

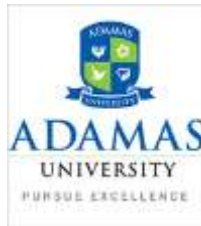
ADAMAS UNIVERSITY

SCHOOL OF LIBERAL ARTS AND CULTURE STUDIES

DEPARTMENT OF ECONOMICS

B.SC. ECONOMICS PROGRAMME

(2026-30)



ADAMAS UNIVERSITY, KOLKATA
SCHOOL OF LIBERAL ARTS AND CULTURE STUDIES
DEPARTMENT OF ECONOMICS

VISION OF THE UNIVERSITY

To be an internationally recognized university through excellence in inter-disciplinary education, research and innovation, preparing socially responsible well-grounded individuals contributing to nation building.

MISSION STATEMENTS OF THE UNIVERSITY

M.S 01: Improve employability through futuristic curriculum and progressive pedagogy with cutting-edge technology

M.S 02: Foster outcomes based education system for continuous improvement in education, research and all allied activities

M.S 03: Instill the notion of lifelong learning through culture of research and innovation

M.S 04: Collaborate with industries, research centers and professional bodies to stay relevant and up-to-date

M.S 05: Inculcate ethical principles and develop understanding of environmental and social realities

CHANCELLOR / VICE CHANCELLOR

VISION OF THE SCHOOL

To be a new age school maintaining international standards of industry-relevant interdisciplinary education and research in the field of business, commerce and economics and development of professionals adept at leveraging technology & conscious of society & employment.

MISSION STATEMENTS OF THE SCHOOL

M.S 01: Focused on outcome based learning curriculum for the students embarking on a journey of intellectual, personal and professional growth.

M.S 02: Integrate theoretical knowledge to build wider & sustainable applications embracing diversity

M.S 03: Incorporating trans-disciplinary learning approach through research in various allied disciplines, including emerging areas.

M.S 04: Aim for all round development of students using modern pedagogical tools & techniques to create industry ready graduates, reflective lifelong learners & conscious global citizens.

M.S 05: Encourage students to inculcate entrepreneurial spirits and traits & excel at creation of national economic value.

DEAN / SCHOOL CONCERNED

VISION OF THE DEPARTMENT

To emerge as world class Centre of advanced learning in Economics through promulgating interdisciplinary and research driven courses. While dissemination of knowledge of the subject to address real life issues in business and other spheres of life is of focus, building socially responsible citizens through various community service and capacity building courses is interwoven throughout the learning.

MISSION STATEMENTS OF THE DEPARTMENT

M.S 01: Improve employability of our students through futuristic curriculum and progressive pedagogy through regular interaction with ‘people at practice’ from industry, NGOs, think tanks.

M.S 02: Adopt Outcome Based Education (OBE) in developing the curricula and syllabi to ensure the goal oriented training and measuring its attainment

M.S 03: Prepare the mind to think in an innovative way and to look at any practical problem in real life so that the learners develop a research orientation

M.S 04: Amalgamation of ‘theory with practice’ through collaboration with industry, think tanks, policy research centres, etc. in terms of course design, delivery, and project training.

M.S 05: Instill morale, social ethics, and professional behavior to get back to society as a ‘socially responsible citizen’ is the motto to help a greater agenda of ‘nation building’.

HOD

DEAN / SCHOOL CONCERNED

NAME OF THE PROGRAMME:

B.SC ECONOMICS

PROGRAMME EDUCATIONAL OBJECTIVES (PEO)

PEO 01: Graduates will have understanding of the economic process that governs the production, distribution and consumption of goods and services in various micro as well as macro levels.

PEO 02: Graduates will have adequate knowledge and technical skills to make them globally competent to excel in career.

PEO 03: Graduates will be prepared to think in an innovative way to explain any practical problem in the field of economics and in any other allied area, so that the learners get prepared for cutting edge research.

PEO 04: Groom the students to be 'employable' through developing soft-skills, self-learning abilities, exposure to technology, industry training.

PEO 05: Students will develop a research orientation and get an idea of frontiers of the discipline.

HOD

DEAN / SCHOOL CONCERNED

NAME OF THE PROGRAMME:

B.SC ECONOMICS

GRADUATE ATTRIBUTE / PROGRAMME OUTCOMES (PO)

GA 01 / PO 01: Domain specific knowledge and skills/ Acquire knowledge of core economic theories and adequately identify the issues related to economy, public policy and society

GA 02 / PO 02: Problem Analysis and Critical thinking / Develop skills necessary to analyze economic data, think critically on alternatives and propose viable solutions

GA 03 / PO 03: Modern IT Tools / Become proficient in using economic data analysis software (s) and conduct meaningful analysis of data

GA 04 / PO 04: Business and Society / Appreciate the importance of responsibilities of businesses and government towards the society

GA 05 / PO 05: Environment and sustainability / Contemplate on societal and global issues resulting from environmental concerns

GA 06 / PO 06: Ethics / Appreciate individual ethical behavior and be able to discharge community responsibilities to the society

GA 07 / PO 07: Leadership and Team work / Learn Leadership skills, Team work, and develop strong emotional and social aptitude to be a lifelong learner.

GA 08 / PO 08: Communication: Develop verbal and non-verbal communication skills for a successful career in Industry, Business and Entrepreneurship

HOD

DEAN / SCHOOL CONCERNED

NAME OF THE PROGRAMME:

B.SC ECONOMICS

PROGRAMME SPECIFIC OUTCOMES (PSO)

At the end of the Programme the students will be able to:

PSO 01: Understand and comprehend theories in microeconomics and macroeconomics at an intermediate level

PSO 02: Acquaint with statistical, mathematical and econometric methods and apply them to economic analysis of data

PSO 03: Appreciate the evolution and historical developments in light of major schools of thoughts in economics

PSO 04: Apprehend the variety of economic issues pertaining to Indian economy in particular and global economy in general

PSO 05: Demonstrate the knowledge of money, financial markets and public finance and classify the role of fiscal and monetary policies in balancing the economy

PSO 06: Outline the issues in development economics with aid of theories and model and discuss about the issues of poverty and inequalities

PSO 07: Identify the core ingredients of international economics and explore the policy issues in an open economy setting

HOD

DEAN / SCHOOL CONCERNED

SCHOOL OF LIBERAL ARTS AND CULTURE STUDIES

DEPARTMENT OF ECONOMICS

**FOUR-YEAR B.SC DEGREE PROGRAMME
COURSE STRUCTURE AND SYLLABUS
(2026-2030)**

SCHOOL OF LIBERAL ARTS AND CULTURE STUDIES								
UNDERGRADUATE COURSE STRUCTURE								
B.SC (ECONOMICS)								
BATCH 2026-30								
SEMESTER I								
S.No	Type of Course	Code	Title of the Course	Contact Hours Per Week				Remarks
				L	T	P	C	
1	CC	ECO101	Microeconomics I	3	1	0	4	CC-1
2	CC	ECO102	Mathematics for Economics	3	1	0	4	CC-2
3	MDC						3	
4	AEC						3	
5	Minor						4	
6	VAC						2	
Semester Credits							20	
SEMESTER II								
7	CC	ECO103	Macroeconomics I	3	1	0	4	CC-3
8	CC	ECO104	Basic Statistics	3	1	0	4	CC-4
9	MDC			3			3	
10	SEC						2	
11	VAC						2	
12	AEC						3	
13	Minor			3	1	0	4	
Semester Credits							22	
SEMESTER III								
14	CC	ECO201	Microeconomics II	3	1	0	4	CC-5
15	CC	ECO202	Macroeconomics II	3	1	0	4	CC-6
16	MDC						3	
17	Minor						4	
18	AEC						2	
19	SEC						2	
20	VAC						2	
Semester Credits							21	
SEMESTER IV								
21	CC	ECO203	Development Economics	3	1	0	4	CC-7
22	CC	ECO204	Introduction to Econometrics	3	1	0	4	CC-8
23	CC	ECO205	Indian Economy I	3	1	0	4	CC-9
24	SEC						2	
25	Minor						4	
26	VAC						2	
Semester Credits							20	
SEMESTER V								
27	CC	ECO301	Advanced Econometrics	3	1	0	4	CC-10
28	CC	ECO302	Mathematical Economics	3	1	0	4	CC-11
29	CC	ECO303	Indian Economy II	3	1	0	4	CC-12
30	Minor						4	
31	SEC						2	

31	INT	ECO304	Internship				4	
Semester Credits							22	
SEMESTER VI								
32	CC	ECO305	Introduction to Data Science	2	1	1	4	CC-13
33	CC	ECO306	Public Economics	3	1	0	4	CC-14
34	CC	ECO307	International Economics	3	1	0	4	CC-15
35	Minor							
36	SEC						2	
37	Project	ECO308	Project 1/Dissertation 1				4	
Semester Credits							22	
Total Credits of the Program after 3 rd Year							127	
			SEMESTER VII					
38	CC	ECO401	Applied Econometrics with Stata	0	1	3	4	CC-16
39	CC	ECO402	Applied Financial Economics	2	1	1	4	CC-17
40	CC	ECO403	Corporate Finance	2	1	1	4	CC-18
41	CC (For With research)	ECO404	Research Methodology	3	1	0	4	CC-19 (Research)
42	CC (For Without research)	ECO405/ECO409	Industrial Organisation with Impact Analysis/Resource and Environmental Economics	3	1	0	4	CC-19(without Research)
43	Minor						4	
Total Semester Credit							20	
			Semester VIII					
44	CC	ECO406	Big Data Analysis and Machine Learning	2	1	1	4	CC-20 [to be decided by CSE]
45	CC (For Without research)	ECO407	Labour Economics	3	1	0	4	CC-21 (without Research)
46	CC (For Without Research)	ECO408	Behavioural Economics	3	1	0	4	CC-22(without Research)
47	CC (For without research)	ECO410	Political Economy of Development	3	1	0	4	CC-22 (without research)
48	Minor						4	
49	Dissertation	ECO411	Project 2/Dissertation 2	12	0	0	12	
Total Semester Credit							20	
Total Credits of the Program after 4th Year							167	

***NOTE:** With research is only allowed for Students *who secure 75% marks and above in the first six semesters*

Minors to be offered by Economics Department – All Syllabi are given at the end

1. ECO105: Introduction to Microeconomics – Sem I
2. ECO106: Introduction to Macroeconomics – Sem II
3. ECO206: Introduction to Mathematics for Economics – Sem III
4. ECO207: Indian Economic Issues – Sem IV
5. ECO309: Introductory Econometrics- Sem V
6. ECO310: Elements of Public Economics – Sem VI
7. ECO422: Introductory Development Economics - Sem VII
8. ECO423: International Trade – Sem VIII

Multi-Disciplinary (MDC) course

1. ECO107: Principles of Economics (Syllabus given at the end)

Semester I

ECO101	Microeconomics I	L	T	P	C
Contact Hours	60 hours	3	1	0	4
Pre-requisites/Exposure	12 th level English and Mathematics				
Co-requisites					

Corse Objective:

Economic principles guide us to think like an economist. Business on the same side encounter a number of situation where this economic intuition and thinking may help to find viable solution and answers to the questions pertaining to a particular business problem. These problems may come from variety of contexts, for example, from micro operations of the business unit such as production and consumer demand or from macro environment such as a steep rise in overall price level in the economy. Therefore, in order to understand the reasons of such business problems and discover their solutions, a fundamental knowledge of economic principles is required. This course intends to give a glimpse of core principles of economics (micro principles, macro principles and some basic ideas of international economics) such as main problems of an economic system, fundamentals of demand and supply, consumer and producer surplus.

Course Outcomes:

On completion of this course, the students will be able to:

CO1. **Understand** the analytic principles used in microeconomics in individual decision making framework

CO2. **Apply** these conceptual tools to several policy making analysis in theoretical and empirical studies.

CO3. **Analyze** the decisions of buyers and sellers and their interaction in market transactions thereby shaping the equilibrium market outcomes.

CO4. **Analyze** the process and impact of different government interventions such as taxes on subsidies on equilibrium outcomes both in commodity and factor markets.

Course Content

Unit I: Subject matter and importance of microeconomics; Theory of demand and supply, Stability of equilibrium: Marshallian and Walrasian Approaches to Price determination; elasticity of demand; elasticity of supply. **(10 hours)**

Unit II: Consumer behaviour: Marshallian approach – cardinal utility, diminishing marginal utility, equi-marginal utility, and law of demand. Indifference curve approach. Revealed preference approach. **(10 hours)**

Unit III: Theory of production: production function with one variable input; marginal, average and total productivity, stages of production, and law of variable proportions. Producer behaviour with two variable inputs.

Fixed cost and variable cost, relationship among marginal and average variable cost and marginal and average products. Revenue and profit, marginal revenue. **(10 hours)**

Unit IV: Market structure: Perfect competition: equilibrium of firm and industry in the short run as well as in the long run. Equilibrium of a competitive firm, breakeven point and supply curve of firm. Competitive equilibrium, effects of taxes and price controls on price, consumer surplus, producer surplus and deadweight loss. (15 hours)

Pedagogy:

The Faculty may choose pedagogies suitable to the nature of course from following:

- Student Lecture and Presentation
- Case Study Analysis
- Teaching-learning Strategy using Multimedia
- Mind Mapping
- Chunking strategy
- Z to A Approach
- Collaborative and cooperative learning
- Anchored Instruction
- Peer Tutoring
- Microteaching and Simulated Teaching
- Blended learning
- Problem Based Learning (PBL)
- Rotation Model
- Flex Model
- Enriched Virtual Model

Modes of Examination: Assignment/Quiz/Project/Presentation/ Course Work / Article reviews / Book Reviews / Reports / Written Exam / Jury / Survey / / any other method that suits to assess the given course outcome

Examination Scheme:

Components	Continuous Internal Assessment	End Term
Weightage (%)	50	50

Text and Reference:

Core Text:

T1. Pindyck R. S., Rubinfeld D.L. and Mehta P.L. (2013). *Microeconomics*. Pearson, India, 7th edition.

Nicholson W. and Snyder C. (2017). *Microeconomic Theory: Basic Principles and Extensions*. Cengage. 12th Edition or latest.

T2. *Intermediate Microeconomics: A Modern Approach*. H.R. Varian. East West Press; 8th edition (2010).

Reference Readings:

Nicholson W. and Snyder C. (2017). *Microeconomic Theory: Basic Principles and Extensions*. Cengage. 12th Edition or latest.

Microeconomics: Theory and Applications. G.S. Maddala, and E. Miller. McGraw Hill Education (India) Private Limited; 3rd edition, 2004.

Microeconomic Theory. Ferguson, and Gould. All India Traveler Book Sellers (6th edition).

Relationship between the Course Outcomes (COs) and Program Outcomes (POs)

Mapping of COs and POs		
	Course Outcomes (COs)	POs
CO1	Understand the analytic principles used in microeconomics in individual decision making framework	PO1, PO2
CO2	Apply these conceptual tools to several policy making analysis in theoretical and empirical studies.	PO1, PO4
CO3	Analyse the decisions of buyers and sellers and their interaction in market transactions thereby shaping the equilibrium market outcomes in different markets.	PO1, PO4
CO4	Analyse the process and impact of different government interventions such as taxes on subsidies on equilibrium outcomes both in commodity and factor markets.	PO3

Course Code	Course Title	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8
ECO101	Microeconomics I	3	3	3	3				
		Domain specific knowledge and skills/ Acquire knowledge of core economic theories and adequately identify the issues related to economy, public policy and society	Problem Analysis and Critical thinking / Develop skills necessary to analyze economic data, think critically on alternatives and propose viable solutions	Modern IT Tools / Become proficient in using economic data analysis software (s) and conduct meaningful analysis of data	Business and Society / Appreciate the importance of responsibilities of businesses and government towards the society	Environment and sustainability / Contemplate on societal and global issues resulting from environmental concerns	Ethics / Appreciate individual ethical behavior and be able to discharge community responsibilities to the society	Leadership and Team work / Learn Leadership skills, Team work, and develop strong emotional and social aptitude to be a lifelong learner.	Communication: Develop verbal and non-verbal communication skills for a successful career in Industry, Business and Entrepreneurship

1=weakly mapped

2= moderately mapped

3=strongly mapped

Course Objectives

ECO102	Mathematics for Economics	L	T	P	C
Version 1.0	Contact Hours: 60	3	1	0	4
Pre-requisites/Exposure	12 th level Mathematics				
Co-requisites					

This paper introduces students to the terminology and analytic principles used in microeconomics, which is broadly defined as the study of markets, and to the application of these conceptual tools to several policy issues. The objective of the course is to equip the students with mathematical analysis of various economic problems. The students will be able to understand the decisions of buyers and sellers and their interaction in market transactions will be analysed.

Course Outcomes:

On completion of this course, the students will be able to:

CO1. **Understand** the mathematical tools and their application in Economics.

CO2. **Develop** the knowledge of the use of mathematics essential to analyze single variable and multivariable economic problems.

CO3. **Apply** calculus in analysis of economic variables.

CO4. **Analyze** the use of basic algebra in economics. .

Course Content

Unit-I: Equations [10 lecture hours]

1.1. Exponents, 1.2. Polynomials. 1.3. Equations: Linear and Quadratic. 1.4. Simultaneous Equations.
1.5. Functions, 1.6. Graphs, Slopes and Intercepts. 1.7. Economic Applications of Graphs and Equations. 1.8. Examples and Application

Unit-II: Matrix Algebra [7 lecture hours]

5.1. Definitions of matrix. 5.2. Addition and Subtraction and Multiplication. 5.3. Classification of matrix. 5.4. Determinant. 5.5. Inverse of a Square Matrix 5.7. Cramer's Rule.

Unit-III: Derivatives and Differentiation [10 lecture hours]

2.1. Limits. 2.2. Continuity. 2.3. The Slope of a Curvilinear Function. 2.4. The Derivative. 2.5. Differentiability and Continuity. 2.6. Derivative Notation. 2.7. Rules of Differentiation. 2.8. Examples and Application.

Unit-IV: Application of Derivatives [6 lecture hours]

3.1. Increasing and Decreasing Function, 3.2. Concavity and Convexity, 3.3. Inflection Points, 3.4. Maxima and Minima.

Unit-V: Calculus of Multivariable Functions [6 lecture hours]

5.1. Partial differentiation. 5.2. Hessian determinant. 5.3. Homogeneous function and Euler's theorem

Unit-VI: Economic Application of Derivatives [6 lecture hours]

6.1 Price Elasticity of Demand, 6.2. Income Elasticity of Demand 6.3. Cross Elasticity of Demand, 6.4. Marginal Productivity. 6.5. Marginal Cost 6.6 Profit maximization.

Pedagogy:

The Faculty may choose pedagogies suitable to the nature of course from following:

- Student Lecture and Presentation
- Case Study Analysis
- Teaching-learning Strategy using Multimedia
- Mind Mapping
- Chunking strategy
- Z to A Approach
- Collaborative and cooperative learning
- Peer Tutoring
- Simulated Teaching
- Blended learning
- Problem Based Learning (PBL)
- Rotation Model
- Flex Model

Modes of Examination: Assignment /Quiz / Project / Presentation / Course Work / Article reviews / Book Reviews / Reports / Written Exam / Jury / Survey // any other method that suits to assess the given course outcome

Examination Scheme:

Components	Continuous Internal Assessment	End Term
Weightage (%)	50	50

Core Text

Edward T. Dowling, (2001) Introduction to Mathematical Economics, Schaum's Outline Series

McGRAW-HILL

References:

R1. Simon, Carl. P., Blume, Lawrence. (2010). Mathematics for Economists, Norton.

R2. Sydseater, K., Hammod, P. (2002). Mathematics for Economics Analysis. Pearson Education India.

R3. Rosser, Mike (2003), Mathematics for Economists, Second Edition, Routledge.

Relationship between the Course Outcomes (COs) and Program Outcomes (POs)

Mapping of COs and POs		
	Course Outcomes (COs)	POs
CO1	Apply the mathematical tools to analyze the economic problems.	PO1, PO2, PO4, PO7
CO2	Develop the knowledge of the use of derivative and integration techniques in economic framework.	PO2, PO4, PO5, PO6, PO8
CO3	Apply unconstrained and constrained optimization technique.	PO1, PO2, PO6, PO7
CO4	Analyze the use of difference and differential equations in real world economic activity in constant time and continuous time framework.	PO1, PO2, PO6, PO7

1=weakly mapped

2= moderately mapped

3=strongly mapped

NON-CREDIT REMEDIAL COURSE ON MATHEMATICS FOR THOSE WHO DID NOT HAVE MATHEMATICS COURSE IN CLASS XI AND XII IN +2 SCHOOL**Syllabus**

1. Equations: Simple Linear, Quadratic, 2 X 2 Simultaneous
2. Surds and Indices: Simplifications, Concept of Complex Number
3. Logarithms: Formula, Finding Log Value and Anti Log Value from Log Table
4. Series: A.P. and G.P. Series, Finding nth Term and Summation, Infinite G.P. Series
5. Coordinate Geometry: Location of a point, Distance Between Two Points, Gradient, Equation of a Straight Line, Slope, Intercept, Equations of Circle, Ellipse, Parabola and Hyperbola, Definitions of Sine, Cosine and Tangent Functions and shapes of these curves.

