (2005). Development Economics: From Poverty to Wealth of Nations. Oxford University Press.
5. Mill, J. S. (1965). Principles of Political Economy with Some of Their Applications to Social Philosophy. In J. M. Robson (Ed.), Collected Works of John Stuart Mill (Vols. II and III). Toronto, Canada: University of Toronto Press.

ECO5045-DATA ANALYSIS WITH COMPUTER APPLICATIONS

Type: SEC (DS)

Credit: 3

Course Objectives

To provide students with practical exposure to open-source statistical software tools such as JAMOVI, JASP, GRETL, MS Excel, and Python for economic data analysis. The course aims to build foundational skills in data handling, descriptive and inferential statistics, regression modelling, and academic reporting through hands-on engagement with real-world economic datasets.

Course Outcome:

- Explain the advantages of open-source software tools and perform data import, cleaning, and transformation using user-friendly interfaces such as JAMOVI, JASP, GRETL, MS Excel, and Python.
- Summarize and visualize economic datasets using appropriate descriptive statistics and graphical techniques (e.g., histograms, box plots, scatter plots) to uncover data patterns and distributions.
- Apply inferential statistical techniques such as t-tests, chi-square tests, ANOVA, and correlation in JAMOVI, JASP, or GRETL, and interpret results including p-values, confidence intervals, and statistical significance.
- Conduct bivariate and multivariate regression analysis using open-source software, assess model fit, test hypotheses, and evaluate model assumptions such as multicollinearity and homoscedasticity.
- Undertake an independent data analysis project, formulate an economic research question, apply appropriate statistical methods, and produce a well-documented analytical report using at least two open-source statistical tools.

Unit 1: Introduction to Open-Source Statistical Tools: Understanding different open-source software: concept, benefits, and licensing; Overview of selected software: JAMOVI, JASP, GRETL, MS EXCEL, and Python, Installation and setup of software environments, Data import and export: different packages files, Interface navigation and basics of data cleaning and transformation.

Unit 2: Descriptive Statistics and Data Visualization: Measures of central tendency and dispersion, Frequency distributions and cross-tabulations. Data visualization: histograms, bar charts, box plots, pie charts, and scatter plots, customizing plots and interpreting visual data, and exploratory data analysis in economics datasets.

Unit 3: Hypothesis Testing and Inferential Statistics: Concepts: population, sample, sampling distribution, null and alternative hypotheses, t-tests: one-sample, independent, paired, Chi-square tests: goodness of fit and independence, One-way ANOVA, Correlation, and simple linear regression, understanding p-values, confidence intervals, and significance, Performing and interpreting results using JAMOVI, JASP, and GRETL.

Unit 4: Bivariate and Multivariate Analysis: Simple and multiple linear regression, testing of hypothesis in regression analysis, confidence intervals, assess model fit (R^2 and adjusted R^2), test for statistical significance, and evaluate assumptions (linearity, multicollinearity, homoscedasticity). Performing and interpreting results using JAMOVI, JASP, and GRETL.

Unit 5: Project and Academic Writing

Working with different datasets (e.g., Government, IMF, UN), Formulating an economic questionnaire and selecting appropriate analysis methods, conducting data analysis using at least two open-source tools, Writing and presenting a short analytical report with visualizations, Reproducible analysis using documentation.

References:

- JAMOVI User Manual: <https://www.jamovi.org/user-manual.html>
- GRETL User Manual: https://gretl.sourceforge.net/gretl-help/gretl-guide.pdf?utm_source=chatgpt.com
- Navarro, D. J., & Foxcroft, D. R. (2022). *Learning statistics with Jamovi* (Version 0.75).
- Ramanathan, R. (2002). *Introductory econometrics with applications* (5th ed.). Cengage Learning.
- Gujarati, D. N., & Porter, D. C. (2020). *Basic Econometrics* (6th ed.). McGraw-Hill Education

LANGUAGE

Type: AEC

Credit: 3

This Course is offered by another department.

FOR AWARDING UG DIPLOMA (ADDITIONAL CREDIT FROM VOCATIONAL COURSE)

SKILL DEVELOPMENT OF THE YOUTHS AND THEIR LIVELIHOOD (NPTEL)

Type: Vocational Course

Credit: 4

SEMESTER-V

ECO5051- INTERNATIONAL ECONOMICS

Type: CC

Credit: 4

Course Objective: To provide the students with essential concepts and theories in international trade and skills to analyse the operation of trade between countries

Course Outcomes:

- Understand the importance and basic concepts of international trade
- Learn important theories in international trade such as classical, neo-classical, and new trade theories
- Analyse various protection measures of trade and their effect on trade
- Understand the operation of BOP, determination of exchange rate, and analyse policy measures for BOP imbalances
- Describe the international financial flows, the functioning of international organisations, and India's trade agreements to promote trade.

Unit 1: Introduction and Concepts in International Trade

International Trade: Meaning and Importance for Economic Development - Gains from Trade – Current International Economic Problems – Concepts of Production Possibility Curve and Community Indifference Curve in Trade - Offer Curve, - Terms of Trade.

Unit 2: Theories of International Trade

Mercantilist's Views on International Trade - Adam Smith's Theory of Absolute Cost Advantage – David Ricardo's Theory of Comparative Advantage –Heckscher–Ohlin Factor Endowment Trade Theory – Samuelson's Factor Equalization Theory – Tinbergen's Gravity Model of Trade - Paul Krugman's New Trade Theory – Melitz's Firm Heterogeneity Model of Trade

Unit 3: Protectionist International Trade

Free Trade and Protectionism - Types of Trade Barriers: Tariff and Nontariff Barriers – Effects of Tariffs and Import Quotas – Tariffs versus Import Quotas – Effective Rate of Protection – Optimum Tariff – New Protectionism – Political Economy of Protectionism - Customs Union: Types, Benefits and Theory of Second Best.

Unit 4: Balance of Payments (BOP) and Exchange Rate

BOP: Meaning, Components and Importance – Exchange rate: Meaning, Types, Measurement – Exchange Rate Changes and Effects – Determination of Exchange rate – Purchasing Power Parity - BOP Disequilibrium: Causes, Measures to Correct – Mundel-Fleming Model.

Unit 5: International Finance and Trade Organisations

International Capital Flows: Types and Impact – International Trade Organizations: IMF, World Bank, UNCTAD, and WTO - Free Trade Agreements: European Union, ASEAN, India's Trade Agreements.

References:

1. Dominick Salvatore and Chandan Sharma (2019). *International Economics* (13th ed.), (Indian Adoption). Willey Publisher.
2. Paul Krugman, Maurice Obstfeld and Marc Melitz (2023). *International Economics: Theory and Policy* (12th ed.), Pearson Publisher.
3. Rajat Acharya (2022). *International Economics: An Introduction to Theory and Policy* (2nd ed.). Oxford University Press.
4. Francis Cherunilam (2020), *International Economics* (6th ed.). McGraw-Hill Publisher
5. Bo Sodersten and Geoffrey Reed (1994): *International Economics: Theory and Policy* (3rd ed.), Palgrave Macmillan Publisher.

ECO5052-INTRODUCTION TO ECONOMETRICS

Type: CC

Credit: 4

Course Objective:

The course is designed to introduce the students to essential econometric analysis tools. To understand the issues concerned with the art of empirical model framing. To help them understand econometric analysis principles and their application in empirical research.

Learning outcomes:

- Students will be able to understand the concepts, theory, and basic tools of Econometrics.
- Analyze and interpret the estimated econometric model.
- Further, they will be able to make applications of these methods for economic decisions and research.

Unit 1: Introduction to Sampling and Estimation

Sampling methods – Different sampling methods - parameters and estimators - properties of estimators – unbiasedness, efficiency, consistency, and sufficiency. Point and interval estimates. Testing of statistical hypotheses and Type I and Type II errors, level of significance and confidence interval; power of a test—analysis of variance.

Unit-2: Simple Linear Regression and Statistical Inference

Specifications of the Model - Simple Regression Model - Functional forms – Assumptions of Ordinary Least Squares (OLS) Estimation, properties of OLS and Gauss Markov Theorem, Estimation of the Error Variance. Testing of Hypotheses - Estimating parameters - Confidence Intervals for the Estimated Parameters -; goodness of fit - Coefficient of Determination - adjusted R².

Unit-3: Multiple Linear Regression Analysis:

Multiple linear regression model - estimations and properties of estimators - partial regression coefficients-testing hypotheses – individual and joint significance. Omission of a relevant variable; inclusion of an irrelevant variable; tests of specification errors.

Unit-4: Problems in OLS Methods:

Analysis of Residuals: Heteroscedasticity and Autocorrelation, Problem of Multicollinearity - their Consequences, Detection and Remedies.

Unit-5: Qualitative and limited dependent variable models

Nature of dummy variables, variables with two categories and more than two categories, dummy variable trap, dummy dependent variable, problems of Linear Probability Model (LPM), Introducing statistical packages for analysis of Econometrics.

Reference texts

1. Gujarati and Porter, *Basic Econometrics*, Fifth Edition, McGraw Hill/Irwin, 2009.
2. Wooldridge, J., *Introductory Econometrics: A Modern Approach*, 2015, Nelson Education.
3. G.S. Maddala – *Introduction to Econometrics*. Wiley Publishers (Indian edition)
4. Earl K. Bowen & Martin K. Starr, *Basic Statistics for Business and Economics*, McGraw Hill International Student Edition
5. Ramanathan, Ramu, *Introductory Econometrics with Applications*, 5th edition, 2002, Thomson Asia Pte Ltd., Singapore.

Additional Readings

1. Greene, William H. *Econometric Analysis*. 6th Edition, Prentice Hall. 2008.
2. Johnston, J. and Dinardo, J. *Econometric Methods*. 4th Ed. McGraw-Hill 1997.
3. Stock, James H., and Mark W. Watson (2006): *Introduction to Econometrics*, Second Edition,

ECO5053-INTRODUCTION TO ECONOMETRICS (LAB)

Type: CCP

Credit: 2

Course Objectives:

To enrich data analysis using econometric software. To make the students familiarised with econometric models and techniques using the software. To gain expertise in decision-making by using econometric tools and techniques

Learning Outcome:

- The students will have a basic understanding of the functioning of econometric software.
- The lecture sessions will make the students understand the basic Knowledge of econometric software.
- To have hands-on experience in interpreting econometric models.

Unit 1: Introduction to Sampling and Estimation

Sampling methods – parameters and estimators - properties of estimators

Unit-2: Simple Linear Regression:

Simple Regression Model - Functional forms – Estimating coefficients - Estimation of the Errors.