Semester II

ECO103	Macroeconomics- I	L	T	P	C
Version 1.0	Contact Hours: 60	3	1	0	4
Pre-requisites/Exposure	Basic knowledge of economics				
Co-requisites	--				

Course Objectives

This course aims to introduce the students to the basic concepts of macroeconomics. Macroeconomics deals with the aggregative aspects of the economy. This course discusses the preliminary concepts associated with the determination and measurement of aggregate macroeconomic variable like savings, investment, GDP, money, inflation, and the balance of payments. It discusses various alternative theories of output and employment determination in a closed economy in the short run as well as medium run, and the role of policy in this context. It also introduces the students to various theoretical issues related to an open economy.

CO1. Understand different macroeconomic variables like consumption, savings, investment, GDP, money, inflation, etc. and the propositions of different schools of thought that dominate macroeconomics.

CO2. Understand the macroeconomic tools used in policy making mainly in a closed economy.

CO3. Develop insights about the application of mathematical models used for the determination and measurement of aggregate macroeconomic variables.

CO4. Analyze the aggregate macroeconomic issues of price, output, and rate of interest mainly in the context of a closed economy.

Course Content

Unit 1: Introduction to Macroeconomics and National Income Accounting (10 hours)

Basic issues studied in macroeconomics; measurement of gross domestic product – the circular flow; The three way of measuring National Income of a country; The fundamental relations in the economy; real versus nominal GDP; price indices.

Unit 2: The Classical economics (15 hours)

Pre-classical economy, approaches to employment, income and interest rate determination: Classical theory, Quantity theory of money (Fisher, Pigou and Friedman).

Unit 3: The Keynesian Economics (20 hours)

The depression and the failure of the classical economics, Approaches to employment, income and interest rate determination; Keynes — Simple-Keynesian model, IS-LM curve, Multiplier, Keynesian labour market, wage rigidity. Keynesian AD-AS Model. Keynes's Theory on Demand for Money

Pedagogy:

The Faculty may choose pedagogies suitable to the nature of course from following:

- Student Lecture and Presentation
- Case Study Analysis
- Teaching-learning Strategy using Multimedia
- Mind Mapping
- Chunking strategy
- Z to A Approach
- Collaborative and cooperative learning
- Anchored Instruction
- Peer Tutoring
- Microteaching and Simulated Teaching
- Blended learning
- Problem Based Learning (PBL)
- Rotation Model
- Flex Model
- Enriched Virtual Model

Modes of Examination: Assignment / Quiz / Project / Presentation / Course Work / Article reviews / Book Reviews / Reports / Written Exam / Jury / Survey // any other method that suits to assess the given course outcome

Examination Scheme:

Components	Continuous Internal Assessment	End Term
Weightage (%)	50	50

Core Text:

1. Richard T. Froyen. Macroeconomics: Theories & Policies. Pearson Education; 10th Edition 2013.
2. N. Gregory Mankiw. Macroeconomics, Worth Publishers, 7th edition, 2010

Reference Books:

1. Andrew B. Abel and Ben S. Bernanke, Macroeconomics, Pearson Education, Inc., 7th edition, 2011.
4. Dornbusch, Fischer and Startz, Macroeconomics, McGraw Hill, 11th edition, 2010

Relationship between the Course Outcomes (COs) and Program Outcomes (POs)

Mapping between COs and POs		
	Course Outcomes (COs)	Mapped Program Outcomes
CO1	Understand different macroeconomic variables like consumption, savings, investment, GDP, money, inflation, etc. and the propositions of different schools of thought that dominate macroeconomics.	PO1, PO2, PO4
CO2	Understand the macroeconomic tools used in policy making mainly in a closed economy.	PO1, PO2, PO4
CO3	Develop insights about the application of mathematical models used for the determination and measurement of aggregate macroeconomic variables.	PO1, PO2, PO4, PO6, PO7, PO8
CO4	Analyze the aggregate macroeconomic issues of price, output, and rate of interest mainly in the context of a closed economy	PO1, PO2, PO4, PO6, PO7, PO8

Course Code	Course Title	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8
ECO103	Macroeconomics- I	3	3	1	3	1	2	2	2
		Domain specific knowledge and skills/ Acquire knowledge of core economic theories and adequately identify the issues related to economy, public policy and society							
		Problem Analysis and Critical thinking / Develop skills necessary to analyze economic data, think critically on alternatives and propose viable solutions							
		Modern IT Tools / Become proficient in using economic data analysis software (s) and conduct meaningful analysis of data							
		Business and Society / Appreciate the importance of responsibilities of businesses and government towards the society							
		Environment and sustainability / Contemplate on societal and global issues resulting from environmental concerns							
		Ethics / Appreciate individual ethical behavior and be able to discharge community responsibilities to the society							
		Leadership and Team work / Learn Leadership skills, Team work, and develop strong emotional and social aptitude to be a lifelong learner.							
		Communication: Develop verbal and non-verbal communication skills for a successful career in Industry, Business and Entrepreneurship							

1=weakly mapped

2= moderately mapped

3=strongly mapped

ECO104	Basic Statistics	L	T	P	C
Version 1.0	Contact Hours: 60	3	1	0	4
Pre-requisites/Exposure	Set theory and logical thinking.				
Co-requisites	-				

Course Objectives

The main objective of this course is to train the students to use the techniques of statistical analysis, which are commonly applied to understand and analyze economic problems. The paper deals with simple tools and techniques, which will help a student in data collection, presentation, and to understand the basic descriptive properties of the data. This paper introduces the concept of bivariate data and their application in real life. A major emphasis is given on the fundamental knowledge of probability where the true essence of statistics lies.

Course Outcomes

After completing this course, a student will

CO1: Understand different types of data and data collection methods in the field of economics.

CO2: Demonstrate the fundamental knowledge of central tendency, dispersion, skewness and kurtosis using various microeconomic and macroeconomic variables.

CO3: Understand correlation analysis and basic ideas about regression using economic variables to obtain the basic ideas of bivariate data.

CO4: Analyse the nature of different economic time series using various methods.

CO5: Develop insights about probability along with its application on Bayes' theorem.

Course Content

Unit-I: Introduction to Statistics

[7 Hours]

Basic concepts: Population, Sample, Parameter; Techniques of data collection- Sampling vs. Population, primary and secondary data. Classification and presentation of data. Graphic and diagrammatic representation of data. Frequency distribution and its diagrammatic representation.

Unit-II: Measures of Central Tendency

[8 Hours]

Arithmetic Mean, Median and Mode for grouped and ungrouped data, Comparison of Mean, Median and Mode, Geometric and Harmonic Mean, Composite Mean.

Application: Index Numbers: Index number as weighted averages, Price and quantity index numbers, Cost of Living Index Number, Wholesale Price Index, Stock market indices.

Unit-III: Measures of Dispersion

[8 Hours]

Range, Mean Deviation, Quartile Deviation and Standard Deviation, Measures of Relative Dispersion, Curve of Concentration, Moments, Central and non-central moments, Skewness, Kurtosis, different measures of skewness and kurtosis.

Application: Measurement of Economic Inequality: Gini Coefficient and Lorenz Curve.

Unit-IV: Bivariate Data**[6 Hours]**

Definition of bivariate data, scatter diagram, bivariate frequency distribution-Simple and multiple correlation and regression. Covariance as a measure of association; Coefficient of Correlation; Rank correlation; Difference between correlation and regression approach

Unit-V: Time series analysis and forecasting methods**[8 Hours]**

Introduction and analysis of a time series, trend method, time series method, correlation regression method, End-Use method, exponential smoothing method, Delphi method, demand forecasting for industrial products.

Unit-VI: Probability Theory**[8 Hours]**

Elements of Probability Theory: Sample Space, Probability Space, Events, Classical Definition of Probability. The Addition Rule, the Multiplication Rule, Theorems of Total Probability, Conditional Probability and Statistical Independence, Limitations of the Classical definition, Axiomatic Approach, total probability theorem, Bayes' Rule and its applications.

Pedagogy:

The Faculty may choose pedagogies suitable to the nature of course from following:

- Student Lecture and Presentation
- Case Study Analysis
- Teaching-learning Strategy using Multimedia
- Mind Mapping
- Chunking strategy
- Z to A Approach
- Collaborative and cooperative learning
- Anchored Instruction
- Peer Tutoring
- Microteaching and Simulated Teaching
- Blended learning
- Problem Based Learning (PBL)
- Rotation Model
- Flex Model
- Enriched Virtual Model

Modes of Examination: Assignment /Quiz / Project / Presentation / Course Work / Article reviews / Book Reviews / Reports / Written Exam / Jury / Survey / / any other method that suits to assess the given course outcome

Examination Scheme:

Components	Continuous Internal Assessment	End Term
Weightage (%)	50	50

Core Text:

Goon, Gupta, Dasgupta – Fundamentals of Statistics, Vol I, World Press Private limited (2016).

Reference Books:

1. Lind, Marchal, Wathen. Basic Statistics for Business and Economics, McGraw Hill Education; Seventh edition (2013).
2. Gupta C B, Gupta V. An Introduction to Statistical Methods, Vikas Publishing House, New Delhi.
3. Gupta, S. C., and Kapoor, V. K. Fundamentals of Mathematical Statistics. Sultan Chand & Sons (2014).

Relationship between the Course Outcomes (COs) and Program Outcomes (POs)

Mapping between COs and POs		
	Course Outcomes (COs)	Mapped Program Outcomes
CO1	Understand different types of data and data collection methods in the field of economics.	PO1, PO2
CO2	Demonstrate the fundamental knowledge of central tendency, dispersion, skewness and kurtosis using various microeconomic and macroeconomic variables.	PO1, PO2, PO3
CO3	Understand correlation analysis and basic ideas about regression using economic variables to obtain the basic ideas of bivariate data	PO1, PO2, PO3, PO6, PO7, PO8
CO4	Analyse the nature of different economic time series using various methods.	PO1, PO2, PO3, PO6, PO7, PO8
CO5	Develop insights about probability along with its application on Bayes' theorem.	PO1, PO2, PO6, PO7, PO8

Course Code	Course Title	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8
ECO104	Basic Statistics	3	3	2	–	–	2	2	2
		Domain specific knowledge and skills/ Acquire knowledge of core economic theories and adequately identify the issues related to economy, public policy and society	Problem Analysis and Critical thinking / Develop skills necessary to analyze economic data, think critically on alternatives and propose viable solutions	Modern IT Tools / Become proficient in using economic data analysis software (s) and conduct meaningful analysis of data	Business and Society / Appreciate the importance of responsibilities of businesses and government towards the society	Environment and sustainability / Contemplate on societal and global issues resulting from environmental concerns	Ethics / Appreciate individual ethical behavior and be able to discharge community responsibilities to the society	Leadership and Team work / Learn Leadership skills, Team work, and develop strong emotional and social aptitude to be a lifelong learner.	Communication: Develop verbal and non-verbal communication skills for a successful career in Industry, Business and Entrepreneurship

1=weakly mapped
2= moderately mapped
3=strongly mapped

Semester III

ECO201	Microeconomics II	L	T	P	C
Contact Hours	60	3	1	0	4
Pre-requisites/Exposure	Microeconomics I				
Co-requisites					

Course Objectives

This course is designed to introduce students to more complicated issues of microeconomics that deals with the working of different imperfect market structures. The course aims to develop the knowledge of different types of pricing strategies and market power adopted by the producers, theoretical concepts of the theories of distribution, welfare economics and an overall understanding of the decision-making processes of consumers and producers in an economy.

Course Outcomes

On completion of this course, the students will be able to:

CO1. **Understand** more complicated issues of microeconomics around different market structures under imperfect competition like monopoly, monopolistic competition, and oligopoly.

CO2. **Develop** knowledge on the conflicts of efficiency versus equity along with general idea of welfare discussed.

CO3. **Develop** basic knowledge of factor market.

CO4. **Understand** economic process that governs the production, distribution and consumption decisions.

Course Content

Unit I: Market structure: Economics of imperfect competition: monopoly, price discrimination, monopolistic competition, oligopoly, duopoly, monopsony, bilateral monopoly. **(20 lectures)**

Unit II: Theory of distribution: marginal productivity theory and product exhaustion theorem. Alternative Distribution Theories: Ricardo, Kaldor, Kalecki. **(5 lectures)**

Unit III: Game theory, strategic decision making: static games of complete information. **(5 lectures)**

Unit IV: Choice under uncertainty. **(5 lectures)**

Unit V: General equilibrium, Welfare economics: Pareto optimality. Modern Welfare Criteria: Pareto, Hicks and Scitovsky, Arrow's Impossibility Theorem, A. K. Sen's Social Welfare Function. **(10 lectures)**

Pedagogy:

The Faculty may choose pedagogies suitable to the nature of course from following:

- Student Lecture and Presentation
- Case Study Analysis
- Teaching-learning Strategy using Multimedia
- Mind Mapping
- Chunking strategy
- Z to A Approach
- Collaborative and cooperative learning
- Peer Tutoring
- Simulated Teaching
- Blended learning
- Problem Based Learning (PBL)
- Rotation Model
- Flex Model

Modes of Examination: Assignment / Quiz / Project / Presentation / Course Work / Article reviews / Book Reviews / Reports / Written Exam / Jury / Survey / / any other method that suits to assess the given course outcome

Examination Scheme:

Components	Continuous Internal Assessment	End Term
Weightage (%)	50	50

Core Text

1. Intermediate Microeconomics: A Modern Approach. H.R. Varian. East West Press; 8th edition (2010).
2. Modern Microeconomics. Koutsoyiannis. Palgrave Macmillan; 2nd edition, 2008.

Reference Books

1. Microeconomics. R. S. Pindyck, D.L. Rubinfeld, and P.L. Mehta. Pearson, India, 7th edition, 2013
2. Microeconomics: Theory and Applications. G.S. Maddala, and E. Miller. McGraw Hill Education (India) Private Limited; 3rd edition, 2004.
3. Principles of Microeconomics. D. Salvatore. Oxford University Press (5th or later edition).
4. Microeconomic Theory. Ferguson, and Gould. All India Traveler Book Sellers (6th edition).

Relationship between the Course Outcomes (COs) and Program Outcomes (POs)

Mapping of COs and POs		
	Course Outcomes (COs)	POs

CO1	Understand more complicated issues of microeconomics around different market structures under imperfect competition like monopoly, monopolistic competition, and oligopoly.				
ECO202	MACROECONOMICS-II	LPOL, PO2C			
Version 1.0	Contact Hours: 60	3	PO8	4	
Pre-requisites/Exposure	10+2 passed from any recognized Board or equivalent				
Co-requisites	--				
CO2	Develop knowledge on the conflicts of efficiency versus equity along with general idea of welfare discussed.		PO1, PO2, PO6, PO8		
CO3	Analyze major problems associated with market failure.		PO1, PO2, PO6, PO7, PO8		
CO4	Understand economic process that governs the production, distribution and consumption decisions.		PO1, PO2, PO6, PO7, PO8		

1=weakly mapped
2= moderately mapped
3=strongly mapped

Course Objectives

This course is a sequel to Macroeconomics I. After revisiting the classical and Keynesian systems taught in the previous macroeconomic courses, in this course, the students are also introduced to the micro-foundations to the various aggregative concepts used in the previous course. The theories related to consumption, investment and growth models are dealt in depth. The course engages debates and critics related to different schools of macroeconomic thought. In addition, it covers the long run dynamics of growth models and technological progress also.

Course Outcomes:

At the end of the course, the student will be able to:

CO1: **Understand** the functioning of the economy in macro frame and its policy issues

CO2: **Learn** modern macroeconomic theories related to consumption, investment, growth, the long run dynamic issues like economic growth and technological progress etc.

CO3: **Develop** knowledge on open economy macroeconomics and different models

		Domain specific knowledge and skills/ Acquire knowledge of core economic theories and adequately identify the issues related to economy, public policy and society	Problem Analysis and Critical thinking / Develop skills necessary to analyze economic data, think critically on alternatives and propose viable solutions	Modern IT Tools / Become proficient in using economic data analysis software (s) and conduct meaningful analysis of data	Business and Society / Appreciate the importance of responsibilities of businesses and government towards the society	Environment and sustainability/ Contemplate on societal and global issues resulting from environmental concerns	Ethics / Appreciate individual ethical behavior and be able to discharge community responsibilities to the society	Leadership and Team work / Learn Leadership skills, Team work, and develop strong emotional and social aptitude to be a lifelong learner.	Communication: Develop verbal and non-verbal communication skills for a successful career in Industry, Business and Entrepreneurship
Course Code	Course Title	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8
ECO201	Microeconomics II	3	3	2	-	-	3	3	3

CO4: **Analyse** different macroeconomic policies and its impact on economy

Course Content

Unit 1: Post-Keynesian theories (16 hrs)

Keynes vs classics, Neo-classical synthesis and New Classical theories, Rational Expectations theory, Neo-Keynesian approach towards wage and price rigidities.

Unit 2: Money Inflation and unemployment**(6 hrs)**

Functions of Money, demand for money and supply of money, money multiplier, Proposal for ceiling on growth rate of money.; Theories of interest rate determination and interest rate structure, Short-Run trade-off between inflation and unemployment, Phillips curve.

Unit 3: Consumption Theories
hrs)**(10**

Keynesian consumption function; Fisher's theory of optimal intertemporal choice; life-cycle and permanent income hypotheses;

Unit 4: Investment Theories**(5 hrs)**

Determinants of business fixed investment; residential investment and inventory investment.

Unit 5: Economic Growth**(8hrs)**

Harrod-Domar model, Solow model, golden rule, technological progress and introduction of endogenous growth.

Pedagogy:

The Faculty may choose pedagogies suitable to the nature of course from following:

- Student Lecture and Presentation
- Case Study Analysis
- Teaching-learning Strategy using Multimedia
- Mind Mapping
- Chunking strategy
- Z to A Approach
- Collaborative and cooperative learning
- Anchored Instruction
- Peer Tutoring
- Microteaching and Simulated Teaching
- Blended learning
- Problem Based Learning (PBL)
- Rotation Model
- Flex Model
- Enriched Virtual Model

Modes of Examination: Assignment/Quiz/Project/Presentation/ Course Work / Article reviews / Book Reviews / Reports / Written Exam / Jury / Survey / / any other method that suits to assess the given course outcome

Examination Scheme:

Components	Continuous Internal Assessment	End Term

Weightage (%)	50	50
----------------------	-----------	-----------

Text Books

1. N. Gregory Mankiw. Macroeconomics, Worth Publishers; 7th edition (2009).
2. Dornbusch, Fischer and Startz, Macroeconomics, McGraw Hill Education; 12th edition (2018)
3. Richard T Froyen. Macroeconomics: Theories and Policies, Pearson Education India; 10th edition (2013)

Reference Books

1. Olivier Blanchard, Macroeconomics, Pearson Education, Inc., 5th edition, 2009
2. Steven M. Sheffrin, Rational Expectations, Cambridge University Press, 2nd edition, 1996.
3. Andrew B. Abel and Ben S. Bernanke, Macroeconomics, Pearson Education, Inc., 7th edition, 2011

Relationship between the Course Outcomes (COs) and Program Outcomes (POs)

Mapping of COs and Pos		
	Course Outcomes (COs)	POs
CO1	Understand the functioning of the economy in macro frame and its policy issues	PO1, PO2, PO3, PO4
CO2	Learn modern macroeconomic theories related to consumption, investment, growth, the long run dynamic issues like economic growth and technological progress etc.	PO4, PO7
CO3	Develop knowledge on open economy macroeconomics and different models	PO2, PO8
CO4	Analyse different macroeconomic policies and its impact on economy	PO4, PO5, PO6

Course Code	Course Title	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8
ECO202	MACROECONOMICS- II	3	3	2	1	-	3	3	1
		Domain specific knowledge and skills/ Acquire knowledge of core economic theories and adequately identify the issues related to economy, public policy and society	Problem Analysis and Critical thinking / Develop skills necessary to analyze economic data, think critically on alternatives and propose viable solutions	Modern IT Tools / Become proficient in using economic data analysis software (s) and conduct meaningful analysis of data	Business and Society / Appreciate the importance of responsibilities of businesses and government towards the society	Environment and sustainability / Contemplate on societal and global issues resulting from environmental concerns	Ethics / Appreciate individual ethical behavior and be able to discharge community responsibilities to the society	Leadership and Team work / Learn Leadership skills, Team work, and develop strong emotional and social aptitude to be a lifelong learner.	Communication: Develop verbal and non-verbal communication skills for a successful career in Industry, Business and Entrepreneurship

1=weakly mapped

2= moderately mapped 3=strongly mapped

Semester IV

ECO203	Development Economics	L	T	P	C
Version 1.0	Contact Hours: 60	3	1	0	4
Pre-requisites/Exposure	10+2 passed from any recognized Board or equivalent				
Co-requisites	--				

Course Objectives:

This course aims at a basic introduction to the ideas of growth and development. A chronological development of the measures of development and the major theoretical works is to be attempted to make it clear to the students that development is a multidimensional process and need to be addressed accordingly. Concept of poverty, inequality and also to learn about commonly used inequality and poverty measures are also discussed. Finally, the recent advances in the direction of free trade as a vehicle of development are to be discussed.

Course Outcomes

On completion of this course, the students will be able to

- CO1. **Understand** the core economic principles, concepts and theories of modern economic analysis and various economic development issues.
- CO2. **Explain** the interplay between markets, institutions and income distribution in causing and perpetuating underdevelopment; the inequalities between rich and poor countries and how the differences have evolved over time.
- CO3. **Analyze** effects of economic growth on inequality and poverty; the empirical evidence on the patterns of economic development.
- CO4. **Assess** the effectiveness of various policies in combating underdevelopment.

Course Content

Unit 1: Conceptions and Measures of Development
(6 hours)

(6

Meanings of Development: Economic Growth, Redistribution from Growth, and the Capabilities Approach to Development. Welfare indicators and measures of growth --- Human

Development Indices, the Basic Needs Approach, and Purchasing Power Parity (PPP) vs. Per Capita Income as an index. Difference between growth and development. Characteristics of a Developing Economy.

Unit 2: Structural Theories of Growth and Development (11 hours)

Theories of Growth: Harrod's Model; the concept of Dualism, Lewis Model of Development with Surplus Labour. The Harris-Todaro Model of migration, Process of Economic Development of less developed countries: Myrdal and Kuznets on economic development and structural change. Human Capitals and Economic Growth, Research and Development and Economic Growth.

Unit 3: Strategies of development (10 hours)

Underdevelopment as a Coordination Failure, Trap Models: Nelson's Low-level equilibrium trap and Leibenstein's Critical Minimum Effort thesis. Growth Strategies: Balanced Unbalanced Growth; The Big Push theory. Two-Gap Model: Addressing the savings and foreign exchange constraints. Choice of Technique in a labor-surplus economy.

Unit 4: Inequality and Poverty (6 hours)

Concepts of Population, Theory of Demographic Transition. Inequality: Measures of Inequality; Kuznets' Inverted U Hypothesis. Poverty: Absolute and Relative deprivation; Poverty Line and measures.

Unit 5: Sectoral Policy, Planning and Global Integration (6 hours)

Role of Agriculture in Economic Development of less developed countries. Planning and Economic Development: Changing role of Markets and Planning. Private-Public Partnership. Economic Development and International Trade and Investment, Trade as an engine of growth, Role of Multinationals.

Unit 6: Development and Environmental Sustainability (6 hours)

Development and Environmental Sustainability, Renewable and Non-renewable Resources; Environmental Degradation, Environmental Kuznets Curve. Equity: Intergenerational Equity Development.

Pedagogy:

The Faculty may choose pedagogies suitable to the nature of course from following:

- Student Lecture and Presentation
- Case Study Analysis
- Teaching-learning Strategy using Multimedia
- Mind Mapping
- Chunking strategy
- Z to A Approach
- Collaborative and cooperative learning
- Anchored Instruction
- Peer Tutoring
- Microteaching and Simulated Teaching
- Blended learning
- Problem Based Learning (PBL)
- Rotation Model
- Flex Model
- Enriched Virtual Model

Modes of Examination: Assignment/Quiz/Project/Presentation/ Course Work / Article reviews / Book Reviews / Reports / Written Exam / Jury / Survey / / any other method that suits to assess the given course outcome

Examination Scheme:

Components	Continuous Internal Assessment	End Term
Weightage (%)	50	50

Text Books

T1. Thirlwall, *Growth and Development*, Palgrave McMillan; 8th edition (2010)

T2. Todaro, and Smith. *Economic Development*, Pearson India; 10th edition (2011)

Reference Books

R1 D. Ray, *Development Economics*, Oxford University Press; 1st edition (1999)

R2 S. Gupta, and A. K. Mohapatra. *Recent Economic Growth in India: Contemporary Issues*. Prateeksha Publications (2011)

R3. K. Basu. *Analytical Development Economics: The Less Developed Economy Revisited*. Oxford University Press.

R4. G.M. Meier and J.E. Rauch. *Leading Issues in Economic Development*. Oxford University Press. (2005)

Relationship between the Course Outcomes (COs) and Program Outcomes (POs)

Mapping between COs and Pos		
	Course Outcomes (COs)	Mapped Program Outcomes

CO1	Understand the core economic principles, concepts and theories of modern economic analysis and various economic development issues.	PO1,PO3
CO2	Explain the interplay between markets, institutions and income distribution in causing and perpetuating underdevelopment; the inequalities between rich and poor countries and how the differences have evolved over time.	PO4, PO5
CO3	Analyze effects of economic growth on inequality and poverty ; the empirical evidence on the patterns of economic development.	PO6,PO7
CO4	Assess the effectiveness of various policies in combating underdevelopment.	PO2, PO8

Course Code	Course Title	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8
ECO203	Development Economics	3	3	2	1	2	3	3	1
		Domain specific knowledge and skills/ Acquire knowledge of core economic theories and adequately identify the issues related to economy, public policy and society	Problem Analysis and Critical thinking / Develop skills necessary to analyze economic data, think critically on alternatives and propose viable solutions	Modern IT Tools / Become proficient in using economic data analysis software (s) and conduct meaningful analysis of data	Business and Society / Appreciate the importance of responsibilities of businesses and government towards the society	Environment and sustainability / Contemplate on societal and global issues resulting from environmental concerns	Ethics / Appreciate individual ethical behavior and be able to discharge community responsibilities to the society	Leadership and Team work / Learn Leadership skills, Team work, and develop strong emotional and social aptitude to be a lifelong learner.	Communication: Develop verbal and non-verbal communication skills for a successful career in Industry, Business and Entrepreneurship

1=weakly mapped

2= moderately mapped

3=strongly mapped

ECO204	INTRODUCTION ECONOMETRICS	TO	L	T	P	C
Version 1.0	Contact Hours: 60	3	1	0	4	
Pre-requisites/Exposure	Basic knowledge of Mathematics at 10+2 level					
Co-requisites	Knowledge of Microeconomics and Macroeconomics					

Course objectives

Econometrics is concerned with the application of statistical theory to the analysis of economic data and the estimation of economic relationships. This course intends to expose students to the statistical techniques that economists use for estimating, testing, and forecasting economic relationships. In this paper students will be introduced with what ‘Econometrics’ is about. The basic concept of linear regression model under classical assumptions, statistical inference tools and techniques in a regressed model will be taught in a lucid approach. Moreover, the consequences of violations of classical assumptions will also be taught. This course covers a range of applications through statistical software.

Course Outcomes:

At the end of the course, the student will be able to:

CO1: **Understand** the econometrics as a discipline, its importance and various statistical techniques that economists use for estimating, testing, and forecasting economic relationships.

CO2: **Demonstrate** the basic concept of simple linear regression model under classical assumptions.

CO3: **Understand** the tools and techniques of statistical inference mainly in a simple linear regression model.

CO4: **Develop** insights about the sources, the consequences of violations of classical assumptions and the tests associated with it.

CO5: **Apply** the econometric tools to the analysis of economic data and the estimation of economic relationships.

Course Content:

Unit I: Introduction to Econometrics

[4 Hrs]

What is Econometrics? Steps in Econometric Analysis; Specification of Econometric Model and Assumptions; Basic Concepts of Estimation and Desirable Properties of Estimators; Data for Econometric Analysis.

Unit-II: Properties of a good estimator

[5Hrs]

Basic concepts of estimation: Desirable properties of estimators, Methods of Point Estimation - Maximum Likelihood Estimators and their properties.

Unit III: Classical Linear Regression Model [8 Hrs]

Stochastic and non-stochastic relationships; The concept of regression, Two Variable Case, Specification of the relationship; Estimation- Method of Least Squares, Assumptions; Gauss-Markov Theorem; Properties of Least Squares estimates; BLUE.

Unit IV: Statistical Inference in Classical Linear Regression Model [12Hrs]

Testing of Hypothesis: Confidence Intervals, p-values, Type-I and Type-II Errors, Simple applications of tests for the Mean and Variance of a Univariate Normal Population.

Statistical Inference in simple linear regression model- Confidence Intervals for parameters, Testing of Hypothesis-Testing of regression coefficient; Test for regression as a whole, Coefficient of determination, Goodness of Fit, F-test, Analysis of Variance.

Unit V: Violations of Classical Assumptions and Remedies [8 Hrs]

Problems of Heteroscedasticity; Auto correlation (first order) — their consequences, tests and remedies.

Unit VI: Application of Econometric Methods [8Hrs]

Estimation of demand functions, production and cost functions

Pedagogy:

The Faculty may choose pedagogies suitable to the nature of course from following:

- Student Lecture and Presentation
- Case Study Analysis
- Teaching-learning Strategy using Multimedia
- Mind Mapping
- Chunking strategy
- Z to A Approach
- Collaborative and cooperative learning
- Anchored Instruction
- Peer Tutoring
- Microteaching and Simulated Teaching
- Blended learning
- Problem Based Learning (PBL)
- Rotation Model
- Flex Model
- Enriched Virtual Model

Modes of Examination: Assignment /Quiz / Project / Presentation / Course Work / Article reviews / Book Reviews / Reports / Written Exam / Jury / Survey / / any other method that suits to assess the given course outcome

Examination Scheme:

Components	Continuous Internal Assessment	End Term
Weightage (%)	50	50

Text Books:

1. Damodar N. Gujarati, Dawn C. Porter, and Sangeetha Gunasekar. Basic Econometrics. McGraw Hill Education (India) Private Limited; 5th edition (2011)
2. G. S. Maddala, K. J. Lahiri. Introduction to Econometrics. Wiley India Pvt Ltd; 4th edition (2012)

Reference book:

1. Jeffrey M. Wooldridge. Introductory Econometrics: A Modern Approach Cengage Learning India Pvt. Ltd.; 5th edition (2014)

Relationship between the Course Outcomes (COs) and Program Outcomes (POs)

Mapping of COs and POs		
	Course Outcomes (COs)	POs
CO1	Understand the econometrics as a discipline, its importance and various statistical techniques that economists use for estimating, testing, and forecasting economic relationships.	PO1, PO2
CO2	Demonstrate the basic concept of simple linear regression model under classical assumptions.	PO1, PO2
CO3	Understand the tools and techniques of statistical inference mainly in a simple linear regression model.	PO1, PO2, PO3, PO8
CO4	Develop insights about the sources, the consequences of violations of classical assumptions and the tests associated with it.	PO1, PO2, PO3, PO8
CO5	Apply the econometric tools to the analysis of economic data and the estimation of economic relationships.	PO1, PO2, PO3, PO7, PO8

Course Code EC301	Course Title	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8
ECO204	Introduction to Econometrics	3	3	2	–	–	–	1	2
		Domain specific knowledge and skills/ Acquire knowledge of core economic theories and adequately identify the issues related to economy, public policy and society	Problem Analysis and Critical thinking / Develop skills necessary to analyze economic data, think critically on alternatives and propose viable solutions	Modern IT Tools / Become proficient in using economic data analysis software (s) and conduct meaningful analysis of data	Business and Society / Appreciate the importance of responsibilities of businesses and government towards the society	Environment and sustainability / Contemplate on societal and global issues resulting from environmental concerns	Ethics / Appreciate individual ethical behavior and be able to discharge community responsibilities to the society	Leadership and Team work / Learn Leadership skills, Team work, and develop strong emotional and social aptitude to be a lifelong learner.	Communication: Develop verbal and non-verbal communication skills for a successful career in Industry, Business and Entrepreneurship

1=weakly mapped 2= moderately mapped

3=strongly mapped

ECO205	Indian Economy I	L	T	P	C
Version 1.0	Contact Hours: 60	3	1	0	4
Pre-requisites/Exposure	10+2 passed from any recognized Board or equivalent				
Co-requisites	--				

Course Objectives

The primary objective of this course is to examine the economic backdrop of the Indian Economy at the time of Independence and analyze its initial closed phase. Students will explore the basic trajectory of development under a mixed economy model, focusing on the structural transformation and the institutional frameworks that governed the economy before the shift toward market orientation.

Course Outcomes

On completion of this course, the students will be able to

CO1. **Explain** the economic development strategy of India since Independence.

CO2. **Understand** the importance of planning undertaken by the government of India, have Knowledge on the various objectives, failures and achievements of planning.

CO3. **Illustrate** the de-industrialisation process and emergence of modern industries and service sector.

CO4. **Analyse** the globalization process, reform policies and its diverse ramifications on the Indian economy.

Content:

Unit I: [3 HRS] Indian Economy at the time of Independence

Indian economy at Independence: Land System and its changes, Commercialization of agriculture Drain theory, Laissez faire theory and critique. Manufacture and Transport : Jute, Cotton, Railways, Money and Credit. Indian Economy after Independence : Underdevelopment of colonial rule.

Unit II: [12 HRS] Pre-Liberalization Era: Planning

Contribution of Vakil, Gadgil and V.K.R.V. Rao.

Five Year Plans: Background and structure of planning; Development Goals and Strategies; Structural Constraint; Objective, Achievement and Failures of Planning; NITI AAYOG.

Nehruvian Paradigm vs Gandhian Paradigm; Mahalanobis Model; Closed to Open Economy; Import Substitution and Export Promotion; Exchange Rate Regimes; Regional Imbalance.

Unit III: Pre-Liberalization Era: Sectoral Performance [20 HRS]

Agriculture: Situation in Indian Agriculture; Land Reform and land tenure system; Green Revolution and capital formation in agriculture; Cooperative Movement; Rural Credit, regional politics.

Industry: Trends in Composition and growth of Indian Industry; Industrial development under planning; Role of private and public sector; small scale and cottage industries; Structural changes and slowdown.

Service Sector: Service led growth. Inclusive Development. Productivity. Export competitiveness.

Inclusive development: Food security; procurement and PDS.

Unit IV: Growth and Distribution

[10 HRS]

National and Per capita income: Patterns, trends, aggregate and sectoral composition and changes therein. Growth: broad factors determining national income and distribution; Measures of poverty, trends in Poverty and Inequality;

Pedagogy:

The Faculty may choose pedagogies suitable to the nature of course from following:

- Student Lecture and Presentation
- Case Study Analysis
- Teaching-learning Strategy using Multimedia
- Mind Mapping
- Chunking strategy
- Z to A Approach
- Collaborative and cooperative learning
- Peer Tutoring
- Simulated Teaching
- Blended learning
- Problem Based Learning (PBL)
- Rotation Model
- Flex Model

Modes of Examination: Assignment /Quiz / Project / Presentation / Course Work / Article reviews / Book Reviews / Reports / Written Exam / Jury / Survey // any other method that suits to assess the given course outcome

Examination Scheme:

Components	Continuous Internal Assessment	End Term
Weightage (%)	50	50

Core Text

1. Indian Economy: Performance and Policies. Uma Kapila. Academic Foundation; 15th Revised edition (2015)
2. Prakash, B. A. (2009). The Indian Economy Since 1991: Economic Reforms and Performance. Pearson Education India.

Reference Books

1. Chandra, B., Mukherjee, A., & Mukherjee, M. (2008). India Since Independence. Penguin Books India.
2. Basu, Kaushik. An Economist in the Real World. Viking (2016)
3. Roy, T. (2006). The Economic History of India, 1857-1947 (2nd ed.). Oxford University Press.
4. Agarwal, A.N. (2009)- Indian Economy, New Delhi: New Age International Publishers
5. The Indian Economy: Problems and Prospects. BimalJalan (ed.); Penguin
6. S Chakraborty. 1987. Development Planning: The Indian Experience. Clarendon Press.
7. I, Judge Ahluwalia. 1985. Industrial Growth in India since the Mid-sixties. Oxford University Press.

Mapping between COs and POs		
	Course Outcomes (COs)	Mapped Program Outcomes
CO1	Explain the economic development strategy of India since Independence.	PO1, PO5, PO6, PO8
CO2	Understand the importance of planning undertaken by the government of India, have Knowledge on the various objectives, failures and achievements of planning.	PO1, PO4, PO5, PO8
CO3	Illustrate the de-industrialisation process and emergence of modern industries.	PO1, PO4, PO5
CO4	Analyse the globalization process and its diverse ramifications on the Indian economy.	PO1, PO4, PO5, PO6, PO7, PO8

Relationship between the Course Outcomes (COs) and Program Outcomes (POs)

1= weakly mapped; 2=moderately mapped; 3 = strongly mapped

Course Code		Course Title	PO1	PO2	PO3	PO4	PO5	PO6	PO7	
ECO205		Indian Economy I	3			3	2	2	1	
			Domain specific knowledge and skills/ Acquire knowledge of core economic theories and adequately identify the issues related to economy, public policy and society	Problem Analysis and Critical thinking / Develop skills necessary to analyze economic data, think critically on alternatives and propose viable solutions	Modern IT Tools / Become proficient in using economic data analysis software (s) and conduct meaningful analysis of data	Business and Society / Appreciate the importance of responsibilities of businesses and government towards the society	Environment and sustainability / Contemplate on societal and global issues resulting from environmental concerns	Ethics / Appreciate individual ethical behavior and be able to discharge community responsibilities to the society	Leadership and Team work / Learn Leadership skills, Team work, and develop strong emotional and social aptitude to be a lifelong learner.	Communication: Develop verbal and non-verbal communication skills for a successful career in Industry.

Semester V

Course objectives

This course aims at developing the knowledge of theoretical aspects of important advanced econometric techniques. It intends to make students understand when and how to apply a

ECO301	ADVANCED ECONOMETRICS	L	T	P	C
Version 1.0	Contact Hours: 60	3	1	0	4
Pre-requisites/Exposure	Basic knowledge of Mathematics at 10+2 level				
Co-requisites	Knowledge of Microeconomics and Macroeconomics				

particular advanced econometric technique. The course discusses the intricacies of different advanced econometric analytical tools so that students become aware of the advantages and limitations of different methods before they apply them to practical data sets. This course aims at offering adequate theoretical knowledge and developing basic skill for data analysis required for higher studies and/or in professional fields.

Course Outcomes:

At the end of the course, the student will be able to:

CO1: **Understand** the basic aspects of multiple linear regression models and the limitations they face.

CO2: **Demonstrate** the tools and techniques of statistical inference in a multiple linear regression model.

CO3: **Develop** insights about concept and use of dummy independent variables and dependent variable dummy regression models.

CO4: **Develop** ideas about different econometric techniques applied to time series data.

CO5: **Apply** the econometric tools to the analysis of cross section and time series economic data and the estimation of economic relationships.