Unit-3: Statistical Inference in the Linear Regression Model:

Testing of Hypotheses - Estimating parameters - Confidence Intervals for the Estimated Parameters - goodness of fit - Coefficient of Determination - adjusted R².

Unit-4: Linear Multiple Regression Analysis:

Multiple linear regression model - partial regression coefficients- testing hypotheses – effects of Omission of a relevant variable; inclusion of an irrelevant variable

Unit-5: Problems in OLS Methods:

Analysis of Residuals: Heteroscedasticity and Autocorrelation,

Reference sources

1. Gujarati and Porter, Basic Econometrics, Fifth Edition, McGraw Hill/Irwin, 2009.
2. Wooldridge, J., Introductory Econometrics: A Modern Approach, 2015, Nelson Education.
3. Ramanathan, Ramu, Introductory Econometrics with Applications, 5th edition, 2002, Thomson Asia Pte Ltd., Singapore.
4. Christopher Dougherty, Introduction to Econometrics, Oxford University Press, 3rd edition, Indian edition, 2007.

Course Objective

This course examines the development of economic ideas and theories.

Course Outcomes

- Study the economic ideas of mercantilism, physiocracy, and classical economics.
- Study the premises of the utility theories
- Study the significant theories of Utilitarianism
- Understand the Keynesian thoughts
- Learn contemporary economic ideas.

Unit 1: Mercantilism, Physiocracy, and Classical Thoughts: Mercantilist Writing on Value and Profits. Beginnings of the Classical Theory of Prices and Profits. The Physiocrats as Social Reformers. Classical Political Economy: The distribution of income to the owners of labour, capital and land. National wealth and productivity of labour: Contributions of Adam Smith, Thomas Robert Malthus, David Ricardo. Marx's Critique of Classical Economics.

Unit 2: Introduction to Utility theories: The premises of utility theory. Jeremy Bentham, Jean-Baptiste Say and Senior. Bastiat's Utilitarian Economics. Mill's Utilitarianism and Theory of Value.

Unit 3: Major theories of Utility: Jevons's Theory of Marginal Utility and Exchange. Menger's Theory of Marginal Utility, Prices, and Income Distribution. Walras's Theory of General Economic Equilibrium. Neoclassical Theories of the Firm and Income Distribution: The Contributions of Marshall, Clark, and Bohm-Bawerk. Microeconomic Theory and Welfare Economics. Pareto Optimality and Criticism.

Unit 4: Keynesian thoughts: Theoretical Setting of Keynes's Analysis. Efficacy of Keynesian Policies. Institutional Economics (J.R. Commons)

Unit 5: Contemporary Economics:

Origin of Development Economics (Arthur Lewis). Paul A. Samuelson Vs Milton Friedman. Market with asymmetric information (Joseph E Stiglitz). Behavioural Economics: Richard Thaler. Institutional economics. Contributions of A.K. Sen. Experimental approach: Abhijit Banerjee. Modern economic ideas of India: Naroji, Ranade. R.C. Dutt Gokhale. Mahatma Gandhi and Dr.Ambedkar.

References

1. A.Smith. (1776). *An Inquiry Into the Nature and Causes of the Wealth of Nations*.
2. Blaug, M. (1997). *Economic theory in retrospect* (5th ed.). Cambridge University Press.
3. Dasgupta, A, *A History of Indian Economic Thought*, The Routledge.
4. Ganguli. B.N (19977) *Indian Economic Thought: A Nineteenth-Century Perspective*. TMH. New
5. Hicks, J. R. (1946). *Value and capital: An inquiry into some fundamental principles of economic theory*
6. Hunt, E. K. (2015). *History of economic thought: A critical perspective* (4th ed.). Routledge.
7. Keynes, J. (1936). *The general theory of employment, interest and money*.
8. Kishtainy, N. (2017). *A little history of economics*. Yale University Press.
9. Kurz, H. D. (2016). *Economic thought: A brief history*. Columbia University Press.
10. Landreth, H., & Colander, D. C. (2002). *History of economic thought*. Houghton Mifflin.
11. Morgan, M. (2012). *The world in the model: How economists work and think*. Cambridge University
12. Roll, E. (1992). *A history of economic thought* (5th ed.). Routledge.
13. Schumpeter, J. A. (1954). *History of economic analysis*. Oxford University Press.
14. Steven Pressman (2006), *Fifty major economists*, Routledge, Milton Park, Abingdon, Oxon.
15. Sweezy, Paul M.(1942), *The Theory of Capitalist Development*, Denis Dobson Ltd., London.

Journals

1. **Journal of the History of Economic Thought** History of Economics Society. (2025). *Journal of the History of Economic Thought*. Cambridge University Press. ISSN (Print): **1053-8372**, ISSN (Online): **1469-9656**.
2. **The European Journal of the History of Economic Thought** European Society for the History of Economic Thought. (2025). *The European Journal of the History of Economic Thought*. Routledge.

ECO5055-HEALTH ECONOMICS

Type: CC

Credits: 3

Course Objective

To study the nature and scope of health economics and provide a framework of micro and macroeconomic foundations in health economics

Course Outcome

- Study the basics of health economics.
- Understanding the microeconomic foundations of health economics
- Study the evaluation of healthcare
- Study the linkages between health expenditure and economic growth
- Study the different health sectors in India

Unit-1: An Introduction to Health Economics: Nature and scope of Health Economics, Importance of health in poverty alleviation, health outcomes and their relationship with macroeconomic performance.

Unit-2: Microeconomic Foundations of Health Economics: Demand & Supply in Healthcare: Elasticity, market equilibrium, and consumer behaviour. Utility theory and health production function. Market Failures in Healthcare: Externalities, asymmetric information, and moral hazard.

Unit-3: Evaluation of Health Care: Costing, cost-effectiveness, and cost-benefit analysis; Disease burden. Health Insurance and Financing – Out-of-pocket expenditure.

Unit 4: Health Expenditure & Economic Growth: Relationship between healthcare spending and economic development. Public Health Policies & Government Role: Fiscal policies, taxation, and subsidies in healthcare.

Unit-5 Health Sectors in India: Healthcare systems – Health care services. National Health Policy (India, 2017) - Universal Health Coverage (UHC)- Ayushman Bharat (India): Health insurance schemes to economically vulnerable populations -Public-Private Partnerships (PPP).

References

1. Appleby J, Devlin N, Parkin D (2007). NICE's cost-effectiveness threshold. *British Medical Journal*, 25;335 (7616):358-9.
 2. Authored Book Smith, J. K. (2020). *Health economics: Principles and applications*. Oxford University Press.
 3. Begg,D., Fischer,S., Dornbusch,R. (2003). *Economics*, London, McGraw-Hil
 4. Edited Book Patel, R., & Singh, A. (Eds.). (2019). *Global health economics: Policy and practice*. Routledge.
 5. Journal Article Brown, L. M. (2018). The impact of healthcare financing on economic growth. *Health Economics Journal*, 25(3), 245-260
 6. Government Report World Health Organization. (2021). *Global health expenditure database*.
 7. Ronald G., Ehrenberg and Robert S.(2025). *Smith, Modern Labor Economics: Theory and Public Policy*, Addison Wesley.
 8. William, J (1999). *Principles of Health Economics for Developing Countries*, World Bank Institute Development Studies.
 9. *World Development Report (1993). Investing in Health*, the World Bank, 1993.
- <https://www.data.gov.in/catalog/national-family-health-survey-nfhs-5> (NFHS 1 to 5)
NHM Health Statistics Information Portal| National Portal of India

Course Objectives:

To explore the regional economic concepts, regional problems, and the relationships between different regions, and how regional policies can impact other areas.

Learning Outcomes:

- Students will be able to explain key concepts and models in regional economics.
- Students will understand the theories that enhance regional growth.
- The students would understand factor mobility for the development of the economy.
- Theories on spatial development would help the students understand the importance of regional growth.
- Students will be able to evaluate the effectiveness of regional policies and their impact.

Unit-1: Concepts and Definitions

Need for study of Regional Economics, Definition of a region, Different types of regions, Differences between region and a nation, Regional income, Problems of estimation, Indicators of regional development, A City Model, Systems of Cities, Monocentric city model, Suburbanization.

Unit-2: Models of Regional Growth

Export Base Models, Central place theory (Christaller), Cumulative Causation Models (Perroux, Myrdal, Hirschman), Sector theory (Colin-Kuznets), Multi-sector Models and Regional Development Planning, Elements in a Spatial Growth Theory, Locational constants (Weber).

Unit-3: Factor Mobility in Regional Economy

Inter-regional Migration, Mobility of Capital, Spatial diffusion of innovation and technical progress, Inter-Regional Trade, The basis of interregional trade, Regional trade and factor price equalization, Regional trade and factor migration.

Unit-4: Theories of Spatial Development

Integration of Regional and Urban Economics, Regional dispersions of National growth, Intra-regional concentration, Urban Decentralization, Housing market, Urban transportation, Role of migration.

Unit-5: Urban and Regional Economic Policy Analysis

Location and Economic Activity. Urban Policy, Regional Policy, Intra-regional concentration, Urban Decentralization, Regional trade and factor migration, Interregional Economics at the International Level.

References

- Conway, Richard S. (2022). *Empirical Regional Economics*. Cham: Springer International Publishing.
- Dore, Poornima, and Krishnan Narayanan. (2023). *Regional Economic Diversity*. Oxford University Press.
- McCann, Philip. (2019). *Urban and Regional Economics*. Routledge.
- Temple, Marion. (1994). *Regional Economics*. London: Macmillan Education UK.
- Capello, Roberta. (2015). *Regional Economics*. Routledge.
- Hoover, Edgar M., and Giarratani, Frank. (2020). *An Introduction to Regional Economics*. West Virginia University.

ECOON01- MOOCS (NPTEL)

Type: DSE

Credit: 3

SEMESTER VI
ECO5061-GROWTH AND DEVELOPMENT

Type: CC

Credits: 4

Course Objectives:

The objective of the course is to elaborate on the different models of growth and development and discuss various development issues in terms of poverty, human resources, environment, and health.

Course Outcome:

- Learn growth models.
- Understand the major theories of economic development.
- Understand the economic and social development indicators.
- Understand the nature of human resources.
- Understand the linkages between environment and development.

Unit-1: Growth models

Harrod-Domar knife-edge equilibrium problem, Cambridge models- Joan Robinson, Kaldor, Neoclassical growth models- Solow-Swan Model–the emergence of endogenous growth models. Technological progress embodied and disembodied – Hicks and Harrod version, production function approach to growth, total factor productivity and growth accounting.

Unit-2: Theories of Economic Development

Adam Smith, Ricardo, Marx, Schumpeter, and Rostow Balanced and Unbalanced Growth - big push approach- Lewis model of surplus labour, Myrdal on economic development.