Course Content:

Unit 1: Introduction to Multiple Linear Regression Models [10 hours]

Multiple Linear Regression with Two Independent Variables, Multiple Linear Regression with k Independent Variables, Methods and Interpretation of OLS Estimates, Meaning of Partial Impact, Fitted Values and Residuals, Goodness of Fit, MANOVA, Comparison of Simple and Multiple Regression Estimates, Inclusion of irrelevant variables, Omitted Variable Bias, Variance of OLS Estimates, Efficiency of OLS estimates, Consequences of Heteroskedasticity, Multicollinearity and Autocorrelation

Unit 2: Multiple Linear Regression: Statistical Inference [9 hours]

Sampling Distribution of OLS Estimators in MLRM, Hypotheses testing: One Sided and Two sided t Tests, P values, Statistical versus Economic significance, Confidence Intervals, Hypothesis Testing about linear combination of parameters, The use of F Test to Test Multiple Linear Restrictions, The Relationship between the F Test and The R Squared Values, The Adjusted R Squared

Unit 3: Use of Dummy Independent Variables [10 Hours]

Concept of Dummy Variables, Multiple Linear regression model with Dummy Independent qualitative) Variable with Two Categories, Use of Dummy Variables with More than Two Categories, Dummy Variable Trap, The Concept of Intercept Dummy, Interaction of Two Categorical Variables-Interaction Dummy; Interaction of Categorical and Continuous (quantitative) Variables- Slope Dummy

Unit 4: Dynamic Econometric Models

[8 Hours]

The role of time and lag in economics, distributed lag models, The Koyck approach, The Adaptive Expectations Model, The Partial Adjustment Model, Autoregressive Models

Unit 5: Introduction to Time Series Econometrics

[8 Hours]

The Concept of Time Series Regression, Stochastic process, The Concept of Stationarity of Time Series Data, White Noise, Random Walk, Unit Root Stochastic process, Test for stationarity, Autocorrelation Function (ACF), Partial Autocorrelation Function (PACF), Unit Root test, Dickey-Fuller test, Augmented Dickey-Fuller test (ADF)

Pedagogy:

The Faculty may choose pedagogies suitable to the nature of course from following:

- Student Lecture and Presentation
- Case Study Analysis
- Teaching-learning Strategy using Multimedia
- Mind Mapping
- Chunking strategy
- Z to A Approach
- Collaborative and cooperative learning
- Anchored Instruction
- Peer Tutoring
- Microteaching and Simulated Teaching
- Blended learning
- Problem Based Learning (PBL)
- Rotation Model
- Flex Model
- Enriched Virtual Model

Modes of Examination: Assignment /Quiz / Project / Presentation / Course Work / Article reviews / Book Reviews / Reports / Written Exam / Jury / Survey // any other method that suits to assess the given course outcome

Examination Scheme:

Components	Continuous Internal Assessment	End Term
Weightage (%)	50	50

Core Text

1. Jeffrey M. Wooldridge. Introductory Econometrics: A Modern Approach Cengage Learning India Pvt. Ltd.; 5th edition (2014)

Reference Books:

1. Damodar N. Gujarati, Dawn C. Porter, and Sangeetha Gunasekar. Basic Econometrics. McGraw Hill Education (India) Private Limited; 5th edition (2011)

2. G. S. Maddala, Kajal Lahiri. Introduction to Econometrics. Wiley India Pvt Ltd; 4th edition (2012)

Relationship between the Course Outcomes (COs) and Program Outcomes (POs)

Mapping of COs and POs		
	Course Outcomes (COs)	POs
CO1	Understand the basic aspects of multiple linear regression models and the limitations they face.	PO1, PO2
CO2	Demonstrate the tools and techniques of statistical inference in a multiple linear regression model.	PO1, PO2
CO3	Develop insights about concept and use of dummy independent variables and dependent variable dummy regression models.	PO1, PO2, PO3, PO8
CO4	Develop ideas about different econometric techniques applied to time series data.	PO1, PO2, PO3, PO8
CO5	Apply the econometric tools to the analysis of cross section and time series economic data and the estimation of economic relationships.	PO1, PO2, PO3, PO7, PO8

ECO301	Advanced Econometrics	3	3	2	–	–	–	1	2
Course Code	Course Title	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8
		Domain specific knowledge and skills/ Acquire knowledge of core economic theories and adequately identify the issues related to economy, public policy and society	Problem Analysis and Critical thinking / Develop skills necessary to analyze economic data, think critically on alternatives and propose viable solutions	Modern IT Tools / Become proficient in using economic data analysis software (s) and conduct meaningful analysis of data	Business and Society / Appreciate the importance of responsibilities of businesses and government towards the society	Environment and sustainability / Contemplate on societal and global issues resulting from environmental concerns	Ethics / Appreciate individual ethical behavior and be able to discharge community responsibilities to the society	Leadership and Team work / Learn Leadership skills, Team work, and develop strong emotional and social aptitude to be a lifelong learner.	Communication: Develop verbal and non-verbal communication skills for a successful career in Industry, Business and Entrepreneurship

1=weakly mapped

2= moderately mapped

3=strongly mapped

ECO302	Mathematical Economics	L	T	P	C
Version 1.0	Contact Hours: 60	3	1	0	4
Pre-requisites/Exposure	12 th level English				
Co-requisites					

Course Objectives

This paper introduces students to the terminology and analytic principles used in microeconomics, which is broadly defined as the study of markets, and to the application of these conceptual tools to several policy issues. The objective of the course is to equip the students with mathematical analysis of various economic problems. The students will be able to understand the decisions of buyers and sellers and their interaction in market transactions will be analysed.

Course Outcomes:

On completion of this course, the students will be able to:

CO1. **Apply** the mathematical tools to analyze the economic problems.

CO2. **Develop** the knowledge of the use of derivative and integration techniques in economic framework.

CO3. **Apply** unconstrained and constrained optimization technique.

CO4. **Analyze** the use of difference and differential equations in real world economic activity in constant time and continuous time framework.

Course Content

Unit-I: Linear Models and Matrix Algebra [8 Hours]

Vector Spaces, Linear Transformations, Matrices, Linear Equations and Determinants, Cramer's Rule. Applications

Unit II: Unconstrained Optimization [8 lecture hours]

Concept of optimization. First-order conditions, Second-order conditions, Global maxima and minima. Applications- Profit maximization, Inventory control, Comparative static effects of taxes.

Unit-III: Constrained Optimization [14 lecture hours]

Constrained optimization and resource allocation, Equality Constraints, Inequality Constraints. The Lagrangean technique for optimization: constrained optimization with two variables, first order condition, second-order conditions; Constrained optimization with more than two variables. Application: Consumer's utility maximization, Firm's cost minimization; Kuhn-Tucker Formulation- Non-negativity restrictions, Inequality constraints, Interpretation; Envelope Theorem- for unconstrained optimization, for constrained optimization. Interpretation of Lagrange multiplier.

Unit-IV: First Order Difference Equation: Discrete Time [10 lecture hours]

Discrete time, Differences, and Difference Equation; Solving a first order difference equation;. Application: The Cobweb Model.

Unit-V: First Order Differential Equation: Continuous Time [5 lecture hours]

Continuous time, Differential Equations. First order differential equation- Solving linear differential equation. Applications.

Pedagogy:

The Faculty may choose pedagogies suitable to the nature of course from following:

- Student Lecture and Presentation
- Case Study Analysis
- Teaching-learning Strategy using Multimedia
- Mind Mapping
- Chunking strategy
- Z to A Approach
- Collaborative and cooperative learning
- Peer Tutoring
- Simulated Teaching
- Blended learning
- Problem Based Learning (PBL)
- Rotation Model
- Flex Model

Modes of Examination: Assignment /Quiz / Project / Presentation / Course Work / Article reviews / Book Reviews / Reports / Written Exam / Jury / Survey // any other method that suits to assess the given course outcome

Examination Scheme:

Components	Continuous Internal Assessment	End Term
Weightage (%)	50	50

Core Text

T1. Chiang, Alpha and Kevin Wainwright (2013), Fundamental Methods of Mathematical Economics, Fourth Edition, McGraw-Hill

References:

- R1. Simon, Carl. P., Blume, Lawrence. (2010). Mathematics for Economists, Norton.
R2. Sydsæter, K., Hammond, P. (2002). Mathematics for Economics Analysis. Pearson Education India.
R3. Rosser, Mike (2003), Mathematics for Economists, Second Edition, Routledge.

Relationship between the Course Outcomes (COs) and Program Outcomes (POs)

Mapping of COs and POs		
	Course Outcomes (COs)	POs

CO1	Apply the mathematical tools to analyze the economic problems.	PO1, PO2, PO3, PO4, PO7
CO2	Develop the knowledge of the use of derivative and integration techniques in economic framework.	PO2, PO3, PO4, PO5, PO6, PO8
CO3	Apply unconstrained and constrained optimization technique.	PO1, PO2, PO3, PO6, PO7
CO4	Analyze the use of difference and differential equations in real world economic activity in constant time and continuous time framework.	PO1, PO2, PO3, PO6, PO7

Domain specific knowledge and skills/ Acquire knowledge of core economic theories and adequately identify the issues related to economy, public policy and society	
Problem Analysis and Critical thinking / Develop skills necessary to analyze economic data, think critically on alternatives and propose viable solutions	
Modern IT Tools / Become proficient in using economic data analysis software (s) and conduct meaningful analysis of data	
Business and Society / Appreciate the importance of responsibilities of businesses and government towards the society	
Environment and sustainability / Contemplate on societal and global issues resulting from environmental concerns	
Ethics / Appreciate individual ethical behavior and be able to discharge community responsibilities to the society	
Leadership and Team work / Learn Leadership skills, Team work, and develop strong emotional and social aptitude to be a lifelong learner.	
Communication: Develop verbal and non-verbal communication skills for a successful career in Industry, Business and Entrepreneurship	

Course Code	Course Title	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8
ECO302	Mathematical Economics	3	3	3	3	1	-	2	2

1=weakly mapped

2= moderately mapped

3=strongly mapped

ECO303	Indian Economy II	L	T	P	C
Version 1.0	Contact Hours: 60	3	1	0	4
Pre-requisites/Exposure	10+2 passed from any recognized Board or equivalent				
Co-requisites	--				

Course Objectives

The primary objective of this course is to provide a macroeconomic understanding of the Indian Economy's transition from a state-led model to a market orientation. It aims to engage students with the reasons for the transition between phases and critically evaluate the effect of the reforms on the overall Indian economic experience since the 1990s.

Course Outcomes

On completion of this course, the students will be able to

CO1. **Explain** the economic development strategy of India since Independence.

CO2. **Understand** the importance of planning undertaken by the government of India, have Knowledge on the various objectives, failures and achievements of planning.

CO3. **Illustrate** the de-industrialisation process and emergence of modern industries and service sector.

CO4. **Analyse** the globalization process, reform policies and its diverse ramifications on the Indian economy.

Content

Unit I: [10 HRS] New Reform Policy: NEP

Secret Reforms in 1960s; 7th Plan and the Economic Crisis in the 1980s; Early Reforms.

NEP: BoP crisis, NEP Reform; Liberalization, Privatization and Globalization;

Planning : From central Planning to indicative planning, Relation between planning and markets for growth and decentralised planning : 73rd and 74th Constitutional amendments.

Unit II: Sectoral Performance: Post Reform

[25 HRS]

Sectoral Reform:

- (i) New Economic Reform and Agriculture : Agriculture and WTO, Food processing, subsidies, Agricultural prices and public distribution system, Impact of public expenditure on agricultural growth.
- (ii) New Economic Policy and Industry : Strategy of industrialization, Privatisation, Disinvestments, Role of foreign direct investment and multinationals.
- (iii) New Economic Policy and Trade : Intellectual property rights : Implications of TRIPS, TRIMS, GATS and new EXIM policy.
- (iv) New Exchange Rate Regime : Partial and full convertibility, Capital account convertibility.
- (v) New Economic Policy and Monetary System. Role of RBI under the new regime.

Unit III: New Economic Policy and Employment

[10 HRS]

New Economic Policy and Employment : Employment and poverty, Rural wages, Employment Generation, Poverty alleviation schemes, New Rural, Employment Guarantee Scheme.

Unemployment and under employment- Informalization and Tertiarization of employment.; policy.

Unit IV: Second Generation Reforms, Post Crisis Policies

[10 HRS]

Indian Economy in New Millennium; Neo colonial development and challenges; Economic performance, problems and dangers, Informalization and tertiarization of economy.

Second Generation reform in India: Major public sector reforms since 2014; Demonetization; New Agricultural Reforms, Labor Reforms, New Education Policy.

Pedagogy:

The Faculty may choose pedagogies suitable to the nature of course from following:

- Student Lecture and Presentation
- Case Study Analysis
- Teaching-learning Strategy using Multimedia
- Mind Mapping
- Chunking strategy
- Z to A Approach
- Collaborative and cooperative learning

- Peer Tutoring
- Simulated Teaching
- Blended learning
- Problem Based Learning (PBL)
- Rotation Model
- Flex Model

Modes of Examination: Assignment / Quiz / Project / Presentation / Course Work / Article reviews / Book Reviews / Reports / Written Exam / Jury / Survey / / any other method that suits to assess the given course outcome

Examination Scheme:

Components	Continuous Internal Assessment	End Term
Weightage (%)	50	50

Core Text

3. Indian Economy: Performance and Policies. Uma Kapila. Academic Foundation; 15th Revised edition (2015)
4. Prakash, B. A. (2009). The Indian Economy Since 1991: Economic Reforms and Performance. Pearson Education India.

Reference Books

8. Chandra, B., Mukherjee, A., & Mukherjee, M. (2008). India Since Independence. Penguin Books India.
9. Basu, Kaushik. An Economist in the Real World. Viking (2016)
10. Roy, T. (2006). The Economic History of India, 1857-1947 (2nd ed.). Oxford University Press.
11. Agarwal, A.N. (2009)- Indian Economy, New Delhi: New Age International Publishers
12. The Indian Economy: Problems and Prospects. Bimal Jalan (ed.); Penguin
13. S Chakraborty. 1987. Development Planning: The Indian Experience. Clarendon Press.
14. I, Judge Ahluwalia. 1985. Industrial Growth in India since the Mid-sixties. Oxford University Press.

Relationship between the Course Outcomes (COs) and Program Outcomes (POs)

Mapping between COs and POs		
	Course Outcomes (COs)	Mapped Program Outcomes
CO1	Explain the economic development strategy of India since Independence.	PO1, PO5, PO6, PO8
CO2	Understand the importance of planning undertaken by the government of India, have Knowledge on the various objectives, failures and achievements of planning.	PO1, PO4, PO5, PO8
CO3	Illustrate the de-industrialisation process and emergence of modern industries.	PO1, PO4, PO5
CO4	Analyse the globalization process and its diverse ramifications on the Indian economy.	PO1, PO4, PO5, PO6, PO7, PO8

			Domain specific knowledge and skills/ Acquire knowledge of core economic theories and adequately identify the issues related to economy, public policy and Problem Analysis and Critical thinking / Develop skills necessary to analyze economic data, think critically on alternatives and propose viable solutions Modern IT Tools / Become proficient in using economic data analysis software (s) and conduct meaningful analysis of data Business and Society / Appreciate the importance of responsibilities of businesses and government towards the society Environment and sustainability / Contemplate on societal and global issues resulting from environmental concerns Ethics / Appreciate individual ethical behavior and be able to discharge community responsibilities to the society Leadership and Team work / Learn Leadership skills, Team work, and develop strong emotional and social aptitude to be a lifelong learner. Communication: Develop verbal and non-verbal communication skills for a successful career in Industry, Business and Entrepreneurship							
Course Code		Course Title	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8
ECO303		Indian Economy II	3			3	2	2	1	3

1= weakly mapped; 2=moderately mapped; 3 = strongly mapped

Semester VI

ECO305	Introduction to Data Science	L	T	P	C
	Contact Hours: 60	2	1	1	4
Pre-requisites/Exposure	Basic knowledge of Mathematics at 10+2 level				
Co-requisites	Knowledge of Basic Statistics				

Course objectives

This course aims to equip students with a robust foundation in economic data management and statistical modelling, enabling them to navigate the complete data lifecycle—from structured retrieval in databases to predictive analysis. By mastering advanced SQL for complex economic datasets and the R programming environment for regression analysis, students will develop the technical proficiency to transform raw indicators into actionable policy insights and evidence-based economic forecasts.

Course Outcomes:

At the end of the course, the student will be able to:

CO1: **Understand** the fundamental principles of data management within an economic context.

CO2: **Demonstrate** the tools and techniques to extract, manipulate, and analyse large datasets.

CO3: **Apply** foundational statistical methods to derive meaningful insights and support data-driven decision-making.

CO4: **Develop** regression models using the R programming environment to predict outcomes and analyse relationships between variables in real-world data.

Course Content:

Unit-I: Database Management Systems (DBMS): Hours

12

Introduction to popular DBMS systems; Database schema; ER diagram; Relational algebra; Installation and setup of a DBMS environment; Creating and managing databases and tables for real life datasets; Importing and exporting data into/from the DBMS; Database security and privacy; Database design and administration.

Unit-II: Introduction to R software:

8 Hours

Data Preparation, Basic concepts of exploratory statistical data analysis, frequency and frequency distribution, cumulative distribution functions and their use with R software; Graphical procedures with various graphs in one-dimension, Graphical procedures with various graphs using ggplot2 package

Unit-III: Statistical Analysis with R:
Hours

8

Measures of central tendency and their use with R, Measures of variation and their use with R software, Moments and their use with R, Skewness, Kurtosis, and Graphs for visualising the association of variables, Graphical procedures for association of variables, correlation coefficients and their use with R

Unit-IV: Regression Analysis with R:
Hours

8

Fitting of linear models, Handling text data and their use with R, Analysis of text data, Selection of samples and simple random sampling, Multivariate exploratory data analysis.

Unit-V: Application:
hours

5

Case studies with industry datasets.

Pedagogy:

The Faculty may choose pedagogies suitable to the nature of course from following:

- Student Lecture and Presentation
- Case Study Analysis
- Teaching-learning Strategy using Multimedia
- Mind Mapping
- Chunking strategy
- Z to A Approach
- Collaborative and cooperative learning
- Anchored Instruction
- Peer Tutoring
- Microteaching and Simulated Teaching
- Blended learning
- Problem Based Learning (PBL)
- Rotation Model
- Flex Model
- Enriched Virtual Model

Modes of Examination: Assignment / Quiz / Project / Presentation / Course Work / Article reviews / Book Reviews / Reports / Written Exam / Jury / Survey // any other method that suits to assess the given course outcome

Examination Scheme:

Components	Continuous Internal Assessment	End Term
Weightage (%)	50	50

Reference Books:

1. Silberschatz A., Korth H.F., and Sudarshan S. 2019(Global Release)/2021(India Edition). “Database System Concepts”. McGraw-Hill Education. ISBN-13: 978-0078022159 (Global) / 978-9390727506 (India).
2. Elmasri R., and Navathe S.B. 2017(Global Release)/2015(India Edition). “Fundamentals of Database Systems”. Pearson Education. ISBN-13: 978-9332582705 (India) / 978-0133970777 (Global).
3. Wickham H., Çetinkaya-Rundel M., and Grolemund G. 2023. “R for Data Science: Import, Tidy, Transform, Visualize, and Model Data”. O'Reilly Media. ISBN-13: 978-1492097396.
4. Field A., Miles J., and Field Z. 2012. “Discovering Statistics Using R”. SAGE Publications. ISBN-13: 978-1446200469.

Mapping between COs and POs		
	Course Outcomes (Cos)	Mapped Program Outcomes
CO1.	Understand the fundamental principles of data management within an economic context.	PO1, PO2, PO4
CO2.	Demonstrate the tools and techniques to extract, manipulate, and analyse large datasets.	PO1, PO2, PO4, PO6
CO3.	Apply foundational statistical methods to derive meaningful insights and support data-driven decision-making.	PO1, PO2, PO6
CO4.	Develop regression models using the R programming environment to predict outcomes and analyse relationships between variables in real-world data.	PO1, PO2, PO4, PO6

Course Code	Course Title	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8
ECO305	Introduction to Data Science	-	3	3	2	-	1	-	-
		Domain specific knowledge and skills/ Acquire knowledge of core economic theories and adequately identify the issues related to economy, public policy and society	Problem Analysis and Critical thinking / Develop skills necessary to analyze economic data, think critically on alternatives and propose viable solutions	Modern IT Tools / Become proficient in using economic data analysis software (s) and conduct meaningful analysis of data	Business and Society / Appreciate the importance of responsibilities of businesses and government towards the society	Environment and sustainability / Contemplate on societal and global issues resulting from environmental concerns	Ethics / Appreciate individual ethical behavior and be able to discharge community responsibilities to the society	Leadership and Team work / Learn Leadership skills, Team work, and develop strong emotional and social aptitude to be a lifelong learner.	Communication: Develop verbal and non-verbal communication skills for a successful career in Industry, Business and Entrepreneurship

1=weakly mapped 2= moderately mapped 3=strongly mapped

ECO306	Public Economics	L	T	P	C
Version 2.0	Contact Hours: 60	3	1	0	4
Pre-requisites/Exposure	Basic exposure of Micro and Macroeconomics				
Co-requisites	--				

Course Objectives:

This paper aims at analysing and explaining the Government budget, public expenditures and taxation and their components. The subject encompasses a host of topics including VAT, GST, public goods, market failures, and externalities. The course intends to develop students' analytical and consulting skills in the area of public finance. It will introduce students to the public sector reform agenda with a focus on public finance issues. The course will help students to study public policy from the points of view of economic efficiency and equity. The study is a blend of theoretical developments, issues and problems confronted by India and their proposed and adopted solutions. The course aims to develop analytical skills of the students in major areas of public finance and train students to critically analyse government budgets and fiscal policy.

Course Outcomes:

On completion of this course, the students will be able to

- CO1. **Identify** and analyse government budgets, debt, public expenditures
- CO2. **Understand** various theories of tax incidence and various types of tax structure
- CO3. **Analyse** critically public goods and market failures
- CO4. **Analyse** public policy from the points of view of economic efficiency and equity.

Course Content

Unit 1: Public Finance & its Role in Market Economy: [3 lecture hours]

In stabilization of supply, Allocative of Resources & in Distribution & Development

Unit 2: Public Revenue & Public Expenditure [18 lecture hours]

Sources of government revenue, forms of taxes and subsidies, their incidence and effects, Limits to taxation, loans, crowding-out, effects & limitations of borrowing, Public expenditure and its effects, Benefit principle (Bowen- Lindahl- Samuelson) – Ability to Pay Principle

Unit 3: Public Goods & Externality [12 lecture hours]

Private goods and Pareto allocations – Edgeworth box approach - Concept of public goods— characteristics of public goods; national vs. local public goods; determination of provision of public good; Externality, concept of social versus private costs and benefits; merit goods, club goods; Provision versus production of public goods; Market failure and public provision – externalities, natural monopoly

Unit 4: Collective choice problems**[4 lectures]**

Arrows's impossibility theorem under majority voting- solution to the paradox

Unit 5: New Economic Policy and Public Finance**[8 lecture hours]**

Fiscal policy and built-in stabilisers, Fiscal Responsibility Act, Twelfth Finance Commission and Fiscal Federalism and Fiscal Consolidation, India's public finance scenario, , Relation between the central bank & the Treasury

Core Text:

1. Musgrave and Musgrave: Public Finance in Theory and Practice (Fifth Edition).
2. Brown, C.V. and P.M. Jackson: Public Sector Economics, Wiley- Blackwell, 1991 (4th edition)
3. Musgrave, Richard : Public Finance, McGraw Hill

Reference Books:

4. Gruber J: *Public Finance and Public*. Worth Publishers
5. Amaresh Bagchi (ed.). Readings in Public Finance. Oxford University Press.
6. H L Bhatia. Public Finance. Vikas Publishing House Pvt. Ltd.

Pedagogy:

The Faculty may choose pedagogies suitable to the nature of course from following:

- Student Lecture and Presentation
- Case Study Analysis
- Teaching-learning Strategy using Multimedia
- Mind Mapping
- Chunking strategy
- Z to A Approach
- Collaborative and cooperative learning
- Anchored Instruction
- Peer Tutoring
- Microteaching and Simulated Teaching
- Blended learning
- Problem Based Learning (PBL)
- Rotation Model
- Flex Model
- Enriched Virtual Model

Modes of Examination: Assignment /Quiz / Project / Presentation / Course Work / Article reviews / Book Reviews / Reports / Written Exam / Jury / Survey // any other method that suits to assess the given course outcome

Examination Scheme:

Components	Continuous Internal Assessment	End Term
Weightage (%)	50	50

Relationship between the Course Outcomes (COs) and Program Outcomes (POs):

Mapping between COs and POs		
	Course Outcomes (Cos)	Mapped Program Outcomes
CO1.	Identify and analyse government budgets, debt, public expenditures	PO1, PO2, PO4
CO2.	Understand various theories of tax incidence and various types of tax structure	PO1, PO2, PO4, PO6
CO3.	Analyse critically public goods and market failures	PO1, PO2, PO6
CO4.	Analyse public policy from the points of view of economic efficiency and equity.	PO1, PO2, PO4, PO6

ECO307	International Economics	L	T	P	C
	Contact Hours: 45	3	1	0	4
Pre-requisites/Exposure	Exposure to Basic Economic Theory				
Co-requisites	NA				

Course Objective:

This course develops a systematic exposition of models that try to explain the composition, direction, and consequences of international trade, and the determinants and effects of trade policy. It then builds on the models of open economy macroeconomics developed in earlier courses, focusing on national policies as well as international monetary systems. It concludes with an analytical account of the causes and consequences of the rapid expansion of international financial flows in recent years. Although the course is based on abstract theoretical models, students will also be exposed to real-world examples and case studies.

Course Outcomes:

On completion of the course it is expected that students will be able to:

CO1. Define fundamentals of international trade and trade policy.

CO2. Understand how international monetary system works.

CO3. Evaluate macroeconomic policy options in open economy settings.

Course Content

Unit I. Introduction and Theories of International Trade (11hrs)

Trade as an Engine of Growth & Theories of Underdevelopment in an Economy, Old & New Theories International Trade: comparative advantage, Terms of Trade & Offer Curve and Heckscher-Ohlin models; Factor price equalisation, Stolper Samuelson and Rybczynski theorems, Empirical validation and Leontief Paradox, new trade theories; Product Cycle & Strategic Trade Theories, the international location of production; firms in the global economy — outsourcing and multinational enterprises.

Unit II Trade Policy (11hrs)

Forms of Protection: Tariff & Quota, Quota- Tariff equivalence, effects of tariff, quota, subsidy and voluntary export restraint; General Equilibrium Analysis- distinction between large and small economy, welfare effects of a tariff on small country and large country, Tariff ridden offer curve, Optimum tariff for large economy, Metzler's Paradox.

UNIT III Exchange Rate (11hrs)

Introduction of foreign Country & repercussion effect – open economy multiplier with & without repercussion effect; Fixed & Flexible Exchange Rate: adjustment of demand and supply of Foreign Exchange, Effect of devaluation, Effects of exchange rate on domestic prices and ToT, Marshall-Lerner Condition, JCurve effect.

Unit IV: Balance of Payments & Open Economy Macro model (12hrs)

Balance of Payment Adjustment: Alternative Approaches: Price versus Income, Income Adjustments under Fixed Exchange Rates. Theories of Policy Mix. Exchange Rate Adjustments Under Capital Mobility. Floating Rates and their Implications for Developing Countries: Currency Boards. Trade Policy & Developing Countries. BOP, Adjustments & Policy Coordination in Open Economy Macro-model. Goals & Instruments of Monetary Management in Closed & Open Economics. Speculative Attacks. Trade Blocks Monetary Unions. WTO: TRIMS, TRIPS, Domestic Measures. Different Rounds of WTO talks.

Pedagogy:

The Faculty may choose pedagogies suitable to the nature of course from following:

- Student Lecture and Presentation
- Case Study Analysis
- Teaching-learning Strategy using Multimedia
- Mind Mapping
- Chunking strategy
- Z to A Approach
- Collaborative and cooperative learning
- Anchored Instruction
- Peer Tutoring
- Microteaching and Simulated Teaching
- Blended learning
- Problem Based Learning (PBL)
- Rotation Model
- Flex Model
- Enriched Virtual Model

Modes of Examination: Assignment /Quiz / Project / Presentation / Course Work / Article reviews / Book Reviews / Reports / Written Exam / Jury / Survey / / any other method that suits to assess the given course outcome

Examination Scheme:

Components	Continuous Internal Assessment	End Term
Weightage (%)	50	50

Text and Reference:

1. Paul Krugman, Maurice Obstfeld, and Marc Melitz, *International Economics: Theory and Policy*, Addison-Wesley (Pearson Education Indian Edition), 9th edition, 2012.
2. Dominick Salvatore, *International Economics: Trade and Finance*, John Wiley International Student Edition, 10th edition, 2011.

Mapping between COs and POs		
	Course Outcomes (COs)	Mapped Programme Outcomes
CO1	Define fundamentals of international trade and trade policy	PO3 & 6
CO2	Understand how international monetary system works.	PO3 & 4
CO3	Evaluate macroeconomic policy options in open economy settings.	PO5

		Domain specific knowledge and skills/ Acquire knowledge of core economic theories and adequately identify the issues related to economy, public policy and society	Problem Analysis and Critical thinking / Develop skills necessary to analyze economic data, think critically on alternatives and propose viable solutions	Modern IT Tools / Become proficient in using economic data analysis software (s) and conduct meaningful analysis of data	Business and Society / Appreciate the importance of responsibilities of businesses and government towards the society	Environment and sustainability / Contemplate on societal and global issues resulting from environmental concerns	Ethics / Appreciate individual ethical behavior and be able to discharge community responsibilities to the society	Leadership and Team work / Learn Leadership skills, Team work, and develop strong emotional and social aptitude to be a lifelong learner.	Communication: Develop verbal and non-verbal communication skills for a successful career in Industry, Business and Entrepreneurship
Course Code	Course Title	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8
ECO307	International Economics			3	2	3	2		

1=weakly mapped 2= moderately mapped 3=strongly mapped

Semester VII

ECO401	Applied Econometrics with Stata	L	T	P	C
Version 1.0	Contact Hours: 60	0	1	3	4
Pre-requisites/Exposure	UG Level Knowledge of Economics and Econometrics				
Co-requisites	--				

Course Objectives

Applied Econometrics with Stata is a course designed for the students to apply their theoretical knowledge of econometrics in real life Economic data. The course aims at developing the understanding of the link between the theoretical knowledge of econometrics and their application in real Economic data. It aims at enabling students to handle statistical software to analyse different cross section and time series data, test different economic relationships and critically interpret the estimation outcomes.

Course Outcomes

On completion of this course, the students will be able to—

CO1. **Apply** various advanced econometric techniques to real life cross section data for testing different hypotheses.

CO2. **Analyse** estimated results obtained from cross section real life data critically in line with existing economic theories.

CO3. **Apply** various advanced econometric techniques to real life time series data to test different relationships.

CO4. **Analyse** estimated time series regression outcomes critically.

CO5. **Assess** reliability of any given data set and use accurate techniques to forecast future trend of a variable.

Content:

Unit 1: Data Description and Descriptive Analysis (10 Hours)

Introduction to Data analysis; Data mining and Filtering; Descriptive analysis of econometric Data; Mean Difference Tests, Graphical exploration; Distributions of Econometric data; Summary

Unit 2: Regression Analysis

(20 Hours)

Application of Simple and Multiple Linear regression and least square principle to real life data; Regression with graphics; Outliers; Interpreting simple and multiple regression coefficients; Multiple regression line; partial regression and partial correlation; t-test and F test in multiple regression; Model selection and misspecification: Introduction, Omitted variable bias; Testing zero restriction; Testing for Heteroscedasticity, autocorrelation and multicollinearity

Unit 3: Regression with Dummy Variables

(15 Hours)

Regression with categorical variables, Use of dummy independent variable in regression models with categorical variables; Interpretation of dummy variable coefficients, Use of dummy dependent variable, Application of Linear Probability Model, Logit transformation, Probit Model, Graphical analysis

Unit 4: Regression with time-series data

(15 Hours)

Stationarity and Non-stationarity; Graphical Analysis of ACF, PACF; White Noise, Random walk and spurious regression; Testing for stationarity; Transformation; Misspecification, Detecting autocorrelation; What to do about autocorrelation; Co-integration and error correction model, Forecasting

Pedagogy:

The Faculty may choose pedagogies suitable to the nature of course from following:

- Student Lecture and Presentation
- Case Study Analysis
- Teaching-learning Strategy using Multimedia
- Mind Mapping
- Chunking strategy
- Z to A Approach
- Collaborative and cooperative learning
- Anchored Instruction
- Peer Tutoring
- Microteaching and Simulated Teaching
- Blended learning
- Problem Based Learning (PBL)
- Rotation Model
- Flex Model
- Enriched Virtual Model

Core Text:

T1. Sophia Rabe-Hesketh and Brian Everitt ,A Handbook of Statistical Analysis Using Stata, Chapman and Hall

Reference Books:

R1. Chandan Mukherjee, Howard White and Marc Wuyts ,Econometrics and Data Analysis for Developing Countries, Routledge

Modes of Examination: Assignment /Quiz / Project / Presentation / Course Work / Article reviews / Book Reviews / Reports / Written Exam / Jury / Survey / / any other method that suits to assess the given course outcome

Examination Scheme:

Components	Continuous Internal Assessment	End Term
Weightage (%)	50	50

Relationship between the Course Outcomes (COs) and Program Outcomes (POs)

Mapping of COs and POs		
	Course Outcomes (COs)	POs
CO1	Apply various advanced econometric techniques to real life cross section data for testing different hypotheses.	PO1, PO2, PO3
CO2	Analyse estimated results obtained from cross section real life data critically in line with existing economic theories.	PO1, PO2, PO3
CO3	Apply various advanced econometric techniques to real life time series data to test different relationships.	PO1, PO2, PO3, PO7, PO8
CO4	Analyse estimated time series regression outcomes critically.	PO1, PO2, PO3, PO8
CO5	Assess reliability of any given data set and use accurate techniques to forecast future trend of a variable.	PO1, PO2, PO3, PO6, PO7, PO8

Course Code	Course Title	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8
ECO401	Applied Econometrics With Stata	3	3	3	-	-	1	1	2
		Domain specific knowledge and skills/ Acquire knowledge of core economic theories and adequately identify the issues related to economy, public policy and society	Problem Analysis and Critical thinking / Develop skills necessary to analyze economic data, think critically on alternatives and propose viable solutions	Modern IT Tools / Become proficient in using economic data analysis software (s) and conduct meaningful analysis of data	Business and Society / Appreciate the importance of responsibilities of businesses and government towards the society	Environment and sustainability / Contemplate on societal and global issues resulting from environmental concerns	Ethics / Appreciate individual ethical behavior and be able to discharge community responsibilities to the society	Leadership and Team work / Learn Leadership skills, Team work, and develop strong emotional and social aptitude to be a lifelong learner.	Communication: Develop verbal and non-verbal communication skills for a successful career in Industry, Business and Entrepreneurship

1=weakly mapped

2= moderately mapped

3=strongly mapped

ECO402	Applied Financial Economics	L	T	P	C
Version 1.0	Contact Hours: 60	2	1	1	4
Pre-requisites/Exposure	UG Level Knowledge of Economics & Finance				
Co-requisites	--				

Course Objectives

- To develop the knowledge of financial tools to understand the profitability of a firm.
- To develop the knowledge of activities of the financial markets.

Course Outcomes

On completion of this course, the students will be able to—

CO1. To understand the financial structure of a firm.

CO2. To analyze the financial structure by different financial tools.

CO3. To understand the activities of financial markets using macroeconomic tools.

CO4. Identify and understand the reasons behind various financial crises

Content:

Unit 1: Financial System: Structure and Role (10hrs.)

Structure of the Financial System - Banks and other Financial Institutions, Different types of Financial Markets, Functions of Financial Markets, Money and Capital Market, Concept of Financial Intermediaries, Function of Financial Intermediaries

Unit 2: Introduction to Banking (10 Hrs.)

Definition and Functions of Bank, Structure of the Banking Industry, Role of Banks in Creation of Money: The Lending Process, The Money Multiplier Process, Regulations on Lending. Lead bank scheme: RRB, scale of finance and unit cost, an introduction to higher financial institutions – RBI, NABARD, ADB, IMF, World Bank

Unit 3: Capital Market and Derivative Market (10 Hrs.)

The importance of capital markets, Characteristics of bonds and equities, Money Market vis-à-vis Capital Market, Concept of Financial Securities and their Credit Rating, Different types of Stocks, Stock Market. Forwards, Futures, Options and Swap: Forward contracts; Forward Prices; Swaps; Basics of Futures contracts; Future Prices; Relation to expected spot price

Unit 4: Applied Financial Analysis with Forecasting (30 Hrs.)

Financial analysis using latest software, basics of algo-trading, price action strategies - moving average strategies, Forecasting, ARCH, GARCH model.

References:

1. J.C.Hull, *Options, Futures and Other Derivatives*, Pearson Education, 2014.
2. J.Tirole, *The theory of Corporate finance*, Princeton University Press, 2010.
3. Jonathan B. Berk, Jarrad V. T. Harford, Peter M. DeMarzo, David Stangeland & András Marosi, *Fundamentals of Corporate Finance*, Pearson Education Canada, 2019.
4. Richard A. Brealey, Stewart C. Myers & Franklin Allen, *Principles of Corporate Finance*, McGraw Hill, 2011.
5. Robert W. Kolb, *Futures, Options, and Swaps*, Wiley, 1999.
6. Stephen A. Ross, Mark Christensen, Michael Drew, Robert Bianchi, Randolph Westfield & Bradford D. Jordan, *Fundamentals of Corporate Finance*, McGraw-Hill, 2013.

Modes of Examination: Assignment / Quiz / Project / Presentation / Course Work / Article reviews / Book Reviews / Reports / Written Exam / Jury / Survey / / any other method that suits to assess the given course outcome

Examination Scheme:

Components	Continuous Internal Assessment	End Term
Weightage (%)	50	50

Relationship between the Course Outcomes (COs) and Program Outcomes (POs)

Mapping between COs and Pos		
	Course Outcomes (COs)	Mapped Program Outcomes
CO1	To understand the financial structure of a firm	PO1, PO2, PO4, PO6
CO2	To analyze the financial structure by different financial tools.	PO1, PO2, PO4, PO6, PO8
CO3	To understand the activities of financial markets using macroeconomic tools.	PO1, PO6, PO7, PO8
CO4	Identify and understand the reasons behind various financial crises	PO1, PO2, PO6

Course Code	Course Title	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8
ECO402	Applied Financial Economics	3	3		2		3	1	2
		Domain specific knowledge and skills/ Acquire knowledge of core economic theories and adequately identify the issues related to economy, public policy and society	Problem Analysis and Critical thinking / Develop skills necessary to analyze economic data, think critically on alternatives and propose viable solutions	Modern IT Tools / Become proficient in using economic data analysis software (s) and conduct meaningful analysis of data	Business and Society / Appreciate the importance of responsibilities of businesses and government towards the society	Environment and sustainability / Contemplate on societal and global issues resulting from environmental concerns	Ethics / Appreciate individual ethical behavior and be able to discharge community responsibilities to the society	Leadership and Team work / Learn Leadership skills, Team work, and develop strong emotional and social aptitude to be a lifelong learner.	Communication: Develop verbal and non-verbal communication skills for a successful career in Industry, Business and Entrepreneurship

1=weakly mapped

2= moderately mapped

3=strongly mapped

ECO403	CORPORATE FINANCE	L	T	P	C
Version 1.0	Contact Hours - 45	3	1	0	4
Pre-requisites/Exposure	UG Level Knowledge of Accounting and Finance				
Co-requisites	-				

Course Objectives:

This course plans to discuss different concepts, theories and problems related to financing decisions in the globalized markets and from globalized institutions. It intends to train the learner's mind set to apply the existing models/frames to resolve an issue. The objective is also to expose the learner to interdisciplinary research and groom the learner's mind to innovate upon the existing frame of understanding.

Course Outcomes:

On completion of this course, the students will be able to

CO1. Comprehend ways and sources of procuring cheapest funds for ongoing business.

CO2. Analyse ways and avenues of parking funds profitably for proprietary purpose of the ongoing business.

CO3. Examine stock market functioning and different methods of valuation of stocks and debt instruments.

CO4. Develop insights about working capital management.

Unit-1: Organizing a Business

(7 Hours)

Forms of Organizations – Sole Proprietorship, Partnership, Company, Limited Liability Partnership, others, Role of a Financial Manager in a business organization, Decision areas – Capital Budgeting decisions, Working Capital Management decisions, Financing decisions, Dividend decisions, Financial Institutions and Markets, Roles of different financial institutions, Goals of a business organization: Profit Maximization vs. Shareholders' Wealth Maximisation, Agency Problem – Conflicts and Resolutions

Unit 2: Capital budgeting and Sources of Finance

(7 Hrs)

Net Present value approach; Payback period method; Discounted payback period method; Internal rate

of return; Profitability index; Financial statement and Ratio analysis, SWOT analysis. Internal sources,

External Sources and Owned Sources, Venture Capital Financing, Trade off Theory, Pecking order theory

Unit-3: Issue Procedure and Valuation of Stocks and Debts (12 Hours)

Book Values, Liquidation Values, and Market Values, Valuation of Stocks, Valuation of Debt Instruments, Alternative ways of calculating cost of capital, Discounted Cash Flow, Alternative methods of valuation of companies, Use of financial statements in valuing a company. Issue procedure of Stocks and Debt Instruments: Public Offer, Private Placement, Role of Investment Banks in issuing securities by their clients, Role of Stock Exchanges in Public Offers. SEBI Guidelines.