Unit-3: Indicators of Economic and Social Sector Development

Health, education, and gender- UNDP Reports - Human Development Index (HDI), Inequality-adjusted HDI (IHDI), Gender Development Index (GDI), Multidimensional Poverty Index (MPI)- SDGs and social development. Poverty and Inequality: Different approaches - Capability Approach.

Unit-4: Human Resources

The population as a challenge - Malthusian notion - Simon's Challenge-demographic indicators. Demographic Dividend-New Challenges-Changing Demographic structure; segmented labour markets, unemployment (Harris-Todaro model, labour turnover model, efficiency wage hypothesis).

Unit-5: Environment and Development

Measuring environmental values - economic growth and environment – sustainable development. Environmental degradation. Environment evaluation and policy impact.

Reference Text:

1. **Acemoglu, D.** (2009). *Introduction to modern economic growth*. Princeton University Press.
2. Alain de Janvry and Elisabeth Sadoulet (2016), *Development Economics: Theory and Practice*
3. **Barro, R. J., & Sala-i-Martin, X.** (2003). *Economic growth* (2nd ed.). MIT Press. Available here.
4. Hayami, Y (2001) *Development Economics: From Poverty to the Wealth of Nations*, 2nd Edition.
5. Jones, H.G (1976), "An Introduction to Modern Theories of Economic Growth" McGraw-Hill Book
6. Piketty, T. (2014). *Capital in the 21st Century*. Cambridge MA: Cambridge University Press.
7. Thirlwall (2006), *growth and development with special reference to developing countries*, Palgrave M
8. **Van Den Berg, H.** (2016). *Economic growth and development* (3rd ed.). World Scientific Publishers

Reports

1. World Bank Reports
2. UNDP reports
3. RBI Reports
4. SEBI Economic Outlook
5. Index of Industrial Production
6. Ministry of Statistics Repo

ECO5062-MONETARY ECONOMICS

Type: CC

Credit: 4

Course Objective:

To provide students with a solid foundation in the theories and practices related to money, interest, inflation, and monetary policy. The course explores classical and modern perspectives on money demand and supply, interest rate determination, price level dynamics, and the conduct of monetary policy in both formal and informal financial markets.

Course Outcomes:

- Understand the definitions, roles, and measures of money, and analyse classical, Keynesian, Monetarist, and Post-Keynesian views on monetary theory
- Evaluate key theories of money demand and supply, the money multiplier framework, and behavioural approaches.
- Analyze the determination of interest rates and their macroeconomic effects, under both administered and market-determined interest rates.
- Explain the relationship between money, prices, and inflation, using various theoretical frameworks, and assess the role of monetary factors in economic fluctuations and business cycles.
- Assess the goals, tools, and effectiveness of monetary policy, and coordination with fiscal policy in both formal and informal financial market contexts.

Unit-1: Introduction:

Money – Definition – Money and the Economy – Measures of Money Supply and Money Demand – Classical, Keynesian, Monetarist and Post-Keynesian Views – Emergence of Monetarism – Monetarist Analytical Framework – Transmission Mechanism – Liquidity Approach to Monetary Theory – Gurley-Shaw Implications for Monetary Policy.

Unit-2: Money Demand and Money Supply

Baumol Inventory Theory Approach – Liquidity Preference as Behaviour towards – Risk (James Tobin) – A Restatement of Quantity Theory of Money (Milton Friedman), the Buffer Stock Notion (David Laidler) – Partial Adjustment Mechanism. The Concept and Measurement of High Powered Money – Sources of Variation in High Powered Money – The Money Multiplier Model – Factors Affecting Money Multiplier – Behavioural Model of Money Supply – The Portfolio Model of Money Supply.

Unit-3: Money, Interest, and Income:

Heterogeneity of Interest Rate Determination – Neo-Classical, Keynesian – Rate of Interest and Investment, Income and Output – Administered Interest Rates and Market Determined Interest Rates – Interest Rates and Demand for Money – Implications for Monetary Management.

Unit-4: Money and Prices:

Interrelationship Between Money and Prices – Classical, Keynesian, Monetarist and New Classical Approach – Demand Pull Theory of Inflation – Social Costs of Inflation – Inflationary Expectations – Monetary Factors and Economic Fluctuations – Monetary Theories of Business Cycles.

Unit-5: Monetary Policy:

Central Bank – Goals – Targets – Indicators and Instruments – Rules and Discretion – Time Lags in Monetary Policy – Limitations of Monetary Policy – Monetary Policy with Informal Financial Markets – Monetary – Fiscal Co-Ordination.

References

1. David G. Pierce and Peter J. Tysome “Monetary Economics: Theories, Evidence and Policy” 2nd Edition, Butterworth & Co Publishers Ltd
2. Carl E. Walsh Monetary Theory and Policy, 2017 Fourth Edition, MIT
3. Frederic S. Mishkin (2016), “Economics of Money, Banking and Financial Markets”, Pearson
4. Keith Bain and Peter Howells: Monetary Economics, London: Palgrave.
5. Jagadish Handa, “Monetary Economics”, London: Routledge.
6. Stiglitz, Joseph E and Bruce E. Greenwald (2003), Towards A New Paradigm in Monetary Economics, Cambridge, The Cambridge University Press

ECO5063-ENVIRONMENTAL ECONOMICS

Type: CC

Credit: 4

Course Objectives

To educate the students on the significance and economic relevance of environmental economics, with the linkages between the environment and the economy, which would enlighten the students to bring policy implications to solve the same.

Learning Outcomes

- Students would understand the nature and scope of environmental economics and its importance.
- Students will understand the impact of public goods on the economy and the environment.
- Ability to use quantitative techniques for valuing environmental goods for management.
- Familiarity with various pollution-controlling methods and suggest an appropriate environmental policy.
- Knowledge of various environmental issues and pursuing research for attaining sustainable development

Unit-1: Nature and Scope of Environmental Economics

Circular flow model and environment- Sustainable development –Measurement of Sustainable Development: Green GDP -Environmental Kuznets curve Hypothesis

Unit-2: Public Goods and Externalities

Public goods, private goods, common pool resources, common property resources- Concept of Total Economic Value- Types of Externalities.

Unit-3: Economic Valuation of Environmental Benefits

a) Revealed preference method: Production function approach, defensive expenditure approach, travel cost method, Hedonic pricing method – b) stated preference approach-contingent valuation method and choice experiment.

Unit-4: Environmental Policy

Command and control method –market-based instruments (MBIs)–Tax, subsidy, tradable rights, and payment for ecosystem services (PES).

Unit-5: India's Environmental Problems

Cost of depletion and degradation of water resources, air pollution, soil erosion, deforestation, and global climate change-related issues –management of the environment and India's sustainable development.

Reference

- Dasgupta, Partha. (2021). *The Economics of Biodiversity: The Dasgupta Review* London: HM Treasury, 2021.
- Hanemann, Michael W. (2022). *Environmental and Resource Economics* (4th Edition) Routledge.
- Kahn, Matthew E. (2020). *Urban Sustainability and Environmental Economics* (Edited Volume), Routledge.
- Tietenberg, Tom & Lewis, Lynne. (2018). *Environmental and Natural Resource Economics* (11th Edition), Routledge.
- Charles Kolstad, *Intermediate Environmental Economics*, Oxford University Press, 2nd Edition, 2010.

ECO5064-INDUSTRIAL ECONOMICS

Type: CC

Credit: 4

Course Objective: To provide the students with an understanding of the significance of the industrial sector, concepts and theories of industrial economics, and train them to analyse the requirements and regulations of industrial firms.

Learning Outcomes

- Understand the significance of the industrial sector and the strategies of industrialisation
- Learn theories and market strategies of industrial firms for growth
- Analyze the industrial collaborations and R&D for Industrial development
- Comprehend the role of finance, trade, and MSMEs in industrial development
- Evaluate the industrial regulations, policies, and programs in India

Unit-1: Introduction

Industrial economics: Meaning and Significance – Role of Industrial sector in economic development - Strategies of Industrialization in Developing Countries –Industrial revolutions: Industry 1.0 to 5.0 – Industry life cycle.

Unit-2: Theories and Market Strategies of Industrial Firms

Theories of Industrial location: Weber and Florence - Robbins Marris Model of Firms Growth - Market Structure for Industry - Market concentration and its measures - Entry and Exit of Firms - Entry Deterrence strategies - Theory of Contestable Markets – Role of Firm Size in Industrial Development.

Unit-3: Industrial Collaborations and R&D

Industrial Collaborations: Mergers, Acquisitions, Strategic Alliances, Networking – Research and Development (R&D): Types, Role in Industrial Growth in India.

Unit-4: Industrial Finance, Trade, and MSMEs

Industrial Finance: Importance, Institutions and Problems - Role of International Trade and Finance in Industrial Development in India - Micro, Small and Medium Enterprises (MSMEs): Importance, Problems and Challenges of MSMEs in India

Unit-5: Industrial Regulation and Policies

Industrial Regulation under Symmetric and Asymmetric information – Industrial Policies and Regulations in India – Industrial Labor: New Labour Codes and Other reforms, Issues in Industrial Labour in India - Current Industrial Developmental Programs/Schemes in India.

Reference Text:

- Richard L Schmalensee (2023). *Industrial Economics: An Overview*. Legare Street Press
- G. Symeonidis (2011). *Industrial Economics*. University of London.
- R.R. Barthwal (2024). *Industrial Economics: An Introductory Text Book* (5th ed.). New Age International Publishers.
- Shy, Oz. (1995) *Industrial Organization: Theory and Applications*, MIT Press

ECO5065 (I)-FINANCIAL ECONOMICS

Type: DSE-I

Credit: 3

Course Objective:

To extend their knowledge of economics through the financial aspect, it will deal with basic financial economics concepts and theories. This provides a clear understanding of derivatives.

Course Outcomes:

- To explore the subject matter of finance through the concepts and theoretical aspects.
- To understand the bonds and securities with a different approach and hypothesis
- To discuss the concepts of risk and return in the field of finance.
- Learning for the Cost of Capital and Capital Asset Pricing Model
- To extend the learning process of the financial aspects with derivatives markets.

Unit 1 Introduction to Financial Economics:

Concept of Finance, Finance and Economics- concepts of money and markets (capital, money), Time Value of Money: Future and Present Values, and an annuity's Present Rate of Perpetuity. Investment: Net Present Value, Benefit Cost Ratio, Rate of Return.

Unit 2: Approach of Bonds and Securities:

Concepts of Bonds and Securities, how to value bonds and securities, bond yield, yield to maturity- Equity Valuation: Dividend Discount Model, The P/E Ratio Approach; Irrelevance of Dividends: Modigliani and Miller Hypothesis.

Unit 3 Concept of Risk and Return:

Definition of Risk and return- types of risk and various forms of return- measurements of risk and return (an asset and a portfolio), Determinants of Beta, exploration of risk-return trade-off.

Unit 4: Cost of Capital and Capital Asset Pricing Model:

Concepts of cost of capital, debt and equity, cost of preference capital, and equity, Capital market line, the capital asset pricing model- the beta of an asset and a portfolio, security market line, use of the CAPM Model in investment analysis and as a pricing formula.

Unit 5: Derivative market: An understanding of derivatives, kinds of derivatives, and their use. Forward and future contracts. Interconnection between spot and future prices. Hedging in futures. Option concepts. Different types of options, study call parity theorem, Binomial option pricing model (BOPM), and Black-Scholes option pricing model.

Reference:

1. Hull, J., Basu, B. (2017). Options, futures, and other derivatives, 9th ed. Pearson Education.
2. Luenberger, D. (2013). Investment science. Oxford University Press
3. L. M. Bhole and J. Mahukud, (2011) Financial Institutions and Markets, Tata McGraw-Hill, 5th edition.
4. Thomas E. Copeland, J. Fred Weston and Kuldeep Shastri (2003), Financial Theory and Corporate Policy, Prentice Hall, 4th edition.
5. Richard A. Brealey and Stewart C. Myers, (2002) Principles of Corporate Finance, McGraw-Hill, 7th edition.
6. Stephen A. Ross, Randolph W. Westerfield and Bradford D. Jordan (2005). Fundamentals of Corporate Finance. McGraw-Hill, 7th edition.
7. Brealey, R.A., Myers, S.C. and Allen, F. (2003), Principles of Corporate Finance, 7th Ed, Mc Grow Hill.
8. Panjer, H.H (1998). Financial Economics: with applications to Investments, Insurance and Pensions, Actuarial Foundation.
9. Houthakker, H.S. and P.J. Williamson (1996), Economics of Financial Markets, Oxford University Press.
10. Le Roy, S.F. and Werner, J. (2010), Principles of Financial Economics, Cambridge University

ECO5065 (II)-UNIT LEVEL LARGE DATA ANALYSIS

Type: DSE-I

Credit: 3

Course Objectives:

To be familiar with unit-level/ micro data from MOSPI and NFHS for economic analysis. To learn how to analyse the unit-level large data by using appropriate software and techniques. To learn how to interpret the results from unit-level large data analysis

Learning Objectives:

- Understand the nature and structure of unit-level/ micro data from MOSPI and NFHS
- Acquire skills to analyse the unit-level micro data
- Ability to make research reports based on the unit-level micro data

Unit 1: Introduction to Unit Level/Micro Data

Overview of Unit level/Micro Survey Data in India – Organisations involved in Collection Micro in India - Importance and Features of Unit level/Micro Data in Economics – Concepts and Reports of Surveys - Sampling Frameworks and Sizes, Multipliers – Schedules – Important Documents to analyse Micro data: Readme, Layout etc - Primary Key Identifiers – Important Software's to analyse Micro data

Unit 2: Employment Data

Structure and Key Features of Periodic Labour Force Surveys (PLFS) – Concepts, Schedules, Reports - Working with data set.

Unit 3: National Sample Survey (NSS) Periodical and Special Surveys

Structure and Key Features of: Situation Survey of Agricultural Households, Land and Livestock – Debt and Investment Surveys – Time Use Surveys - Concepts, Schedules, Reports - Working with any data set

Unit 4: Consumption and Health Data

Structure and Key Features of: Household Consumption Expenditure Surveys (HCES) - National Family Health Surveys (NFHS) - Concepts, Schedules, Reports - Working with any data set

Unit 5: Industrial Data

Structure and Key Features of: Annual Survey of Industries (ASI) - Enterprise Surveys – Economic Census - Concepts, Schedules, Reports - Working with any data set.

References:

MOSPI Web sites: <https://microdata.gov.in/NADA/index.php/home>

NFHS Website: https://www.iipsdata.ac.in/datacatalog_detail/1

ECO5065 (III) - EXPERIMENTAL ECONOMICS

Type: DSE-I

Credit: 3

Course Objective: To equip the students with an understanding of concepts and methods in experimental economics and train them to design and carry out experiments on economic issues

Course Outcomes:

- Understand the nature, concepts, and principles of experimental economics
- Analyse the behaviours under different market structures and auction models
- Comprehend experiments under different social preferences and behaviours of people
- Ability to design experiment by using RCT and make policy evaluations
- Skills to conduct experiments and perform data analysis through appropriate techniques

Unit 1: Foundations of Experimental Economics

Introduction to experimental economics – Brief History of experimental economics - Types of experiments: Lab, field, natural - Key principles of experiments: Incentives, control, replication, internal vs. external validity - Ethical considerations - Case study: Experiments by J-PAL South Asia

Unit 2: Market Behaviour and Auctions

Coordination and Repeated Games - Market design and efficiency in double auction markets - Bidding behaviour in auctions: First-price, second-price, and common value - Experimental oligopolies and monopolies - Spectrum auctions in India - Informal markets and local price-setting behaviour

Unit 3: Social Preferences and Behavioural Experiments

Ultimatum, dictator, trust, and public goods games - Inequality aversion, reciprocity, and altruism - Behavioural anomalies: framing, anchoring, endowment effect - Gender, caste, and social identity in experimental outcomes in the Indian context

Unit 4: Development Experiments and Policy Design

Randomized Controlled Trials (RCTs): design and implementation - Spillover effects and external validity - Attrition, compliance, and power calculations - Difference-in-difference, instrumental variables in experimental context - RCT Case studies by J-PAL, IFMR, and NITI Aayog on Deworming in schools, LPG subsidy, NREGA studies

Unit 5: Experimental Design and Data Analysis

Designing economic experiments: treatment, randomization, protocols - Data collection tools (Qualtrics, ODK, offline surveys) - Statistical analysis: hypothesis testing, treatment effects

References:

- John A. List (2025). *Experimental Economics: Theory and Practice*. The Chicago University Press.
- Gary Charness and Mark Pingle (edt)(2022). *The Art of Experimental Economics: Twenty Papers Reviewed (1st ed.)*. Routledge Publishers.
- Nicolas Jacquemet and Olivier L'Haridon (2018). *Experimental Economics: Method and Applications*. Cambridge University Press.
- Nicholas Bardsley etc all (2020): *Experimental Economics: Rethinking the Rules*. Princeton University Press.
- Abhijit V. Banerjee and Esther Duflo (2011): *Poor Economics*. Penguin Random House India
- Abhijit V. Banerjee and Esther Duflo (2009). *The Experimental Approach to Development Economics*. Annual Reviewers Organisation

ECO5066 (I) – RURAL DEVELOPMENT

Type: DSE-II

Credit: 3

Course Objective

To understand the theoretical concepts of rural development and learn the dynamism of the rural economy in the development paradigm.

Course Outcome

- Understand the concepts of rural development and its theoretical background.
- Understand the role of agriculture in rural development
- To study the employment potential of rural industries
- To understand the different rural infrastructure facilities.
- To study the linkages between rural development and social welfare.

Unit 1: Introduction to Rural Development What is Rural Development? Features - Objectives - Strategies – Theoretical rural development approaches (Modernisation theory, Dependency theory, Endogenous Development, Integrated rural development) Policies for Rural Development. Rural development policies and programmes. Rural-Urban Community Development. Gandhian Thought.

Unit 2. Agriculture and Rural Economy: Land-use pattern and ownership distribution; growth fluctuations, trends, and regional spread of Indian agriculture. Issues of Land Reform, Rural Credit and Role of NABARD, Performance of Agricultural Credit and Microfinance Programme, Green Revolution— Achievements and Drawbacks, Agriculture Growth, low productivity, and public policies

Unit 3. Employment and Rural Industries: Rural Measurement - Rural Income - Size, Growth and Occupational Structure of Rural Population - Employment- under Employment - Unemployment in rural areas. Rural industries. Problems and Perspectives.

Unit 4. Rural Infrastructure: Infrastructure and Development, Infrastructure for Agriculture Sector and Rural Economy of India - Planning for Village Industries. Rural Infrastructure - Rural Transport - Rural Electricity- Rural Education - Rural Housing - Rural Health, Sanitation and Water Supply.

Unit 5: Rural Development and Social Welfare: Role of financial inclusion in rural development. Social Welfare & Poverty Alleviation: Government schemes and community development programs. Local administration and decentralised governance 73rd Constitutional Amendment Act (1992). Sustainable Rural Development: Environmental concerns and rural resource management. Discussions on Indian case studies.

References

1. Basu, K. (2018). *Economic growth and policy challenges in India*.
2. Brown, L. M. (2018). *The role of microfinance in rural economic growth*. *Journal of Rural Economics*, 25(3), 245-260. <https://doi.org/10.1007/s12555-018-0025-5>
3. Goli, S., & Jain, N. (2020). *Demographic change and economic implications in India*.
4. Kale, S. (2025). *Grassroots development initiatives in India: Rights-based approach to development and advocacy*.
5. Kurien, C. T. (1974). *Poverty and development*. Bombay: Allied Publishers.
 - (1979). *Economic change in Tamil Nadu, 1960–1970*. New Delhi: Oxford & IBH Publishing.
 - (1981). *Dynamics of rural transformation*. New Delhi: Concept Publishing.
6. MacDonald, A. S. (2025). *Nowhere to go but down?: Peasant farming and the international development game*. Routledge.
7. Patel, R., & Singh, K. (2019). *Healthcare financing and economic growth in India*.
8. Pattanaik, B. K. (2025). *Fundamentals of rural development*. Routledge.
9. Patel, R. (2020). *Rural Development: Policies and practices*. Oxford University Press.
10. Price, S., & Drydyk, J. (2025). *Resettlement with people first: Counterfactual pathways*.

ECO5066 (II) – ECONOMICS OF EDUCATION

Type: DSE-II

Credit: 3

Course Objective

To provide students with a thorough understanding of how economic principles apply to the education sector, including the demand for education, financing, and the efficiency of different educational programs. To analyse the relationship between education and economic development, evaluate education policies, and understand the economic implications of various educational decisions

Learning Outcome

- To comprehensive understanding of the economic principles and practices that shape educational systems and policies
- To develop analytical and critical thinking skills to assess the economic implications of various educational decisions.