Unit-4: Short Term Financing-Working Capital Management (7 Hours)

Concepts of Working Capital, Components of Current Assets , Permanent and Variable Working Capital , Determinants of Working Capital , Approaches for Working Capital Management , Estimating Working Capital Needs, Current Assets Financing Policy, Operating and Cash Conversion Cycle

Unit 5: Return, Risk and Capital Budgeting (12 Hours)

Introduction to risk, return and opportunity cost of capital: measuring portfolio risk, diversification and its limits. Return and risk: Capital Asset Pricing Model, validity and role of Capital Asset Pricing Model, estimation of beta, determinants of beta, cost of capital with debt. Practical problems in capital budgeting

Pedagogy:

The Faculty may choose pedagogies suitable to the nature of course from following:

- Student Lecture and Presentation
- Case Study Analysis
- Teaching-learning Strategy using Multimedia
- Mind Mapping
- Chunking strategy
- Z to A Approach
- Collaborative and cooperative learning
- Anchored Instruction
- Peer Tutoring
- Microteaching and Simulated Teaching
- Blended learning
- Problem Based Learning (PBL)
- Rotation Model
- Flex Model
- Enriched Virtual Model

Modes of Examination: Assignment /Quiz / Project / Presentation / Course Work / Article reviews / Book Reviews / Reports / Written Exam / Jury / Survey / / any other method that suits to assess the given course outcome

Examination Scheme:

Components	Continuous Internal Assessment	End Term
Weightage (%)	50	50

Core Text

1. Brealey, R.A., Myers, S.C. and Allen, F. (2014). *Principles of Corporate Finance, 11thEd*, McGrawHill. New York
2. J. Tirole. *The Theory of Corporate Finance*, Princeton University Press, 2006.
3. R. N. Bebczuk. *Asymmetric Information in Financial Markets: Introduction and Applications*. Cambridge University Press, 2003.
4. S. Benninga. *Financial Modeling*, The MIT Press, 2008.
5. Terence C.M. Tse. *Corporate Finance: The Basics*. 2017

Relationship between the Course Outcomes (COs) and Program Outcomes (POs)

Mapping of COs and POs			
	Course Outcomes (COs)	POs	L1, L2,
CO1	Comprehend ways and sources of procuring cheapest funds for ongoing business.	PO1, PO2	L3, L4
CO2	Analyse ways and avenues of parking funds profitably for proprietary purpose of the ongoing business.	PO1, PO2	L2, L3, L5
CO3	Examine stock market functioning and different methods of valuation of stocks and debt instruments.	PO1, PO2, PO4, PO7, PO8	L1, L5, L6
CO4	Develop insights about working capital management.	PO1, PO2, PO4, PO7, PO8	L4, L5, L6

Course Code	Course Title	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8
ECO403	Corporate Finance	3	3	–	2	–	–	2	2
		Domain specific knowledge and skills/ Acquire knowledge of advanced economic theories and adequately evaluate the issues related to economy, public policy, business and society	Problem Analysis and Critical thinking / Demonstrate an ability to construe data and information and critically examine the outcomes in relation to economic theories	Modern IT Tools / Efficiently adopt software (s) in conducting advanced analysis of economic data and other research oriented activities	Business and Society / Appraise the importance of economics as a discipline in context of business and society	Environment and sustainability / Draw inferences on concerns emerging from environmental changes as implied to society at large	Ethics / Hone ethical behavior and become sensitive towards the society	Leadership and Team work / Improve Leadership skills via developing strong emotional aptitude and become a lifelong learner.	Communication: Develop verbal and non-verbal communication skills for a successful career in Research, Industry, Business and Entrepreneurship

1=weakly mapped

2= moderately mapped

3=strongly mapped



ECO404	RESEARCH METHODOLOGY	L	T	P	C
Version 1.0	Contact Hours - 60	3	1	0	4
Pre-requisites/Exposure	Basic Knowledge of Mathematics at 10+2 level				
Co-requisites	--				

Course objectives:

This course will introduce students to methods of quantitative as well as qualitative economic research using primary and secondary data source. The course will familiarize students with sampling techniques, questionnaire design, implementation of field-based studies, including randomized controlled trials. Students will be provided training for carrying out data analysis, including use of data sets such as the National Sample Survey, National Family Health Survey, and Indian Human Development Survey. Students will be expected to design and implement a small study during the course of the semester and will be evaluated on this. This course will help the students with research degree option to initiate a dissertation topic and do the preliminary work.

Course Outcomes:

At the end of the course, the student will be able to:

CO1: **Develop** an overview of the process of research and its application in business and academia.

CO2: **Assess** a real life issue and develop a research design accordingly.

CO3: **Learn** different data collection and survey methods.

CO4: **Understand** tools and techniques of quantitative research.

Course Content

Unit-1: Research Process

(7 Hrs)

Introduction: Defining need for research, defining research problem, setting research question, different types of research, Research Method and Methodology;

Research Process: Research objective, Literature Review, Information Types and Data Sources, Sample Plan, Data Collection, Data Analysis, Research Report

Unit-2: Research Design

(8 Hrs)

Sketching a research design, Variables, Research Hypothesis, Control Groups, Experimental and Non Experimental Hypothesis Testing Research; Different Research Design in Exploratory

Research, Descriptive Research, Diagnostic Research, Causal Research; Experimental Design:

Control Design, Completely Randomized Design, Randomized Block Design, L-S Design, and Factorial Design



Unit-3: Sample Survey and Data Collection (5 Hrs)

Population and Sample, Census Survey and Sample Survey, Sampling Error, Non-Sampling Error, Sampling Techniques: Non- Probability Sampling, Probability Sampling; Sampling Distribution; Data Collection: Qualitative & Quantitative Data, Primary & Secondary Data, Measurement and Scaling, Measurement Tools, Scaling Techniques; Methods of Data Collection-Questionnaires, Surveys, Archives, Online Data Collection

Unit-4: Basics of Quantitative Research (10 Hrs)

Quantitative approach to data analysis; Estimation: Point Estimation, Interval Estimation, Sample size determination; Hypothesis Testing: Null and Alternative Hypothesis, Type-I and Type-II Errors, One tailed and Two tailed tests, Level of Significance, Critical Region, P-value Approach, Hypothesis testing for Mean, Proportion, Variance, Difference of two means, proportions, variances, Goodness of Fit; Analysis of Variance: One way ANOVA, Two way ANOVA.; Regression Analysis, Multivariate Techniques.

Unit 5: Methods of Qualitative Research (10 Hrs)

Qualitative Approach, Types of Data: Verbal Data, Textual Data, Visual Data and Data beyond Talk; Research Design: Case Studies, Comparative Studies, Retrospective Studies, Longitudinal Studies; Data Collection: Interviews, Focus Group, Narratives, Participant and Non-participant Observation, Ethnography, Film Studies, Photography, Case Studies, Life Histories, Action Research; Qualitative Data Analysis: Transcription, Coding, Grounded Theory, Thematic Analysis, Content Analysis, Conversation, Discourse, Genre and Hermeneutics. 20

Unit 6: Learning Academic Writing (5 Hrs)

Research Report: Layout of the research report, Reference Systems, Research Ethics, Plagiarism, Peer Review; Academic Writing: Writing for journal/book chapter/newspaper article/magazine, Research Proposal writing, writing Abstract of any research, Research Grant Proposals.

Pedagogy:

The Faculty may choose pedagogies suitable to the nature of course from following:

- Student Lecture and Presentation
- Case Study Analysis
- Teaching-learning Strategy using Multimedia
- Mind Mapping
- Chunking strategy
- Z to A Approach
- Collaborative and cooperative learning
- Anchored Instruction
- Peer Tutoring



- Microteaching and Simulated Teaching
- Blended learning
- Problem Based Learning (PBL)
- Rotation Model
- Flex Model
- Enriched Virtual Model

Modes of Examination: Assignment / Quiz / Project / Presentation / Course Work / Article reviews / Book Reviews / Reports / Written Exam / Jury / Survey / / any other method that suits to assess the given course outcome

Examination Scheme:

Components	Continuous Internal Assessment	End Term
Weightage (%)	50	50

Text Books:

T1. Kothari, C.R., *Research Methodology: Methods and Techniques*, New Age International Publisher, New Delhi, (2004)

T2. Marczyk, G, Matteo, D. and Frstinger, D. *Essentials of Research Design and Methodology*, John Wiley and Sons. (2005)

Reference Books:

R1□□Kapalan, D. *The Sage Handbook of Quantitative Methodology for the Social Sciences*, Sage Publications, London, (2004)

R□□□Flick, U. *An Introduction to Qualitative Research*, Sage Publications, India, (2014)

Relationship between the Course Outcomes (COs) and Program Outcomes (POs)

Mapping of COs and POs		
	Course Outcomes (COs)	POs
CO1	Develop an overview of the process of research and its application in business and academia.	PO1, PO2
CO2	Assess a real life issue and develop a research design accordingly.	PO1, PO2
CO3	Learn different data collection and survey methods.	PO1, PO2, PO6, PO7



CO4	Understand tools and techniques of quantitative research.	PO1, PO2, PO7
------------	--	----------------------

		Domain specific knowledge and skills/ Acquire knowledge of advanced economic theories and adequately evaluate the issues related to economy, public policy, business and society	Problem Analysis and Critical thinking / Demonstrate an ability to construe data and information and critically examine the outcomes in relation to economic theories	Modern IT Tools / Efficiently adopt software (s) in conducting advanced analysis of economic data and other research oriented activities	Business and Society / Appraise the importance of economics as a discipline in context of business and society	Environment and sustainability / Draw inferences on concerns emerging from environmental changes as implied to society at large	Ethics / Hone ethical behavior and become sensitive towards the society	Leadership and Team work / Improve Leadership skills via developing strong emotional aptitude and become a lifelong learner.	Communication: Develop verbal and non-verbal communication skills for a successful career in Research, Industry, Business and Entrepreneurship
Course Code	Course Title	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8
ECO404	Research Methodology	3	3	-	-	-	1	2	-

1=weakly mapped

2= moderately mapped

3=strongly mapped



ECO405	Industrial Economics	L	T	P	C
Version 2.0	Contact Hours – 60	3	1	0	4
Pre-requisites/Exposure	Basic exposure of Microeconomics and Macroeconomics				

Course Objectives:

This course will provide a thorough understanding to the students regarding major developments in industrial reforms and its allied macroeconomic issues. This course will take the students through the various structure of firm, industry, market and its inter-linkage. Moreover, the significance of research and development and the importance of location will also be discussed.

Course Outcomes:

On completion of this course, the students will be able to

CO1. Identify the major developments in Industrial Economics and its allied issues.

CO2. Understand the linkage between market micro structure, managerial decision making, process of industrialization and policies.

CO3. Evaluate the significance of law in regulating behavior of the firms.

CO4. Analyse the type and nature of risk associated with industry and firm.

Course Content:

Unit 1: Theory of Firm

[20 lecture hours]

Theory of the firm Size and structure of firms: the technological view of the firm; the transaction costs-property rights approach; investment specificity, incomplete contracts and vertical integration; empirical evidence. Separation of ownership and control: separation of ownership and control; foundations of the profit-maximisation hypothesis.

Unit 2: Firm conduct and market structure

[20 lecture hours]

Short-run price competition: the Bertrand model; the Cournot model. Product differentiation and non-price competition: horizontal product differentiation; brand proliferation and entry deterrence; vertical product differentiation; markets with asymmetric information. Price discrimination: first-degree, second-degree and third-degree price discrimination; non-linear pricing; tie-in sales.

Unit 3: Research and Development in the process of Industrialization

[10 lecture hours]



Research and Development and international patent laws; Product and process patent; Diffusion of technology;

Unit 4: Competition policy and regulation

[10 lecture hours]

Competition and industrial policy: competition policy in the EU, India; current issues in competition policy; industrial policy towards R&D.

Regulation: regulation of firms with market power under symmetric information; regulation under asymmetric information; empirical evidence.

Core Text:

1. Industrial Organization: Issues and Perspective, Paul R Ferguson, Macmillan Education (1988)
2. Tirole, J. The Theory of Industrial Organization. (Cambridge, MA: MIT Press, 1998) first edition
3. Church, J.R. and R. Ware Industrial Organization: A Strategic Approach. (Irwin McGraw-Hill, 200) [ISBN 978-0071166454]

Pedagogy:

The Faculty may choose pedagogies suitable to the nature of course from following:

- Student Lecture and Presentation
- Case Study Analysis
- Teaching-learning Strategy using Multimedia
- Mind Mapping
- Chunking strategy
- Z to A Approach
- Collaborative and cooperative learning
- Anchored Instruction
- Peer Tutoring
- Microteaching and Simulated Teaching
- Blended learning
- Problem Based Learning (PBL)
- Rotation Model
- Flex Model
- Enriched Virtual Model

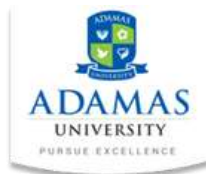
Modes of Examination: Assignment / Quiz / Project / Presentation / Course Work / Article reviews / Book Reviews / Reports / Written Exam / Jury / Survey // any other method that suits to assess the given course outcome



Examination Scheme:

Components	Continuous Internal Assessment	End Term
Weightage (%)	50	50

Mapping between COs and POs		
	Course Outcomes (Cos)	Mapped Program Outcomes
CO1.	Identify the major developments in Industrial Economics and its allied issues.	PO1, PO2, PO4
CO2.	Understand the linkage between market micro structure, managerial decision making, process of industrialization and policies.	PO1, PO2, PO4, PO6
CO3.	Evaluate the significance of law in regulating behavior of the firms.	PO1, PO2, PO6
CO4.	Analyse the type and nature of risk associated with industry and firm.	PO1, PO2, PO4, PO6



		Domain specific knowledge and skills/ Acquire knowledge of core economic theories and adequately identify the issues related to economy, public policy and society	Problem Analysis and Critical thinking / Develop skills necessary to analyze economic data, think critically on alternatives and propose viable solutions	Modern IT Tools / Become proficient in using economic data analysis software (s) and conduct meaningful analysis of data	Business and Society / Appreciate the importance of responsibilities of businesses and government towards the society	Environment and sustainability / Contemplate on societal and global issues resulting from environmental concerns	Ethics / Appreciate individual ethical behavior and be able to discharge community responsibilities to the society	Leadership and Team work / Learn Leadership skills, Team work, and develop strong emotional and social aptitude to be a lifelong learner.	Communication: Develop verbal and non-verbal communication skills for a successful career in Industry, Business and Entrepreneurship
Course Code	Course Title	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8
ECO405	Industrial Economics	3	3	-	2	-	3	-	-

1=weakly mapped

2= moderately mapped

3=strongly mapped



ECO409	RESOURCE AND ENVIRONMENTAL ECONOMICS	L	T	P	C
Version 1.0	Contact Hours: 60	3	1	0	4
Pre-requisites/Exposure	Basic knowledge of Mathematics at 10+2 level				
Co-requisites	Knowledge of Microeconomics and Macroeconomics				

Course objectives

This course is designed to introduce under-graduate students to the economic issues around natural resources as well as environmental problems from the perspective of economics. Natural resources being scarce lead to core economic questions regarding the optimal rate of extraction. On the other hand, how discovery of new resource bases change the pricing and usage of one resource comes under the domain of resource economics. Designing economic instruments for regulation of environmental problems as well valuation of environmental services are major two focus of this course. In addition to that, some global environmental issues along with their macroeconomic policy impact will be addressed in this course.

Course Outcomes:

At the end of the course, the student will be able to:

CO1. **Understand** the Environment Economy relationship that forms the backdrop of many environmental problems from the perspective of economics.

CO2. **Analyse** how optimal rate of extraction change the pricing and usage of one resource comes under resource economics.

CO3. **Develop** insights about how discovery of new resources affecting pricing and usage of one resource comes under the domain of resource economics.

CO4. **Understand** environmental aspects of market failure

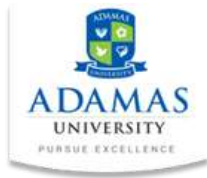
CO5. **Understand** the design and application of economic instruments for regulation of environmental problems and explain global environmental conventions.

Course Content:

Unit 1: Economics and Environment

[10lecture hours]

Introduction; Economics and Environment; Review of Microeconomics and Economic Welfare; Definition and role of Environmental Economics; Scope and Significance of Environmental Economics; Relationship between the Environment and the Economic System; Environment as a Resource: Environmental Quality



Unit 2: Economics of Exhaustible Resources

[10 lecture hours]

Intergenerational equity, Inter-temporal Dynamic Framework of Optimal Control, Market Structure of Non-renewable resources – perfect competition and monopoly, Examples of exhaustible resources

Unit 3: Economics of Renewable resources

[7 lecture hours]

Renewable resources, Case study of Forestry: Single versus Multiple use Forest, Fishery: The concept of Maximum Sustainable Yield (MSY), Economic Decision regarding optimal rate of Extraction

Unit 4: Market Failure and Problem of Externality and Environmental Regulation [8 lecture hours]

Concept of Externalities and Public Bad; Concepts of Rivalry and Excludability; Environmental Pollution as a Public Bad; Externality (Pigou), Property Rights (Coase), Optimal Pollution; Pollution Control: Alternative Market Based Instruments – Pure policies (Emission Fees, Standard setting, and Tradable Pollution Permits), Hybrid instruments (two-part tariff)

Unit 5: Environmental Valuation

[5 lecture hours]

Measuring values, benefits and costs – overview; total value – use and non-use values of goods; Total Economic Valuation; Valuation Methods: Stated Preference Approach, Revealed Preference Approach (intuitive discussion on different valuation methods)

Unit 6: Macroeconomic Purview of Environment

[5 lecture hours]

Environment and Global Climate Change; Kiyoto Protocol and Issues around Carbon trading; Ecological Footprints; International Environmental Policies; Environmental Performance Index: choice of indicators; Environmental Performance Index: Comparison across Developing and Developed World.

Pedagogy:

The Faculty may choose pedagogies suitable to the nature of course from following:

- Student Lecture and Presentation
- Case Study Analysis
- Teaching-learning Strategy using Multimedia
- Mind Mapping



- Chunking strategy
- Z to A Approach
- Collaborative and cooperative learning
- Anchored Instruction
- Peer Tutoring
- Microteaching and Simulated Teaching
- Blended learning
- Problem Based Learning (PBL)
- Rotation Model
- Flex Model
- Enriched Virtual Model

Modes of Examination: Assignment / Quiz / Project / Presentation / Course Work / Article reviews / Book Reviews / Reports / Written Exam / Jury / Survey / / any other method that suits to assess the given course outcome

Examination Scheme:

Components	Continuous Internal Assessment	End Term
Weightage (%)	50	50

Core Text

1. Hanley, Shogren & White (1997): *Environmental Economics*, McMillan.
2. Bhattacharyya, R.N. (2001): *Environmental Economics: Indian Perspective*, OUP
3. Charles Kolstad: *Intermediate Environmental Economics*, Oxford University Press, 2nd edition, 2010
4. Costanza, et.al. (1998): *An Introduction to Ecological Economics*.

Reference Books:

1. James, Mishra & Murty (1999) *Economics of Water Pollution: The Indian Experience*. OUP
2. Kadekodi, G. (2004): *Environmental Economics in Practice: Case Studies from India*, OUP
3. Environmental Performance Index, <http://epi.yale.edu/>, Yale University;
4. United Nations Framework on Climate Change, <http://newsroom.unfccc.int/>
5. Kiyoto Protocol <http://www.kyotoprotocol.com/>



Relationship between the Course Outcomes (COs) and Program Outcomes (POs)

Mapping of COs and POs		
	Course Outcomes (COs)	POs
CO1	Understand the Environment Economy relationship that forms the backdrop of many environmental problems from the perspective of economics.	PO1, PO2, PO4, PO5, PO6, PO7, PO8
CO2	Analyse how optimal rate of extraction change the pricing and usage of one resource comes under resource economics	PO1, PO2, PO4, PO5, PO6, PO7, PO8
CO3	CO3. Develop insights about how discovery of new resources affecting pricing and usage of one resource comes under the domain of resource economics.	PO1, PO2, PO4, PO5, PO6, PO7, PO8
CO4	CO4. Understand environmental aspects of market failure	PO1, PO2, PO4, PO5, PO6, PO7, PO8
CO5	CO5. Understand the design and application of economic instruments for regulation of environmental problems and explain global environmental conventions.	PO1, PO2, PO4, PO5, PO6, PO7, PO8

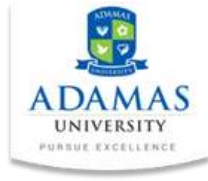


			Domain specific knowledge and skills/ Acquire knowledge of core economic theories and adequately identify the issues related to economy, public policy and society	Problem Analysis and Critical thinking / Develop skills necessary to analyze economic data, think critically on alternatives and propose viable solutions	Modern IT Tools / Become proficient in using economic data analysis software (s) and conduct meaningful analysis of data	Business and Society / Appreciate the importance of responsibilities of businesses and government towards the society	Environment and sustainability / Contemplate on societal and global issues resulting from environmental concerns	Ethics / Appreciate individual ethical behavior and be able to discharge community responsibilities to the society	Leadership and Team work / Learn Leadership skills, Team work, and develop strong emotional and social aptitude to be a lifelong learner.	Communication: Develop verbal and non-verbal communication skills for a successful career in Industry, Business and Entrepreneurship
Course Code	Course Title	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	
ECO409	Resource and Environmental Economics	3	2	1	2	3	1	1	2	

1=weakly mapped

2= moderately mapped

3=strongly mapped



Semester VIII



ECO406	Big Data Analysis and Machine Learning	L	T	P	C
	Contact Hours: 60	2	1	1	4
Pre-requisites/Exposure	Basic knowledge of Mathematics at 10+2 level				
Co-requisites	Knowledge of Basic Statistics				

Course objectives

The course introduces students to Python programming, machine learning techniques using Python libraries, advanced machine learning models, and foundational big data concepts. It emphasizes hands-on implementation and real-world case studies.

Course Outcomes:

At the end of the course, the student will be able to:

- CO1:** Apply Python programming for data analysis and visualization.
- CO2:** Implement machine learning models using Python libraries.
- CO3:** Analyze datasets using advanced ML algorithms and pipelines.
- CO4:** Understand big data architectures and technologies.
- CO5:** Apply machine learning and big data techniques to real-world problems.