Unit-1: Introduction to Economics of Education

Human capital theory; Critique of human capital theory: Job-competition, Screening, and Signaling hypothesis, Education, earnings and national wellbeing, Education and employment – viz., segmented labour market theories, Rate of return to education: cost-benefit analysis, cost-effectiveness analysis,

Unit-2: Education and Economic Development

Contribution of education to economic growth, Denison's growth accounting, Contribution of labour, Endogenous Growth Theories

Unit-3: Public Finance: Role of the State in Financing Education

Principles of financing education: Equity, Efficiency, Adequacy; Education and distribution, inequality; Distribution of public spending on education; Importance of public expenditure on education; its impact on development; Determinants of expenditure on education – Public Household

Unit-4: Methods of Financing Education:

Sources of funding: Public, Private; Public funding of education: Taxes – General, Earmarked; Grants, Vouchers; Fees as a source of finances; Scholar loans; Mobilisation of Resources for Education: Private sector, community contributions; External aid.

Unit-5: Production of Education:

The role of different inputs -Role of School Resources -Role of Teachers -Role of Incentives;

Reading List:

1. Bowman M.J., et al: eds. Readings in Economics of Education. UNESCO, 1962
2. Carnoy, M., ed. (1995) International Encyclopaedia of Economics of Education. Oxford
3. Pergamon Johnes, G and Johnes, J., eds. International Handbook on the Economics of Education
4. Psacharopoulos, G., ed. (1987) Economics of Education. New York: Pergamon
5. Schultz, T.W. (1971) Investment in Human Capital. New York: Free Press Vaizey, John (1962): Economics of Education. London: Faber & Faber Eric A. Hanushek (From the Handbook of Economics of Education, Hanushek)
6. Darling-Hammond, L., Holtzman, D. J., Gatlin, S. J., & Vasquez Heilig, J. (2005). Does teacher preparation matter? Evidence about teacher certification, Teach for America, and teacher effectiveness, Education Policy Analysis Archives, 13(42).
7. <http://epaa.asu.edu/epaa/v13n42/> Raj Chetty, John N. Friedman, Jonah E. Rockoff, "Great Teaching: Measuring its effects on students' future earning"
http://educationnext.org/files/ednext_20123_Friedman.pdf
8. W. Steven Barnett, "Benefit-Cost Analysis of the Perry Preschool Program and Its Policy Implications" Educational Evaluation and Policy Analysis, 7 (4), pp. 3

ECO5066 (III) – ENTREPRENEURIAL ECONOMICS

Type: DSE-II

Credit: 3

Course Objective: To equip the students with concepts and theories in entrepreneurship and train them to analyse various entrepreneurial issues and business opportunities.

Course Outcomes:

- Learn the importance and concepts of entrepreneurship
- Understand various theories of entrepreneurship and identify new opportunities
- Analyse accounting and financial issues of entrepreneurship
- Describe marketing strategies and procedures to start entrepreneurship
- Know various institutional support and government schemes for entrepreneurship and analyse case studies

Unit-1: Entrepreneurial Concepts and Types

Entrepreneurship: definition, Essential qualities and skills of an entrepreneur, Entrepreneurial Mindset, Entrepreneurial Ecosystem - Role of entrepreneurship in economic development - Social entrepreneurship - Ethics and Social responsibility of entrepreneurs.

Unit-2: Theories of Entrepreneurship and New Opportunities

Theories of Entrepreneurship: Innovations, X-Efficiency, Risk Bearing - Process of Identification of New Entrepreneurship Opportunities - New Entrepreneurship Opportunities in Rural and Urban Areas

Unit 3: Financial Concepts and Finance for Entrepreneurship

Financial Concepts: bookkeeping, financial accounting, cost in decision making - Importance and Sources of Finance for Business - New avenues of Finance for Business - Developing Business Plan/DPR

Unit- 4: Marketing and Starting a Business

Marketing of products: Market Survey, Demand Forecasting, Marketing Strategies, Digital and Social Media Marketing – MSMEs - Rules and Procedures to start an Entrepreneurship Firm - Ease of Doing Business.

Unit 5: Institutional Support and Case Studies

Institutions Support and Skill training for Entrepreneurs - Government Programs for Development of Entrepreneurship: Make in India, Start-ups, Mudra - Discussion of different types of Case Studies related to Entrepreneurship with local relevance.

References:

1. Robert D. Hirsch, Peters and Shepherd (2023), *Entrepreneurship* (12th ed.). Tata McGrawHill Publishers.
2. Thomas W. Zimmerer, Norman M. Scarborough (2016). *Essentials of Entrepreneurship and Small Business Management* (8th ed.). Pearson Education.
3. E. Gordona and N. Natarajan (2017): *Entrepreneurship Development*, Himalaya Publishing House
4. C.B. Gupta and N.P. Srinivasan (2020). *Entrepreneurial Development*. Sultan Chand & Sons Publishers.

ECO5067- INTERNSHIP

Type: Internship

Credit: 2

SEMESTER -VII
ECO5071-RESEARCH METHODOLOGY

Type: CC

Credit: 4

Course Objective: To equip the students with an understanding of research methods and design in social science, skills in conducting primary surveys, secondary data analysis, and writing research reports.

Course Outcomes:

- Understand the importance of research, research methods, and research design.
- Acquire knowledge on various survey methods and data collection techniques for primary data
- Ability to design a sample framework, select a sample size for a field survey, and analyse data through various techniques
- Aware of various secondary data sources at the Global and India levels for the research in economics
- Ability to make minor research reports with research ethics

Unit-1: Introduction to Research

Meaning and importance of research in economics –Types of Research - Research Design - Identification of research problems - Literature Survey and Research gap - Formulation of objectives, research questions, and hypothesis

Unit-2: Primary Data Collection

Choice of Data for research: Primary and Secondary data and their advantages and disadvantages – Primary data collection methods: Survey, Interview, Focus Group Discussion, Observation.

Unit-3: Sampling and Data Analysis in Research

Sampling Method: Meaning, importance in research – Sampling Techniques and their importance - Sampling Size & Sampling Errors – Characteristics of Good Sampling – Questionnaire: Importance, Type of Questions and Characteristics of Good Questionnaire - Data Analysis: Data Cleaning, Coding, Tabulations, Graphs, Maps, Statistical Techniques

Unit-4: Secondary Database in Research

Global database: World Bank, IMF, UNDP – Reserve Bank of India's Database on Indian Economy- Census of India - Ministry of Statistics and Program Implementations (MOSPI) Macro Data - MOSPI Microdata: NSSO Surveys, Period Labour Force Surveys, Household Consumption Expenditure, Annual Survey of Industries, Economic Census - Database in Directorates of Economics and Statistics, Ministry of Agriculture & Farmers Welfare, GOI – National Family Health Survey data - Database of State's Directorates of Economics and Statistics.

Unit-5: Research Report, References, and Ethics

Research Report/Paper: Outline and Characteristics Good Research Report – Politics of Interpretation in research – References & Bibliography Styles – Ethics in Research - Plagiarism in Research

References:

1. W. Lawrence Neuman and Veena Tucker (2022). *Social Research Methods: Qualitative and Quantitative Approaches* (8th ed.). Pearson Publishers.
2. C.R. Kothari and Gaurav Garg (2023). *Research Methodology: Methods and Techniques* (5th ed.). New Age International Publishers.
3. Rajat Acharya and Nanadan Bhattacharya (2020). *Research Methodology for Social Sciences* (1st ed.). Rutledge Publishers.
4. Jean-Frédéric Morin, Olsson and Atikcan (2021). *Research Methods in the Social Sciences: An A-Z of key concepts*. Oxford University Press
5. John W. Creswell (2019). *Research Design: Qualitative, Quantitative, and Mixed Methods Approaches* (4th ed.). SAGE Publications.

Course Objective:

The course focuses on equipping students with a comprehensive understanding of both theoretical foundations and practical applications of econometric techniques, including model specification, diagnostic testing, and estimation of models with qualitative and limited dependent variables.

Course Outcomes:

- Understand and apply the Classical Linear Regression Model (CLRM), perform Ordinary Least Squares (OLS) estimation, and interpret the properties of
- Choose an appropriate functional form for regression models (log-linear, log-log, polynomial, etc.) and conduct specification tests.
- Identify violations of CLRM assumptions, understand their consequences, and apply appropriate diagnostic tests
- Incorporate and interpret dummy variables in regression models, including interaction effects, slope shifters, and testing for structural changes.
- Analyze models with discrete dependent variables, understand the limitations of the Linear Probability Model (LPM), and apply Probit, Logit, and other maximum likelihood-based estimation techniques.

Unit 1: The Linear Regression Analysis

Bivariate and multivariate linear regression models, CLRM assumptions, Ordinary Least Squares estimation, Properties of OLS, and the Gauss-Markov theorem. General and confident approach to hypothesis testing, goodness of fit, ANOVA, and testing of overall significance of sample regression, matrix approach to linear regression models.

Unit 2 Functional Forms of Regression Models

Choice of functional forms- Log-linear, Double log and lin-Log models, Reciprocal and polynomial models, Choice of functional form, Interpreting coefficients in different functional forms and applications, Specification error and tests for specification error.

Unit 3: Relaxation of CLRM Assumptions and Problems in Regression

Violation of CLRM assumptions and its consequences, detection and remedial measures of multicollinearity, heteroskedasticity, and autocorrelation.

Unit 4 Regression with qualitative/ dummy variables

The nature of dummy variables, Regression on the dummy (qualitative) variables with two categories, with more than two categories-intercept shifters, dummy variable trap, the interaction of two categorical variables, the interaction of categorical and continuous (quantitative) variables-slope shifters, piecewise linear regression model, Chow test for cross-section data and for time-series data (test structural stability of regression models)

Unit 5 Discrete Response Models

Introduction to the binary and limited dependent variable, Limitations of the linear probability model (LPM), Method of maximum likelihood estimation and its properties (including consistency), Probit, Logit, Multinomial, and ordinal models.

References

1. Dougherty, Christopher Introduction to Econometrics, Oxford University Press, 4th edition, Indian edition, 2011.
2. G.S. Maddala – Introduction to Econometrics. Wiley Publishers (Indian edition)
3. Greene, William H. Econometric Analysis. 8th Edition, Pearson Education. 2018.
4. Gujarati, D and Porter, Basic Econometrics, Fifth Edition, McGraw Hill/Irwin, 2017 Singapore.
5. Johnston, J. and DiNardo, J. Econometric Methods. 4th Ed. McGraw-Hill 1997.
6. Ramanathan, Ramu, Introductory Econometrics with Applications, 5th Edition, 2002, Thomson Asia Pvt Ltd., Singapore.
7. Stock, James H., and Mark W. Watson (2019) Introduction to Econometrics, Global Edition Pearson
8. Wooldridge, J., Introductory Econometrics: A Modern Approach with MindTap 7th Edition. 2020, Cengage Learning India Pvt. Ltd.

ECO5073- ECONOMETRICS (LAB)
Type: CCP **Credit: 2**

Course Objectives:

To enrich data analysis using econometric software. To make the students familiarised with econometric models and techniques using the software. To gain expertise in decision-making by using econometric tools and techniques

Learning Outcome:

- The students will have a basic understanding of the functioning of econometric software.
- The lecture sessions will make the students understand the basic Knowledge of econometric software.
- To have hands-on experience in interpreting econometric models.

Unit 1: Regression and Correlation Analysis

Unit-2: Functional forms of regression models and tests for model specifications

Unit-3: Test for detecting the problems of autocorrelation, heteroskedasticity, and multicollinearity

Unit-4: Estimations of dummy variable models and Chow test

Unit-5: LPM, Logit, Tobit and probit models

References

1. The Manuals and user guide of Eviews
2. The Manuals and user guide of STATA
3. The Manuals and user guide Gretl
4. The Manuals and user guides of JASP and Jamovi
5. The Manuals and user guide of R

ECO5074-INDUSTRIAL ECONOMICS

Type: CC

Credit: 3

Course Objective: To provide the students with an understanding of the significance of the industrial sector, concepts and theories of industrial economics, and train them to analyse the requirements and regulations of industrial firms.

Learning Outcomes

- Understand the significance of the industrial sector and the strategies of industrialisation
- Learn theories and market strategies of industrial firms for growth
- Analyze the industrial collaborations and R&D for Industrial development
- Comprehend the role of finance, trade, and MSMEs in industrial development
- Evaluate the industrial regulations, policies, and programs in India

Unit-1: Introduction

Industrial economics: Meaning and Significance – Role of Industrial sector in economic development - Strategies of Industrialization in Developing Countries –Industrial revolutions: Industry 1.0 to 5.0 – Industry life cycle.

Unit-2: Theories and Market Strategies of Industrial Firms

Theories of Industrial location: Weber and Florence - Robbins Marris Model of Firms Growth - Market Structure for Industry - Market concentration and its measures - Entry and Exit of Firms - Entry Deterrence strategies - Theory of Contestable Markets – Role of Firm Size in Industrial Development.

Unit-3: Industrial Collaborations and R&D

Industrial Collaborations: Mergers, Acquisitions, Strategic Alliances, Networking – Research and Development (R&D): Types, Role in Industrial Growth in India.

Unit-4: Industrial Finance, Trade, and MSMEs

Industrial Finance: Importance, Institutions and Problems - Role of International Trade and Finance in Industrial Development in India - Micro, Small and Medium Enterprises (MSMEs): Importance, Problems and Challenges of MSMEs in India

Unit-5: Industrial Regulation and Policies

Industrial Regulation under Symmetric and Asymmetric information – Industrial Policies and Regulations in India – Industrial Labor: New Labour Codes and Other reforms, Issues in Industrial Labour in India - Current Industrial Developmental Programs/Schemes in India.

Reference Text:

- Richard L Schmalensee (2023). *Industrial Economics: An Overview*. Legare Street Press
- G. Symeonidis (2011). *Industrial Economics*. University of London.
- R.R. Barthwal (2024). *Industrial Economics: An Introductory Text Book* (5th ed.). New Age International Publishers.
- Shy, Oz. (1995) *Industrial Organization: Theory and Applications*, MIT Press

ECO5075- INSTITUTIONAL ECONOMICS

Type: CC

Credit: 3

Course Objective: To provide the students with an understanding of concepts and theories in institutional economics and train them to make institutional analysis of several economic issues.

Course Outcomes:

- Learn the importance and basic concepts of institutional economics
- Understand the ideas and perspectives of old institutional economists
- Analyse the theories and issues in new institutional economics
- Describe the role of social, political, legal, and regulatory institutional aspects in economics
- Comprehend Nobel Prize works in the field of institutional economics

Unit-1: Introduction to Institutional Economics

Institution: Definition and Types -Institutional Economics: Meaning and Importance -Issues in Institutional Economics: Bounded Rationality, Firm as an Organization, Market as an Organization, State as an Institution -Institutional approaches to economic development

Unit-2: Old Institutional Economics

TB Veblen: The theory of the Leisure Class-J. R Commons Contribution to Institutional Economics - Institutional Ideas of J.K Galbriath, Gunnar Myrdal, Kenneth Boulding: Threefold taxonomy of social organization.

Unit-3: New Institutional Economics

Theory of Social Cost and Externalities - Transaction cost analysis –Theory of property rights - Theory of contracts - Institutional models in neoclassical theory: Principal-Agent Theory, Moral Hazard and Adverse Selection – Individual and Group behavioral dynamics

Unit-4: Social, Political, Legal, and Regulatory Institutions

Role of Social & Cultural Norms in shaping economic behavior- Political Institutions and Political Markets for Economic Development. Role of Legal Institutions in Economic development- Regulatory Institutions for Economic development

Unit-5: Nobel Prize Works in Institutional Economics

Douglas North's Institutional Change and Path Dependency -Williamson's Transaction Cost and Property Rights Theory -Elinor Ostrom's theory of Governing Commons -Daron Acemoglu, Simon Johnson, and James Robinson's Societal Institutions for Economic Development

References:

1. Geoffrey M. Hodgson (2025). *From Marx to Market: An Intellectual Odyssey*. Edward Elgar Publishing.
2. Claude Menard and Mary M. Shirley (eds) (2025). *Handbook of New Institutional Economics, Second Edition*. Springer Publishers. Open Access.
3. Claude Menard and Mary M. Shirley, (eds) (2022). *Advanced Introduction to New Institutional Economics*. Edward Elgar Publishers. Open Access.
4. Wolfgang Kasper, Manfred E. Streit, and Peter J. Boettke, (2012), *Institutional Economics: Property, Competition, Policies*, Second Edition, Edward Elgar
5. Daron Acemoglu and James A. Robinson (2012). *Why Nations Fail: The Origins of Power, Prosperity, and Poverty*. New York Crown Press.
6. Eirik Furubotn and Rudolf Richter (2005). *Institutions and Economic Theory: The Contribution of the New Institutional Economics*. University of Michigan Press
- 7.

ECO5076-PANEL DATA ANALYSIS
Type: CC **Credit: 3**

Course Objective:

The course equips students with a thorough understanding of panel data econometrics, focusing on both theoretical foundations and practical estimation techniques. It also addresses econometric issues such as heterogeneity and endogeneity, and applies advanced methods for analysing dynamic and limited dependent variable models using panel data.

Course Outcomes

- Understand the nature, structure, and advantages of panel data, including the distinctions between balanced and unbalanced panels.
- Estimate and interpret static linear panel data models, including pooled models, fixed effects, and random effects
- Specify and estimate random effects models, understand their stochastic assumptions and variance structures, and apply GLS procedures,
- Model qualitative and limited dependent variables using panel data, including binary choice fixed and random effects models and censored regression techniques.
- Apply dynamic panel data models, address biases in OLS and within estimators, and implement advanced estimation techniques and assess non-stationarity using panel unit root tests.

Unit-1: Introduction to panel data: Panel data, Advantages of using panel data, Balanced and unbalanced panel, Different patterns of variations in parameters and distributional assumptions.

Unit-2: Static Linear model: pooled repeated cross-section model, within and between estimators, fixed effects or covariance model, panel specific effects; Individual and time effect, Testing of hypothesis: test for poolability and testing for panel effects, Goodness of fit in panel data model.

Unit-3: Random effect models: Error component model or random effect model, Specification, stochastic assumptions and variance-covariance structure, GLS estimation- different procedure and properties, Hausman test, one-way and two-way models, random coefficient model (Hierarchical /multi-level models)

Unit-4: Qualitative variable and limited dependent variable models with panel data: Discrete (binary) choices, fixed effect and random effect models, Censored regression with panel data.

Unit-5: Dynamic (Stationary and Non-Stationary) Panel Data Models: Bias in dynamic panels, Bias in simple OLS and within estimators, Instrumental variable and GMM estimations: Arellano and Bond Estimator, Arellano and Bover Estimator and Blundell and Bond System GMM Estimator, Non-stationarity and Panel data, Panel unit root and cointegration tests.

Essential Readings

1. Baltagi, Badi H. (2021), Econometric Analysis of Panel data, Springer Texts in Business and Economics
2. Arellano, M. (2003), Panel data econometrics, Oxford University Press, UK
3. Hsiao, C (2022), Analysis of panel data, Cambridge University Press, Cameron,
4. A. C. and P.K. Trivedi (2005), Microeconometrics, Methods and Applications, Cambridge University press
5. Anderson, T.W. and C. Hsiao(1982), Formulation and estimation of Dynamic models using panel data, Journal of econometrics, Vol.18, pp.47-82
6. Biørn E (2026), Econometrics of Panel Data: Methods and Applications, Oxford University Press
7. Donggyu Sul (2019), Panel Data Econometrics: Common Factor Analysis for Empirical Researchers
8. Mike Tsionas (2019), Panel Data Econometrics Theory, Academic Press
9. M. Hashem Pesaran (2015) Time Series and Panel Data Econometrics Oxford University Press
10. Qu Feng, Chihwa Kao (2020) Large-dimensional Panel Data Econometrics Testing, Estimation and Structural Changes World Scientific

ECOON02- MOOC-2 (NPTEL)

Type: DSE

Crdeit:3

SEMESTER VIII (HONOURS)

ECO5081-BEHAVIOURAL ECONOMICS

Type: CC

Credits: 4

Course Objective: To equip the students with an understanding of concepts and theories of individual and group behaviours and train them to apply behavioural economics techniques and comprehend Nobel prize works in the area.

Course Outcomes:

- Understand the basic principles and methodology of behavioural economics
- Analyse the concepts and theories related to individual behaviour
- Analyse the concepts and theories related to group behaviour
- Learn to apply the concepts of behavioural economics to economic issues
- Comprehend the Nobel Prize works in the field of behavioural economics

Unit 1: Introduction

Traditional economics and behavioural economics – principles and methodology – Psychology in decision making - behavioural economics in decision making –households – market –financial decision.

Unit 2: Individual Behaviour

Mental accounting – Financial Choice - Risk, Uncertainty and Ambiguity and Behavioural Economics-Heuristics and biases in judgement and decision making – utility framing in Behavioural Economics-applications of behavioural decision theory.