Course Content:

Unit-I: Python Programming for Data Science:

Total Hours: 15 (L:8, T:4, P:3)

Introduction to Python: Python ecosystem for data science-Python installation and environment setup- Jupyter Notebook and Anaconda-Python syntax, variables, and data types

Control Structures: Conditional statements-Loops (for, while)-Functions and lambda expressions-Error and exception handling

Python Data Structures: Lists, tuples, dictionaries, sets-String operations- List comprehensions- File handling

Scientific Computing Libraries: Introduction to NumPy-Array operations, Matrix operations, Random number generation

Data Analysis Libraries: Introduction to Pandas-DataFrames and Series-Data cleaning and preprocessing- Data aggregation and transformation

Data Visualization: Introduction to Matplotlib-Introduction to Seaborn-Plotting graphs and statistical charts

Unit-II: Basic Machine Learning with Python

Total Hours: 15 (L:8, T:4, P:3)

Introduction to Machine Learning: Definition and applications-Types of machine learning- Supervised learning- Unsupervised learning- Reinforcement learning- Machine learning workflow



Data Preprocessing: Handling missing data, Feature scaling and normalization, Encoding categorical variables, Train-test split

Supervised Learning Algorithms: Linear Regression, Logistic Regression, K-Nearest Neighbors (KNN)-Decision Trees

Model Evaluation: Confusion matrix, Accuracy, precision, recall, F1 score, Cross-validation, Overfitting, and underfitting

Implementation using Scikit-Learn: Dataset loading, Model training, Model testing, and prediction

Unit-III: Advanced Machine Learning with Python

Total Hours: 15 (L:7, T:4, P:4)

Ensemble Learning: Bagging, Boosting, Random Forest, Gradient Boosting

Support Vector Machines: Linear SVM, Kernel trick, Hyperplane and margins

Unsupervised Learning: K-Means clustering, Hierarchical clustering, Dimensionality reduction

Feature Engineering: Feature selection techniques, Principal Component Analysis (PCA), Feature importance

Introduction to Deep Learning: Neural networks basics, Activation functions, Forward and backward propagation

ML Pipeline Development: Pipeline construction, Hyperparameter tuning, Grid search and randomized search.

Unit-IV: Introduction to Big Data and Case Studies

Total Hours: 15 (L:7, T:3, P:5)

Introduction to Big Data: Definition and characteristics, 5Vs of Big Data-Volume-Velocity-Variety-Veracity-Value

Big Data Architecture: Data sources, Data ingestion, Data storage, Data processing pipelines

Big Data Technologies: Hadoop ecosystem, HDFS architecture, MapReduce concept, Apache Spark overview

Big Data Analytics: Data mining techniques, Real-time analytics, Distributed machine learning,

Cloud-based Big Data Platforms: AWS Big Data services, Google BigQuery, Azure Data Lake

Case Studies: Healthcare data analytics, Smart manufacturing analytics, Financial fraud detection, Social media sentiment analysis, Recommendation systems.

Pedagogy:

The Faculty may choose pedagogies suitable to the nature of course from following:

- Student Lecture and Presentation
- Case Study Analysis
- Teaching-learning Strategy using Multimedia
- Mind Mapping
- Chunking strategy
- Z to A Approach
- Collaborative and cooperative learning



- Anchored Instruction
- Peer Tutoring
- Microteaching and Simulated Teaching
- Blended learning
- Problem Based Learning (PBL)
- Rotation Model
- Flex Model
- Enriched Virtual Model

Modes of Examination: Assignment / Quiz / Project / Presentation / Course Work / Article reviews / Book Reviews / Reports / Written Exam / Jury / Survey / / any other method that suits to assess the given course outcome

Examination Scheme:

Components	Continuous Internal Assessment	End Term
Weightage (%)	50	50

Core Text

Reference Books:

1. Python Programming for Data Science

Jake VanderPlas – Python Data Science Handbook: Essential Tools for Working with Data (O'Reilly).

Wes McKinney – Python for Data Analysis (O'Reilly).

Eric Matthes – Python Crash Course: A Hands-On, Project-Based Introduction to Programming.

Charles R. Severance – Python for Everybody: Exploring Data in Python.

2. Machine Learning with Python

Andreas C. Müller & Sarah Guido – Introduction to Machine Learning with Python: A Guide for Data Scientists.

Sebastian Raschka & Vahid Mirjalili – Python Machine Learning.

Aurélien Géron – Hands-On Machine Learning with Scikit-Learn, Keras, and TensorFlow.

3. Foundations of Machine Learning



Gareth James, Daniela Witten, Trevor Hastie, Robert Tibshirani – An Introduction to Statistical Learning.

Joel Grus – Data Science from Scratch.

Andriy Burkov – The 100-Page Machine Learning Book.

4. Big Data and Distributed Analytics

Tom White – Hadoop: The Definitive Guide.

Mohammed Guller – Big Data Analytics with Spark.

Holden Karau, Andy Konwinski, Patrick Wendell, Matei Zaharia – Learning Spark: Lightning-Fast Big Data Analysis.

Russell Jurney – Agile Data Science: Building Data Analytics Applications with Hadoop.

5. Additional Reading (Optional)

Trevor Hastie, Robert Tibshirani, Jerome Friedman – The Elements of Statistical Learning.

Cathy O’Neil & Rachel Schutt – Doing Data Science.

Foster Provost & Tom Fawcett – Data Science for Business.

Mapping between COs and POs		
	Course Outcomes (Cos)	Mapped Program Outcomes
CO1.	Understand the core principles of Artificial Intelligence and evaluate its transformative impact on economic sectors.	PO1, PO2, PO4
CO2.	Analyse the unique characteristics of Big Data and implement data management strategies in macroeconomic monitoring.	PO1, PO2, PO4, PO6
CO3.	Develop machine learning models to solve economic problems.	PO1, PO2, PO6
CO4.	Understand Python programming techniques to analyse large-scale economic and financial datasets.	PO1, PO2, PO4, PO6



		Domain specific knowledge and skills/ Acquire knowledge of core economic theories and adequately identify the issues related to economy, public policy and society	Problem Analysis and Critical thinking / Develop skills necessary to analyze economic data, think critically on alternatives and propose viable solutions	Modern IT Tools / Become proficient in using economic data analysis software (s) and conduct meaningful analysis of data	Business and Society / Appreciate the importance of responsibilities of businesses and government towards the society	Environment and sustainability / Contemplate on societal and global issues resulting from environmental concerns	Ethics / Appreciate individual ethical behavior and be able to discharge community responsibilities to the society	Leadership and Team work / Learn Leadership skills, Team work, and develop strong emotional and social aptitude to be a lifelong learner.	Communication: Develop verbal and non-verbal communication skills for a successful career in Industry, Business and Entrepreneurship
Course Code	Course Title	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8
ECO406	Big Data Analysis and Machine Learning	3	3	-	2	-	3	-	-

1=weakly mapped

2= moderately mapped

3=strongly mapped



ECO407	LABOUR ECONOMICS	L	T	P	C
Version 1.0	Contact Hours - 40	3	1	0	4
Pre-requisites/Exposure	Basic knowledge of Mathematics at 10+2 level				
Co-requisites	Knowledge of Microeconomics and Macroeconomics				

Course objectives

This course aims at introducing major theoretical models existing in labour economics and offer theoretical explanations of unemployment. It intends to build the skill of analyzing different concepts of labour market issues, such as unemployment, returns to education, wage gap, discrimination, etc. This course will help in developing the knowledge about the working of different trade unions and their impact on wages and employment. It will also help to develop the skill of critically analysis the research outcomes in the field of labour economics and connect them with the underlying assumptions of labour economics.

Course Outcomes:

At the end of the course, the student will be able to:

CO1. **Understand** the theoretical background of labour Economics with special focus on wage determination, unemployment and inequality.

CO2. **Understand** the concept of trade unions as one of the major labour market institutions and how they influence employment and wage determination.

CO3. **Analyse** the structure of labour market of a particular region and will be able to understand its frictions.

CO4. **Analyse** the impact of different macroeconomic forces on labourers, firms, and government.

Course Content:

Unit 1: Basic Theories of Labour Demand and Labour Supply (12 hours)

Derivation of labour demand in different market set up and wage and employment determination – perfect competitions, monopoly, monopsony; Keynes’ contractual view of labour market – wage rigidity, minimum wage, policy effects; labour supply – a household’s choice, income effects on labour supply

Application: Analysing the impact of pro-labour macroeconomic policies in India

Unit 2: Human Capital Theory (7 hours)

Introduction; the role of human capital in labour market participation; returns to different types of human capital



Applications: Returns to education in India

Unit 3: Labour Market Segmentation and Discrimination (7 hours)

Introduction; theories of segmented labour market and discrimination; differential labour market outcomes in terms of sector, gender and social groups

Applications: Gender wage gap and discrimination in India, caste and ethnicity based wage inequality and discrimination in India

Unit-4: Trade Unions and Bargaining (8 Hours)

Introduction; Monopoly Trade Union Model, Right to Manage Model; Efficiency Bargaining Model

Application: Impact of trade unions on wages in Indian manufacturing sector

Unit-5: Unemployment (6 Hours)

Introduction; minimum wages and unemployment; jobsearch Model; efficiency wage model

Application: Impact of unemployment insurance on unemployment

Pedagogy:

The Faculty may choose pedagogies suitable to the nature of course from following:

- Student Lecture and Presentation
- Case Study Analysis
- Teaching-learning Strategy using Multimedia
- Mind Mapping
- Chunking strategy
- Z to A Approach
- Collaborative and cooperative learning
- Anchored Instruction
- Peer Tutoring
- Microteaching and Simulated Teaching
- Blended learning
- Problem Based Learning (PBL)
- Rotation Model
- Flex Model
- Enriched Virtual Model



Modes of Examination: Assignment / Quiz / Project / Presentation / Course Work / Article reviews / Book Reviews / Reports / Written Exam / Jury / Survey / / any other method that suits to assess the given course outcome

Examination Scheme:

Components	Continuous Internal Assessment	End Term
Weightage (%)	50	50

Core Text

T1. Daniel S. Hamermesh, Labour Demand, Princeton University Press, 1996.

T2. . Cahuc, Pierre, and Andre Zylberberg. Labor Economics. Cambridge, Mass. and London: MIT Press, 2004.

Reference Books:

R1. Bhattacharjea, Aditya (2006), “labor Market Regulation and Industrial Performance in India:A Critical Review of the Empirical Evidence”, The Indian Journal of labor Economics, 49(2):211-32

R2. Deakin Simon (2014), “Labour Law and Inclusive Development”, Centre for Business Research, University of Cambridge ,Working Paper No. 458.

Relationship between the Course Outcomes (COs) and Program Outcomes (POs)

Mapping of COs and POs		
	Course Outcomes (COs)	POs
CO1	Understand the theoretical background of labour Economics with special focus on wage determination, unemployment and inequality.	PO1, PO2, PO4, PO6, PO7, PO8
CO2	Understand the concept of trade unions as one of the major labour market institutions and how they influence employment and wage determination.	PO1, PO2, PO4, PO6, PO7, PO8
CO3	Analyse the structure of labour market of a particular region and will be able to understand its frictions.	PO1, PO2, PO4, PO6, PO7, PO8
CO4	Analyse the impact of different macroeconomic forces on labourers, firms, and government.	PO1, PO2, PO4, PO6, PO7, PO8



		Understanding of basic knowledge in the different fields of business, commerce and economics in terms of concepts and principles.	Develop knowledge on fundamentals of micro and macro and its relationship with a country's economy	Acquire basic knowledge on application of mathematical and statistical tools in economics	Learn different theories of development economics and its contemporary issues in global context	Acquire knowledge on different areas of application of microeconomics and macroeconomics, eg. Economics of Health and Education, Resource Economics.	Develop problem solving skills through assigned practical projects in most of the courses.	Become employable in various private companies and government job at the end of	To foster thinking minds that are sensitive to societal needs & issues, thus ensuring a holistic development of the students
Course Code	Course Title	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8
ECO407	Labour Economics	3	2	–	2	–	1	1	2

1=weakly mapped

2= moderately mapped 3=strongly mapped\



ECO408	Behavioral Economics	L	T	P	C
	Contact Hours: 60	3	1	0	4
Pre-requisites/Exposure	Exposure to Microeconomics				
Co-requisites	NA				

Course Objective

To explain economic decision-making process and role of psychology in it and to elaborate the deviation in reality and standard economic theoretical predictions in the framework of behavioral economics

Course Outcomes

On completion of the course it is expected that students will be able to:

CO 1. Understand economic decision making and its applications.

CO 2 Analyse the framework of behavioural economics.

CO 3 Apply critical thinking skills to analyse behaviour.

Course Content

Unit I Introduction to Behavioral Economics 12 hrs

Origins of Behavioral Economics.

Neoclassical framework: choice under certainty, rational preferences, utility. Behavioral Framework: bounded rationality, opportunity cost, sunk cost, decoy effect, endowment effect, anchoring.

Judgement under risk and uncertainty: probability judgement, Bayes' Rule, gamblers fallacy, conjunction and disjunction fallacies, confirmation bias, overconfidence.

Unit II Choice Under Risk & Uncertainty 10 hrs

Choice under Uncertainty: Expected Value, Expected Utility, Risk Preference.

Decision under uncertainty: Framing effects. Bundling, Mental accounting, Allais Paradox, Ellsberg Paradox, Probability Weighting. Reference Dependence and Prospect Theory.

Unit III Intertemporal Choices 12 hrs

Discounted Utility Model: Interest rate, exponential discounting, rational delta.

Intertemporal Choice: hyperbolic discounting, misdirection. Preference Reversal, Regret Theory.

Unit IV Behavioral Game Theory 11 hrs



Basic introduction to analytical game: Nash equilibrium, pure and mixed strategy, learning from experience.

Behavioral Game theory: Social preference, altruism, envy, fairness, justice. Intension, reciprocity and trust. Limited strategic thinking.

Behavioral Welfare Economics: Libertarian Paternalism and Nudge.

Pedagogy:

The Faculty may choose pedagogies suitable to the nature of course from following:

- Student Lecture and Presentation
- Case Study Analysis
- Teaching-learning Strategy using Multimedia
- Mind Mapping
- Chunking strategy
- Z to A Approach
- Collaborative and cooperative learning
- Anchored Instruction
- Peer Tutoring
- Microteaching and Simulated Teaching
- Blended learning
- Problem Based Learning (PBL)
- Rotation Model
- Flex Model
- Enriched Virtual Model

Modes of Examination: Assignment / Quiz / Project / Presentation / Course Work / Article reviews / Book Reviews / Reports / Written Exam / Jury / Survey / / any other method that suits to assess the given course outcome

Examination Scheme:

Components	Continuous Internal Assessment	End Term
Weightage (%)	50	50

Text & References

- Erik Angner, “A Course in Behavioral Economics”, Palgrave Macmillan



- E. Cartwright, Behavioural Economics (2011), Routledge
- D. Kahneman, Thinking Fast and Slow (2011), Allen Lane, Penguin Books
- R H Thaler& C R Sunstein, Nudge (2021), Allen Lane, Penguin Books.
- D. Ariely, Predictably Irrational (2008), Harper, Harper Collins.
- D. Ariely, Dollars and Sense (2017), Harper, Harper Collins.
- M. Altman, Handbook of Contemporary Behavioural Economics: Foundation and Developments (2007), Prentice Hall India
- G. Loewenstein, Exotic Preferences: Behavioural Economics and Human Motivation (2007), Oxford University Press
- SanjitDhami, "The Foundations of Behavioral Economic Analysis", Oxford University Press (2016)
- Behavioral Economics: Toward a New Economics by Integration with Traditional Economics by Ogaki, Masao, Tanaka, Saori C. Published by Springer, ISBN 978-981-10-6439-5

Mapping between COs and POs		
	Course Outcomes (COs)	Mapped Program Outcomes
CO1	Understand economic decision making and its applications.	PO 2 and 6
CO2	Analyse the framework of behavioural economics.	PO 1
CO3	Apply critical thinking skills to analyse behaviour.	PO 4 , 5 and 7



Course Code	Course Title	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8
ECO408	Behavioral Economics	3	2		3	3	2	3	
		Domain specific knowledge and skills/ Acquire knowledge of core economic theories and adequately identify the issues related to economy, public policy and society	Problem Analysis and Critical thinking / Develop skills necessary to analyze economic data, think critically on alternatives and propose viable solutions	Modern IT Tools / Become proficient in using economic data analysis software (s) and conduct meaningful analysis of data	Business and Society / Appreciate the importance of responsibilities of businesses and government towards the society	Environment and sustainability / Contemplate on societal and global issues resulting from environmental concerns	Ethics / Appreciate individual ethical behavior and be able to discharge community responsibilities to the society	Leadership and Team work / Learn Leadership skills, Team work, and develop strong emotional and social aptitude to be a lifelong learner.	Communication: Develop verbal and non-verbal communication skills for a successful career in Industry, Business and Entrepreneurship



ECO410	Political Economy of Development	L	T	P	C
	Contact Hours: 60	3	1	0	4
Pre-requisites/Exposure					
Co-requisites	NA				

Course Objective

This course introduces students to the emerging field of evolutionary political economy and provides theoretical insights into the evolution of complex economic systems that can explain regional change and adaptability. It gives an overview of alternative development paradigms, government policies, social movements, and interventions that have influenced modern economies and communities around the world. The course aims to provide students with an understanding of frontier research topics and a firm grasp of the tools available in the field. It examines important contributions in the fields of moral philosophy and welfare economics, as well as the relationship between political institutions and growth, to address some of the major deficiencies in contemporary economic theories. The course also evaluates existing economic models by comparing development experiences across countries.

On completion of the course, it is expected that students will be able to:

CO1. Evaluate different theoretical approaches and methodologies to better understand the social, economic, and political issues.

CO2 Demonstrate empirical knowledge of various regions and socio-economic systems in different types of economy.

CO3 Understand and critically analyze literature in evolutionary and institutional economics.

CO4 Recognize and **analyze** the moral dimensions of politics and economics.

Course Content

Unit I Evolution of Market Economy [8hrs]

Evolution of money; Barter to Exchange; Types of Market and Economies.

Evolution of Economic Thought: Price system and the Invisible Hand; Classical Revolution and Classical Orthodoxy; Keynesian Revolution and Keynesian Orthodoxy; Neoclassical Synthesis, Post Keynesians; New Political Macroeconomics, Renaissance of Growth Theory.

Unit II Ethics, Morality and Rationality in Economics: Contemporary Scenario [8 hrs]

Adam Smith and Self Interest; Pareto Optimality: Efficiency, Welfarism; Well-Being, Agency and Utility; Rights and Freedom; Rationality, morality and ethics in economics; Three ethical frameworks.

Unit III Evolutionary Concepts in Economics for Conflict and Cooperation [10hrs]

Concepts of Conflict and Cooperation.



Asymmetric information: Moral Hazard and Adverse Selection.

Tragedy of Commons: Three models; Prisoners Dilemma- Hardin Harder Game; Policy Prescriptions.

International relations and institutions.

Unit IV Epistemology of Development [12 hrs]

Enlightenment, colonialism and Orientalism; Classical Political Economy, Dualism; Capitalist Transition, Imperialism and Socialism.

Capitalism, Globalism and Neoliberalism; Global Capital, World of the Third; Dislocation and Displacement.

Debates and approaches to poverty reduction: Mainstream, Post-Developmentalist, Capability approach.

Race and Ethnicity, Class and Case- A brief idea.

Unit V Comparative Economic Systems [7hrs]

Economic Systems; American Capitalism, European Experiment with Social Democracy, Scandinavian Capitalism and State Capitalism of Asian Nations.

Pedagogy:

The Faculty may choose pedagogies suitable to the nature of course from following:

- Student Lecture and Presentation
- Case Study Analysis
- Teaching-learning Strategy using Multimedia
- Mind Mapping
- Chunking strategy
- Z to A Approach
- Collaborative and cooperative learning
- Anchored Instruction
- Peer Tutoring
- Microteaching and Simulated Teaching
- Blended learning
- Problem Based Learning (PBL)
- Rotation Model
- Flex Model
- Enriched Virtual Model

Modes of Examination: Assignment /Quiz / Project / Presentation / Course Work / Article reviews / Book Reviews / Reports / Written Exam / Jury / Survey // any other method that suits to assess the given course outcome



Examination Scheme:

Components	Continuous Internal Assessment	End Term
Weightage (%)	50	50

References:

1. Joseph Schumpeter: *Capitalism, Socialism and Democracy*, Routledge (2006).
2. Amartya Sen: *Inequality Reexamined*, Harvard University Press (1995).
3. Amartya Sen: *On Ethics and Economics*, Oxford University Press (2013).
4. Angus Deaton, *The Great Escape: Health, Wealth and the Origins of Inequality*, Princeton University Press (2015).
5. Daron Acemoglu and James A. Robinson: *Why Nations Fail: The Origins of Power, Prosperity and Poverty*, Crown Business (2013).
6. Elinor Ostrom: *Governing the Commons: The Evolution of Institutions for Collective Action*, Cambridge University Press (1990)
7. AnuPartanen: *The Nordic Theory of Everything: In Search of a Better Life*, Harper Collins (2016).