Unit 3: Group Behaviours

Social choice and social norms – Prospect Theory - Dictator game model - Ultimatum game model - models of time discounting and time reference - Discounted and exponential discounted utility model – sign and magnitude effects, common difference effect, attribute-based models

Unit 4: Application of Behavioural Economics

Applications of Behavioural Economics – consumer behaviour – savings pension plan – the Workplace. Behavioural finance in investment decision making. Concepts of Nudges

Unit 5: Nobel Prize works in Behavioural Economics

Contribution of Nobel prize winners in behavioural economics - Daniel Kahneman and Vernon L. Smith - Eugene F. Fama, Lars Peter Hansen, and Robert J. Shiller - Richard Thaler – Abhijit Banerjee and Esther Duflo

References:

- Nick Wilkinson and Matthias Klaes(2017). *An Introduction to Behavioral Economics* (3rd ed.). Palgrave Macmillan.
- Sanjit Dhami (2020). *The Foundations of Behavioral Economic Analysis*. Volume I &II, Oxford University Press
- Edward Cartwright (2024). *Behavioral Economics* (4th ed.). Routledge
- Daniel Kahneman (2015). *Thinking Fast and Slow: Master the Art of Decision-Making Biases and Cognitive Psychology in this Comprehensive Guide on Human Thinking*. Penguin Books
- Erik Angner (2016). *A Course in Behavioral Economics*. Palgrave Macmillan
- Richard R Thaler and Cass R Sustain (2009). *Nudge: Improving Decisions about Health, Wealth and Happiness*. Penguin Books

ECO5082-AGRICULTURAL ECONOMICS

Type: CC

Credits: 4

Course Objectives:

The course aims to familiarize the students with production economics, farm management, risks and uncertainty in agriculture, climate change, agricultural policies, and programmes in India.

Course outcomes

- Understand the economics of agricultural production.
- Learn the various risks and uncertainties in agriculture
- Learn about agricultural marketing
- Understand the role of agriculture and GDP
- Understand the climate change and agriculture sustainability issues.

Unit 1: Agricultural Production: Resource allocation, efficiency, and optimization in farming. Economic principles of farm management, resource management, and allocation. Von Thünen's Model- Ricardian Theory of Rent.

Unit 2: Risk and Uncertainty in Agriculture

Decision theory and elements of risk and uncertainty in agriculture, measurement of risk, risk adjustment, risk types, risk estimation, management response to risk, game theory, and linear programming.

Unit 3: Agricultural Marketing: Market structures, price determination, and supply chain management.
Agricultural Finance: Credits, investment strategies, and risk assessment.

Unit 4: Agriculture and GDP: Role of agriculture in Gross Domestic Product (GDP) and employment. Growth in agricultural output and employment, and capital formation in agriculture.

Unit 5: Climate Change and Agricultural Sustainability

Renewable and non-renewable resources. Impact of climate change on Indian agriculture, climate change adaptation and mitigation policies and practices, organic farming, and sustainable agriculture. Agricultural Policies and Programmes in India. Globalization & Agricultural Policies- WTO. Resource Mapping – GIS.

Reference Text:

1. Black, J. D. (1929). *Agricultural reform in the United States*. McGraw Hill.
2. Barkley, A., & Barkley, P. W. (2023). *Principles of agricultural economics* (4th ed.). Routledge.
3. Cramer, G. L. (2010). *Agricultural economics*. Routledge.
4. Ezekiel, M. (1929). *A statistical examination of the problem of handling annual surpluses of nonperishable farm products*. *Journal of Farm Economics*, 11, 193–226.
5. Food and Agriculture Organization. (1989). *Sustainable development and natural resources management*. Retrieved from FAO.
6. Heady, E. O. (Ed.). (1971). *Labor mobility and population in agriculture*. Iowa State University
7. Heady, E. O., & Dillon, J. L. (1961). *Agricultural production functions*. Iowa State University Press.
8. Heady, E. O. (1952). *Economics of agricultural production and resource use*. Prentice-Hall.
9. **Penson, J. B., Jr.** (2017). *Introduction to agricultural economics* (7th ed.).
10. Rao, C. H. H. (2005). *Agricultural growth, farm size, and rural poverty alleviation in India*.
11. Reddy, S. S., Ram, P. R., Sastry, T. V. N., & Devi, I. B. (2017). *Agricultural economics*.

Websites

<https://desagri.gov.in/>
<https://www.upag.gov.in/>
<https://isaeindia.org/>

ECO5083 (I)- INVESTMENT ANALYSIS AND PORTFOLIO MANAGEMENT

Type: DSE

Credit: 4

Course Objective: This course aims to enlighten the investment concept and discuss risk and return in various markets. The main aim is to promote practical study on portfolio management with the help of different analyses.

Course Learning Outcomes:

- To promote investment part of economics, it looks at the investment concepts and their classification.
- Learning the capital market with different mechanisms.
- Technically analyse the investment risk and return.
- Describe the subject matter of portfolio management strategy and security analysis.
- Explain the portfolio performance measures with theoretical aspects as well as technical aspects

Unit 1: Introduction to Investment:

Definition of investment, process of investment, type of investors, classification of investment, speculative, gambling, investment avenues.

Unit 2: Contribution of the capital market:

Meaning, functions of the capital market, investment banks- their functions, stock market index, Mechanism of NASDAR, SDL, NSDL- Benefits of depository settlements, advantages and disadvantages of online share trading. Understanding of small, mid, and large-cap and penny stocks,

Unit 3: Investment risk and return:

Meaning of risk and returns- Types of risks- measures of dispersions- practical problems on calculation of Standard Deviations, Variance, and Beta.

Unit 4: Portfolio strategy and security analysis:

Concepts and role of portfolio management, factors affecting investment decisions in portfolio management, portfolio strategy, etc., concept of security- security analysis in industry, company, and technical.

Unit 5: Portfolio performance measures:

Performance asses through theoretical aspect- Dow Jones theory, Ellote wave concept, and efficient market theory. Covered market lines (capital, security), Portfolio performance evaluation through Sharpe's ratio, Treynor's ratio, and Jensen's differential return.

Reference:

1. Amling, Frederic, Investments: an introduction to analysis and management (1970), publications by Englewood Cliffs, New Jersey, Prentice Hall Inc.
2. Bhalla, V.K. Investment Management: Security Analysis and Portfolio Management (2001), 8th Ed., New Delhi, S Chand.
3. Fischer, Donald E, and Jordan, Ronald J. (1995). Security Analysis and Portfolio Management, 6th Ed., New Delhi: Prentice Hall of India.
4. Huga, Stanley S.C. and Randail, Maury R. Investment Analysis and Management (1987). London, Allyn and Bacon, London.
5. Ranganatham M., and Madhumathi R.,(2005) Investment Analysis and Portfolio Management, Pearson publication.
6. Avadhani V A. (2010). Securities Analysis and Portfolio Management. Himalaya Publishing House.

ECO5083 (II) -LABOUR ECONOMICS

Type: DSE

Credit: 4

Course Objective: To equip the students with an understanding of concepts and theories of labour, analyse the functioning of labour market dynamics, and work with labour data and analysis.

Course Outcomes:

- Understand the importance of labour economics and the concept and nature of labour employment.
- Explain labour market equilibrium with analysis on labour supply and demand.
- Analyse the theories of wage determination and the role of labour unions.
- Describe labour market discrimination and labour mobility.
- Learn skills to work with data on labour and make analyses.

Unit 1: Introduction

Meaning and scope of Labour economics - Types of Labour Employment and Measurements of Employment and Unemployment as per PLFS – Characteristics of Labour Market in Developing Countries – Informality in Labour Market - Gig and Platform Employment.

Unit 2: Labour Supply, Demand and Equilibrium

Labour Supply: Theory of Decision to Work: Labour vs Leisure, Household Production Model of Labour Supply – Labour Demand: Demand for labour under Competitive and Non-Competitive market Conditions - Frictions in Labour Market: Employee side and Employer side – Equilibrium in Labour Market - Cobweb Model of Labour Market.

Unit 3: Human Capital, Wage Theories, and Unions

Human Capital Investment: The Basic Model – Education, Earnings and Post-School Investments in Human Capital - Efficiency Wage Theory - Hedonic Wage Theory – Wage determination in developing countries: Unlimited labour supply, Imperfect Markets–Minimum Wage Theory - Labour Unions, Efficient Bargaining and Effects of Union.

Unit 4: Labour Market Discrimination and Labour Mobility

Social-Gender-Regional aspects in the Labour Market, Models of Discrimination: Employer and Employee Discrimination Coefficient, Measuring Discrimination - Migration as Human Capital Investment – Factors of Migration - Employee Turnover - Steady-State Rate of Unemployment, Job Search

Unit 5: Database for Labour Economics Research and Labour Market Dynamics in India

Periodic Labour Force Survey reports and micro data analysis – ILOSTAT - Structural Changes in the Sectorial Employment – Trends and Patterns of Employment and Unemployment – Inequality Issues and Challenges in Labour Market – Institutions or Labour, Labour Reforms and New Labour Codes – AI impact on Labour Market - Government Policies & Programmes for Labour Employment.

References:

1. George, J Borjas (2020). *Labor Economics* (8th ed.). McGraw-Hill:
2. Ronald G Ehrenberg and Robert S. Smith (2012). *Modern Labor Economics: Theory and Public Policy* (11th ed.). Prentice Hall Publishers
3. Cahuc, Pierre, and Andre Zilberberg (2014). *Labor Economics* (2nd ed.). MIT Press.
4. Sandrine Caze and SherVerick (2013). *Perspectives on Labour Economics for Development*, Academic Foundation
5. Campbell McConnell, Stanley Brue and David Macpherson (2016), *Contemporary Labor Economics* (11th ed.). McGraw-Hill Education
6. Gupta P.K. (2012) *Labour Economics*, New Delhi Vrinda Publication (p) Ltd
7. Periodic Labour Force Survey (PLFS) Reports and Micro data, MOSPI, GOI.

ECO5083 (III) - GENDER ECONOMICS

Type: DSE

Credit: 4

Course Objective

To study the nature and scope of gender economics in terms of its theory, gender inequality, labour market, women entrepreneurship, socio-economic, and gender budgeting.

Course Outcomes

- Understand the concepts of gender economics
- Learn feminist theories
- Understand the position of gender in the labour market
- Understand the role of women in entrepreneurship
- Understand gender budgeting and policies.

Unit 1: Gender Economics: Concepts, scope, and significance. Gender factor in household economics. Distribution of resources and decision-making mechanisms in households. Gender Inequality: Impact of gender disparities on development.

Unit 2: Feminist Economic Theories: Liberal Feminist Economics - Marxist Feminist Economics - Radical Feminist Economics - **Ecofeminist** Economics - Socialist Feminist Economics Institutional Feminist Economics.

Unit 3: Labour Market & Gender Discrimination: Gender inequity in the labour market - female work participation - Factors affecting labour market supply and demand for female labour wage gaps, employment trends, and policy interventions.

Unit 4: Women entrepreneurship - Gender & Liberalisation policies: Effects of trade, migration, and international policies. Education and health

Unit 5: Gender Budgeting & Policy aspects: Strategies for inclusive economic planning. Child care policy and programs. Social norms.

References

1. Benería, L., Berik, G., & Floro, M. (2015). *Gender, development, and globalisation: Economics as if all people mattered* (2nd ed.). Routledge. Available here.
2. Berik, G., Rodgers, Y. V., & Seguíno, S. (2011). *Gender and economic development*. Edward Elgar Publishing. Available here.
3. Blau, F. D., Ferber, M. A., & Winkler, A. E. (2020). *The economics of women, men, and work*. Oxford University Press.
4. Elson, D. (1995). *Male bias in the development process*. Manchester University Press.
5. Kabeer, N., & Mahmud, S. (Eds.). (2019). *Gender and economic development: Perspectives from South Asia*. Routledge.
6. Santos Silva, M., & Klasen, S. (2021). *Gender inequality as a barrier to economic growth: A review of the theoretical literature*. *Review of Economics of the Household*, 19(3), 581–614.
<https://doi.org/10.1111/reho.2021.019>
7. World Economic Forum. (2021).

Websites

1. <https://www.gendereconomy.org/>
2. <https://www.ineteconomics.org/perspectives/collections/gender>
3. <https://www.iaffe.org/>

ECO5084-DISSERTATION

Type: Research / Dissertation

Credits: 8

The department has decides the nature of projects.

SEMESTER VIII (HONOURS WITH RESEARCH)

ECO5081-BEHAVIOURAL ECONOMICS

Type: CC

Credits: 4

Course Objective: To equip the students with an understanding of concepts and theories of individual and group behaviours and train them to apply behavioural economics techniques and comprehend Nobel prize works in the area.

Course Outcomes:

- Understand the basic principles and methodology of behavioural economics
- Analyse the concepts and theories related to individual behaviour
- Analyse the concepts and theories related to group behaviour
- Learn to apply the concepts of behavioural economics to economic issues
- Comprehend the Nobel Prize works in the field of behavioural economics

Unit 1: Introduction

Traditional economics and behavioural economics – principles and methodology – Psychology in decision making - behavioural economics in decision making –households – market –financial decision.

Unit 2: Individual Behaviour

Mental accounting – Financial Choice - Risk, Uncertainty and Ambiguity and Behavioural Economics-Heuristics and biases in judgement and decision making – utility framing in Behavioural Economics-applications of behavioural decision theory.

Unit 3: Group Behaviours

Social choice and social norms – Prospect Theory - Dictator game model - Ultimatum game model - models of time discounting and time reference - Discounted and exponential discounted utility model – sign and magnitude effects, common difference effect, attribute-based models

Unit 4: Application of Behavioural Economics

Applications of Behavioural Economics – consumer behaviour – savings pension plan – the Workplace. Behavioural finance in investment decision making. Concepts of Nudges

Unit 5: Nobel Prize works in Behavioural Economics

Contribution of Nobel prize winners in behavioural economics - Daniel Kahneman and Vernon L. Smith - Eugene F. Fama, Lars Peter Hansen, and Robert J. Shiller - Richard Thaler – Abhijit Banerjee and Esther Duflo

References:

- Nick Wilkinson and Matthias Klaes(2017). *An Introduction to Behavioral Economics* (3rd ed.). Palgrave Macmillan.
- Sanjit Dhami (2020). *The Foundations of Behavioral Economic Analysis*. Volume I &II, Oxford University Press
- Edward Cartwright (2024). *Behavioral Economics* (4th ed.). Routledge
- Daniel Kahneman (2015). *Thinking Fast and Slow: Master the Art of Decision-Making Biases and Cognitive Psychology in this Comprehensive Guide on Human Thinking*. Penguin Books
- Erik Angner (2016). *A Course in Behavioral Economics*. Palgrave Macmillan
- Richard R Thaler and Cass R Sustain (2009). *Nudge: Improving Decisions about Health, Wealth and Happiness*. Penguin Books

ECO5082 (I) -INVESTMENT ANALYSIS AND PORTFOLIO MANAGEMENT

Type: DSE

Credit: 4

Course Objective: This course aims to enlighten the investment concept and discuss risk and return in various markets. The main aim is to promote practical study on portfolio management with the help of different analyses.

Course Learning Outcomes:

- To promote investment part of economics, it looks at the investment concepts and their classification.
- Learning the capital market with different mechanisms.
- Technically analyse the investment risk and return.
- Describe the subject matter of portfolio management strategy and security analysis.
- Explain the portfolio performance measures with theoretical aspects as well as technical aspects

Unit 1: Introduction to Investment:

Definition of investment, process of investment, type of investors, classification of investment, speculative, gambling, investment avenues.

Unit 2: Contribution of the capital market:

Meaning, functions of the capital market, investment banks- their functions, stock market index, Mechanism of NASDAR, SDL, NSDL- Benefits of depository settlements, advantages and disadvantages of online share trading. Understanding of small, mid, and large-cap and penny stocks,

Unit 3: Investment risk and return:

Meaning of risk and returns- Types of risks- measures of dispersions- practical problems on calculation of Standard Deviations, Variance, and Beta.

Unit 4: Portfolio strategy and security analysis:

Concepts and role of portfolio management, factors affecting investment decisions in portfolio management, portfolio strategy, etc., concept of security- security analysis in industry, company, and technical.

Unit 5: Portfolio performance measures:

Performance asses through theoretical aspect- Dow Jones theory, Ellote wave concept, and efficient market theory. Covered market lines (capital, security), Portfolio performance evaluation through Sharpe's ratio, Treynor's ratio, and Jensen's differential return.

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- Ranganatham M., and Madhumathi R.,(2005) Investment Analysis and Portfolio Management, Pearson publication.
- Avadhani V A. (2010). Securities Analysis and Portfolio Management. Himalaya Publishing House.

ECO5082 (II) -LABOUR ECONOMICS

Type: DSE

Credit: 4

Course Objective: To equip the students with an understanding of concepts and theories of labour, analyse the functioning of labour market dynamics, and work with labour data and analysis.

Course Outcomes:

- Understand the importance of labour economics and the concept and nature of labour employment.
- Explain labour market equilibrium with analysis on labour supply and demand.
- Analyse the theories of wage determination and the role of labour unions.
- Describe labour market discrimination and labour mobility.
- Learn skills to work with data on labour and make analyses.

Unit 1: Introduction

Meaning and scope of Labour economics - Types of Labour Employment and Measurements of Employment and Unemployment as per PLFS – Characteristics of Labour Market in Developing Countries – Informality in Labour Market - Gig and Platform Employment.

Unit 2: Labour Supply, Demand and Equilibrium

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Unit 4: Labour Market Discrimination and Labour Mobility

Social-Gender-Regional aspects in the Labour Market, Models of Discrimination: Employer and Employee Discrimination Coefficient, Measuring Discrimination - Migration as Human Capital Investment – Factors of Migration - Employee Turnover - Steady-State Rate of Unemployment, Job Search

Unit 5: Database for Labour Economics Research and Labour Market Dynamics in India

Periodic Labour Force Survey reports and micro data analysis – ILOSTAT - Structural Changes in the Sectorial Employment – Trends and Patterns of Employment and Unemployment – Inequality Issues and Challenges in Labour Market – Institutions or Labour, Labour Reforms and New Labour Codes – AI impact on Labour Market - Government Policies & Programmes for Labour Employment.

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9. Ronald G Ehrenberg and Robert S. Smith (2012). *Modern Labor Economics: Theory and Public Policy* (11th ed.). Prentice Hall Publishers
10. Cahuc, Pierre, and Andre Zilberberg (2014). *Labor Economics* (2nd ed.). MIT Press.
11. Sandrine Caze and SherVerick (2013). *Perspectives on Labour Economics for Development*, Academic Foundation
12. Campbell McConnell, Stanley Brue and David Macpherson (2016), *Contemporary Labor Economics* (11th ed.). McGraw-Hill Education
13. Gupta P.K. (2012) *Labour Economics*, New Delhi Vrinda Publication (p) Ltd
14. Periodic Labour Force Survey (PLFS) Reports and Micro data, MOSPI, GOI.

ECO5082 (III) - GENDER ECONOMICS

Type: DSE

Credit: 4

Course Objective

To study the nature and scope of gender economics in terms of its theory, gender inequality, labour market, women entrepreneurship, socio-economic, and gender budgeting.

Course Outcomes

- Understand the concepts of gender economics
- Learn feminist theories
- Understand the position of gender in the labour market
- Understand the role of women in entrepreneurship
- Understand gender budgeting and policies.

Unit 1: Gender Economics: Concepts, scope, and significance. Gender factor in household economics. Distribution of resources and decision-making mechanisms in households. Gender Inequality: Impact of gender disparities on development.

Unit 2: Feminist Economic Theories: Liberal Feminist Economics - Marxist Feminist Economics - Radical Feminist Economics - **Ecofeminist** Economics - Socialist Feminist Economics Institutional Feminist Economics.

Unit 3: Labour Market & Gender Discrimination: Gender inequity in the labour market - female work participation - Factors affecting labour market supply and demand for female labour wage gaps, employment trends, and policy interventions.

Unit 4: Women entrepreneurship - Gender & Liberalisation policies: Effects of trade, migration, and international policies. Education and health

Unit 5: Gender Budgeting & Policy aspects: Strategies for inclusive economic planning. Child care policy and programs. Social norms.

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8. Benería, L., Berik, G., & Floro, M. (2015). *Gender, development, and globalisation: Economics as if all people mattered* (2nd ed.). Routledge. Available here.
9. Berik, G., Rodgers, Y. V., & Seguíno, S. (2011). *Gender and economic development*. Edward Elgar Publishing. Available here.
10. Blau, F. D., Ferber, M. A., & Winkler, A. E. (2020). *The economics of women, men, and work*. Oxford University Press.
11. Elson, D. (1995). *Male bias in the development process*. Manchester University Press.
12. Kabeer, N., & Mahmud, S. (Eds.). (2019). *Gender and economic development: Perspectives from South Asia*. Routledge.
13. Santos Silva, M., & Klasen, S. (2021). *Gender inequality as a barrier to economic growth: A review of the theoretical literature*. *Review of Economics of the Household*, 19(3), 581–614.
<https://doi.org/10.1111/reho.2021.019>
14. World Economic Forum. (2021).

Websites

4. <https://www.gendereconomy.org/>
5. <https://www.ineteconomics.org/perspectives/collections/gender>
6. <https://www.iaffe.org/>

ECO5083-DISSERTATION

Type: Research / Dissertation

Credits: 12

The department has decides the nature of projects.