Mapping between COs and POs		
	Course Outcomes (COs)	Mapped Programme Outcomes
CO1	Demonstrate the understanding of main principles of economics as applied to commerce and business.	PO1, PO2
CO2	Apply economic reasoning to the analysis of questions pertaining to business immediately.	PO1, PO4
CO3	Demonstrate the ability to interpret data in view of economic theories and evidences.	PO3



ECO411	Political Economy of Development	3	3	3	3	2	2	1	1
Course Code	Course Title	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8
		Domain specific knowledge and skills/ Acquire knowledge of core economic theories and adequately identify the issues related to economy, public policy and society	Problem Analysis and Critical thinking / Develop skills necessary to analyze economic data, think critically on alternatives and propose viable solutions	Modern IT Tools / Become proficient in using economic data analysis software (s) and conduct meaningful analysis of data	Business and Society / Appreciate the importance of responsibilities of businesses and government towards the society	Environment and sustainability / Contemplate on societal and global issues resulting from environmental concerns	Ethics / Appreciate individual ethical behavior and be able to discharge community responsibilities to the society	Leadership and Team work / Learn Leadership skills, Team work, and develop strong emotional and social aptitude to be a lifelong learner.	Communication: Develop verbal and non-verbal communication skills for a successful career in Industry, Business and Entrepreneurship

1=weakly mapped 2 = Moderately mapped 3=strongly mapped



Minors to be offered

Semester I Introduction to Microeconomics

ECO105	Introduction to Microeconomics	L	T	P	C
Version 1.0	Contact Hours: 60	3	1	0	4
Pre-requisites/Exposure	Basic knowledge of economics				
Co-requisites	--				

Course Objective:

Economic principles guide us to think like an economist. Business on the same side encounter a number of situation where this economic intuition and thinking may help to find viable solution and answers to the questions pertaining to a particular business problem. These problems may come from variety of contexts, for example, from micro operations of the business unit such as production and consumer demand or from macro environment such as a stee rise in overall price level in the economy. Therefore, in order to understand the reasons of such business problems and discover their solutions, a fundamental knowledge of economic principles is required. This course intends to give a glimpse of core principles of economics (micro principles, macro principles and some basic ideas of international economics) such as main problems of an economic system, fundamentals of demand and supply, consumer and producer surplus, concepts related national income etc. to the students. The course will be taught by lectures on core concepts supplemented with numerical analysis, case studies and small projects presentations by students.

Course Outcomes:

On completion of the course it is expected that students will be able to:

CO 1 Demonstrate the understanding of main principles of economics as applied to commerce and business.

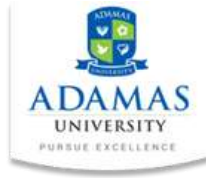
CO 2 Apply economic reasoning to the analysis of questions pertaining to business immediately.

CO 3 Demonstrate the ability to interpret data in view of economic theories and evidences.

Course Content:

Supply and Demand: How Markets Work, Markets and Welfare

1. Elementary theory of demand: determinants of household demand, market demand, and shifts in the market demand curve
2. Elementary theory of supply: factors influencing supply, derivation of the supply curve, and shifts in the supply curve



3. The elementary theory of market price: determination of equilibrium price in a competitive market; the effect of shifts in demand and supply; the excess demand function: Existence, uniqueness, and stability of equilibrium; consumer surplus, producer surplus and efficiency of competitive markets (graphical approach); the idea of market failure; Elasticities and their applications.
4. Government intervention and their impact on market equilibrium and efficiency:- controls on prices (Price ceilings and price floors); indirect taxation

The Households

The consumption decision - budget constraint, consumption and income and price changes, demand for all other goods and price changes; description of preferences- most preferred bundle and its properties; consumer's optimum choice; income and substitution effects; Marshallian and compensated demand curves; Price consumption curve, income consumption curve, and Engelcurve;

The Firm and Perfect Market Structure

Defining a firm- firm's legal forms; profit maximization hypothesis; Contractual theories and organizational theories of firms (concepts only); Behaviour of profit maximizing firms and the production process; short run costs and output decisions; costs and output in the long run.

Imperfect Market Structure

Monopoly and anti-trust policy; measuring monopoly power; government policies towards competition; various types of imperfect competition

Input Markets

Theory of rent-Ricardo, Marshall, and Modern theory of rent; Labour and land markets - basic concepts (derived demand, productivity of an input, marginal productivity of labour, marginal revenue product); demand for labour; input demand curves; shifts in input demand curves, competitive labour markets; labour market and public policy.

Suggested Readings

1. Karl E. Case and Ray C. Fair, Principles of Economics, Pearson Education Inc., 8th Edition, 2007.
2. N. Gregory Mankiw, Economics: Principles and Applications, India edition by South Western, a part of Cengage Learning, Cengage Learning India Private Limited, 4th edition, 2007.
3. Joseph E. Stiglitz and Carl E. Walsh, Economics, W.W. Norton & Company, Inc., New York, International Student Edition, 4th Edition, 2007.
4. Samuelson and Nordhaus, Economics, McGraw Hill, 18th edition.

Pedagogy:



The Faculty may choose pedagogies suitable to the nature of course from following:

- Student Lecture and Presentation
- Case Study Analysis
- Teaching-learning Strategy using Multimedia
- Mind Mapping
- Chunking strategy
- Z to A Approach
- Collaborative and cooperative learning
- Anchored Instruction
- Peer Tutoring
- Microteaching and Simulated Teaching
- Blended learning
- Problem Based Learning (PBL)
- Rotation Model
- Flex Model
- Enriched Virtual Model

Modes of Examination: Assignment/Quiz/Project/Presentation/ Course Work / Article reviews / Book Reviews / Reports / Written Exam / Jury / Survey / / any other method that suits to assess the given course outcome

Examination Scheme:

Components	Continuous Internal Assessment	End Term
Weightage (%)	50	50

Mapping between COs and POs		
	Course Outcomes (COs)	Mapped Programme Outcomes
CO1	Demonstrate the understanding of main principles of economics as applied to commerce and business.	PO1, PO2
CO2	Apply economic reasoning to the analysis of questions pertaining to business immediately.	PO1, PO4
CO3	Demonstrate the ability to interpret data in view of economic theories and evidences.	PO3



Course Code	Course Title	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8
ECO105	Introductory Microeconomics	3	3	3	3				
		Domain specific knowledge and skills/ Acquire knowledge of core economic theories and adequately identify the issues related to economy, public policy and society	Problem Analysis and Critical thinking / Develop skills necessary to analyze economic data, think critically on alternatives and propose viable solutions	Modern IT Tools / Become proficient in using economic data analysis software (s) and conduct meaningful analysis of data	Business and Society / Appreciate the importance of responsibilities of businesses and government towards the society	Environment and sustainability / Contemplate on societal and global issues resulting from environmental concerns	Ethics / Appreciate individual ethical behaviour and be able to discharge community responsibilities to the society	Leadership and Team work / Learn Leadership skills, Team work, and develop strong emotional and social aptitude to be a lifelong learner.	Communication: Develop verbal and non-verbal communication skills for a successful career in Industry, Business and Entrepreneurship

1=weakly mapped 2= moderately mapped, 3 = strongly mapped



Semester II

Introduction to Macroeconomics

ECO106	Introduction to Macroeconomics	L	T	P	C
Version 1.0	Contact Hours: 60	3	1	0	4
Pre-requisites/Exposure	Basic knowledge of economics				
Co-requisites	--				

Course Objectives

This course aims to introduce the students to the basic concepts of macroeconomics. Macroeconomics deals with the aggregative aspects of the economy. This course discusses the preliminary concepts associated with the determination and measurement of aggregate macroeconomic variable like savings, investment, GDP, money, inflation, and the balance of payments. It discusses various alternative theories of output and employment determination in a closed economy in the short run as well as medium run, and the role of policy in this context.

Course Outcomes

On completion of this course, the students will be able to

- CO1.** Understand different macroeconomic variables like consumption, savings, investment, GDP, money, inflation, etc. and the propositions of different schools of thought that dominate macroeconomics.
- CO2.** Understand the macroeconomic tools used in policy making mainly in a closed economy.
- CO3.** Develop insights about the application of mathematical models used for the determination and measurement of aggregate macroeconomic variables.
- CO4.** Analyze the aggregate macroeconomic issues of price, output, and rate of interest mainly in the context of a closed economy.

Course Content

Unit-I National Income Accounting and measurement 10 hrs.

Macroeconomic data- National Income accounting, three ways of measuring national income, fundamental relations between savings and investment, open economy and current account in national income accounting, price index and cost of living index

Unit-II Classical Economics 15 hrs.

Mercantilism as precursor of classical economics, classical labour market- concepts of labour demand and supply, automatic full employment and aggregate supply curve; The Quantity Theory of Money and aggregate demand curve, savings –investment equality and rate of interest



Unit-III The Keynesian system-I 15 hrs.

The simple Keynesian model- Keynesian cross, equilibrium concept and derivation of multiplier, stability of equilibrium, simple multiplier in an open economy

Unit-IV The Keynesian system – II 20 hrs.

The IS-LM model and simultaneous determination of rate of interest and income, concept of fiscal and monetary policy, money wage rigidity and unemployment in the economy, Aggregate demand and supply curve in Keynesian system

Core Text Books

1. Richard T. Froyen, Macroeconomics, Pearson Education Asia, 2nd edition, 2005.
2. N. Gregory Mankiw. Principles of Macroeconomics, Indian Imprint of South Western by Cengage India, 6th edition, 2015.

Reference Books

1. Dornbusch, Fischer and Startz, Macroeconomics, McGraw Hill, 11th edition, 2010.
2. Andrew B. Abel and Ben S. Bernanke, Macroeconomics, Pearson Education, Inc., 7th edition, 2011.

Pedagogy:

The Faculty may choose pedagogies suitable to the nature of course from following:

- Student Lecture and Presentation
- Case Study Analysis
- Teaching-learning Strategy using Multimedia
- Mind Mapping
- Chunking strategy
- Z to A Approach
- Collaborative and cooperative learning
- Anchored Instruction
- Peer Tutoring
- Microteaching and Simulated Teaching
- Blended learning
- Problem Based Learning (PBL)
- Rotation Model
- Flex Model
- Enriched Virtual Model



Modes of Examination: Assignment / Quiz / Project / Presentation / Course Work / Article reviews / Book Reviews / Reports / Written Exam / Jury / Survey / / any other method that suits to assess the given course outcome

Examination Scheme:

Components	Continuous Internal Assessment	End Term
Weightage (%)	50	50

Relationship between the Course Outcomes (COs) and Program Outcomes (POs)

Mapping between COs and POs		
	Course Outcomes (COs)	Mapped Program Outcomes
CO1	Understand different macroeconomic variables like consumption, savings, investment, GDP, money, inflation, etc. and the propositions of different schools of thought that dominate macroeconomics.	PO1, PO2, PO4
CO2	Understand the macroeconomic tools used in policy making mainly in a closed economy.	PO1, PO2, PO4
CO3	Develop insights about the application of mathematical models used for the determination and measurement of aggregate macroeconomic variables.	PO1, PO2, PO4, PO6, PO7, PO8
CO4	Analyze the aggregate macroeconomic issues of price, output, and rate of interest mainly in the context of a closed economy	PO1, PO2, PO4, PO6, PO7, PO8



		Domain specific knowledge and skills/ Acquire knowledge of core economic theories and adequately identify the issues related to economy, public policy and society	Problem Analysis and Critical thinking / Develop skills necessary to analyze economic data, think critically on alternatives and propose viable solutions	Modern IT Tools / Become proficient in using economic data analysis software (s) and conduct meaningful analysis of data	Business and Society / Appreciate the importance of responsibilities of businesses and government towards the society	Environment and sustainability / Contemplate on societal and global issues resulting from environmental concerns	Ethics / Appreciate individual ethical behavior and be able to discharge community responsibilities to the society	Leadership and Team work / Learn Leadership skills, Team work, and develop strong emotional and social aptitude to be a lifelong learner.	Communication: Develop verbal and non-verbal communication skills for a successful career in Industry, Business and Entrepreneurship
Course Code	Course Title	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8
ECO106	Introduction to Macroeconomics	3	3	–	3	–	2	2	2

1=weakly mapped

2= moderately mapped

3=strongly mapped



Semester – III

ECO206	Introduction to Mathematics for Economics	L	T	P	C
Version 1.0	Contact Hours: 60	3	1	0	4
Pre-requisites/Exposure	12 th level Mathematics				
Co-requisites					

Course

Objectives

This paper introduces students to the terminology and analytic principles used in microeconomics, which is broadly defined as the study of markets, and to the application of these conceptual tools to several policy issues. The objective of the course is to equip the students with mathematical analysis of various economic problems. The students will be able to understand the decisions of buyers and sellers and their interaction in market transactions will be analysed.

Course Outcomes:

On completion of this course, the students will be able to:

CO1. **Understand** the mathematical tools and their application in Economics.

CO2. **Develop** the knowledge of the use of mathematics essential to analyze single variable and multivariable economic problems.

CO3. **Apply** calculus in analysis of economic variables.

CO4. **Analyze** the use of basic algebra in economics. .

Course Content

Unit-I: Equations

[12 lecture hours]

1.2.Exponents, 1.2. Polynomials. 1.3. Equations: Linear and Quadratic. 1.4. Simultaneous Equations. 1.5. Functions, 1.6. Graphs, Slopes and Intercepts. 1.7. Economic Applications of Graphs and Equations. 1.8. Examples and Application

Unit-II: Derivatives and Differentiation

[15 lecture hours]

2.1. Limits. 2.2. Continuity. 2.3. The Slope of a Curvilinear Function. 2.4. The Derivative. 2.5. Differentiability and Continuity. 2.6. Derivative Notation. 2.7. Rules of Differentiation. 2.8. Examples and Application.

**Unit-III: Application of Derivatives [9 lecture hours]**

3.1. Increasing and Decreasing Function, 3.2. Concavity and Convexity, 3.3. Inflection Points, 3.4. Maxima and Minima.

Unit-IV: Economic Application of Derivatives [9 lecture hours]

4.1 Price Elasticity of Demand, 4.2. Income Elasticity of Demand 4.3. Cross Elasticity of Demand, 4.4. Marginal Productivity. 4.5. Marginal Cost 4.6 Profit maximization.

Pedagogy:

The Faculty may choose pedagogies suitable to the nature of course from following:

- Student Lecture and Presentation
- Case Study Analysis
- Teaching-learning Strategy using Multimedia
- Mind Mapping
- Chunking strategy
- Z to A Approach
- Collaborative and cooperative learning
- Peer Tutoring
- Simulated Teaching
- Blended learning
- Problem Based Learning (PBL)
- Rotation Model
- Flex Model

Modes of Examination: Assignment / Quiz / Project / Presentation / Course Work / Article reviews / Book Reviews / Reports / Written Exam / Jury / Survey / / any other method that suits to assess the given course outcome

Examination Scheme:

Components	Continuous Internal Assessment	End Term
Weightage (%)	50	50

Core Text



Edward T. Dowling, (2001) Introduction to Mathematical Economics, Schaum's Outline Series McGRAW-HILL

References:

- R1. Simon, Carl. P., Blume, Lawrence. (2010). Mathematics for Economists, Norton.
 R2. Sydseater, K., Hammod, P. (2002). Mathematics for Economics Analysis. Pearson Education India.
 R3. Rosser, Mike (2003), Mathematics for Economists, Second Edition, Routledge.

Relationship between the Course Outcomes (COs) and Program Outcomes (POs)

Mapping of COs and POs		
	Course Outcomes (COs)	POs
CO1	Apply the mathematical tools to analyze the economic problems.	PO1, PO2, PO4, PO7
CO2	Develop the knowledge of the use of derivative and integration techniques in economic framework.	PO2, PO4, PO5, PO6, PO8
CO3	Apply unconstrained and constrained optimization technique.	PO1, PO2, PO6, PO7
CO4	Analyze the use of difference and differential equations in real world economic activity in constant time and continuous time framework.	PO1, PO2, PO6, PO7

1=weakly mapped

2= moderately mapped

3=strongly mapped



Semester IV

ECO207	Indian Economic Issues	L	T	P	C
Version 1.0	Contact Hours: 60	3	1	0	4
Pre-requisites/Exposure	10+2 passed from any recognized Board or equivalent				
Co-requisites	--				

Course

Objectives

The primary objective of this course is to provide a macroeconomic understanding of the Indian Economy since Independence. It begins with a discussion of the economic backdrop of the Indian Economy at the time of Independence and goes on to examine major dimensions of the economy's transformation both in its dirigisme and liberal phases while also engaging with the reasons for the transition from the one to the other. This course will be relevant to the students in terms of the overall Indian economic experience since independence. The basic trajectory of Indian economic development is to be covered with special emphasis on the shift from a mixed economy towards market orientation and the effect of the reforms on it.

Course Outcomes

On completion of this course, the students will be able to

CO1. **Explain** the economic development strategy of India since Independence.

CO2. **Understand** the importance of planning undertaken by the government of India, have

Knowledge on the various objectives, failures and achievements of planning.

CO3. **Illustrate** the de-industrialisation process and emergence of modern industries and service sector.

CO4. **Analyse** the globalization process, reform policies and its diverse ramifications on the Indian economy.

Unit I:

[3 HRS]

Indian Economy at the time of Independence

Indian economy at Independence: Underdevelopment in colonial rule.

Unit II:

[12 HRS]

Planning: Evolution of India's Development Goal and Strategy

Five Year Plans: Background and structure of planning; Development Goals and Strategies; Structural Constraint; Objective, Achievement and Failures of Planning; NITI AAYOG.



Unit III: [10 HRS]
New Reform Policy: NEP

7th Plan and the Economic Crisis in the 1980s; Early Reforms.

NEP: BoP crisis, NEP Reform; Liberalization, Privatization and Globalization; Structural Changes in Indian Economy.

Unit IV: Sectoral Performance [10 HRS]

Agriculture: Situation in Indian Agriculture; Land Reform; Green Revolution and regional politics; Cooperative Movement; Rural Credit.

Industry: Structure of Indian Industry; Industrial development under planning; Performance of public sector; Structural changes and slowdown.

Service Sector: Service led growth.

Unit V: Growth and Distribution [5 HRS]

Trends in GDP and Per capita GDP; Growth, Poverty and Inequality; Unemployment and under employment- policy.

Unit VI: [5 HRS]
Second Generation Reforms, Post Crisis Policies

Second Generation reform in India: Major public sector reforms since 2014; Demonetization; New Agricultural Reforms, Labor Reforms, New Education Policy.

Pedagogy:

The Faculty may choose pedagogies suitable to the nature of course from following:

- Student Lecture and Presentation
- Case Study Analysis
- Teaching-learning Strategy using Multimedia
- Mind Mapping
- Chunking strategy
- Z to A Approach
- Collaborative and cooperative learning
- Peer Tutoring
- Simulated Teaching



- Blended learning
- Problem Based Learning (PBL)
- Rotation Model
- Flex Model

Modes of Examination: Assignment / Quiz / Project / Presentation / Course Work / Article reviews / Book Reviews / Reports / Written Exam / Jury / Survey // any other method that suits to assess the given course outcome

Examination Scheme:

Components	Continuous Internal Assessment	End Term
Weightage (%)	50	50

Core Text

5. Indian Economy: Performance and Policies. Uma Kapila. Academic Foundation; 15th Revised edition (2015)
6. Prakash, B. A. (2009). The Indian Economy Since 1991: Economic Reforms and Performance. Pearson Education India.

Reference Books

15. Chandra, B., Mukherjee, A., & Mukherjee, M. (2008). India Since Independence. Penguin Books India.
16. Basu, Kaushik. An Economist in the Real World. Viking (2016)
17. Roy, T. (2006). The Economic History of India, 1857-1947 (2nd ed.). Oxford University Press.
18. Agarwal, A.N. (2009)- Indian Economy, New Delhi: New Age International Publishers
19. The Indian Economy: Problems and Prospects. BimalJalan (ed.); Penguin
20. S Chakraborty. 1987. Development Planning: The Indian Experience. Clarendon Press.
21. I, Judge Ahluwalia. 1985. Industrial Growth in India since the Mid-sixties. Oxford University Press.

Relationship between the Course Outcomes (COs) and Program Outcomes (POs)



Mapping between COs and POs		
	Course Outcomes (COs)	Mapped Program Outcomes
CO1	Explain the economic development strategy of India since Independence.	PO1, PO5, PO6, PO8
CO2	Understand the importance of planning undertaken by the government of India, have Knowledge on the various objectives, failures and achievements of planning.	PO1, PO4, PO5, PO8
CO3	Illustrate the de-industrialisation process and emergence of modern industries.	PO1, PO4, PO5
CO4	Analyse the globalization process and its diverse ramifications on the Indian economy.	PO1, PO4, PO5, PO6, PO7, PO8

1=

weakly mapped; 2=moderately mapped; 3 = strongly mapped

			Domain specific knowledge and skills/ Acquire knowledge of core economic theories and adequately identify the issues related to economy, public policy and society	Problem Analysis and Critical thinking / Develop skills necessary to analyze economic data, think critically on alternatives and propose viable solutions	Modern IT Tools / Become proficient in using economic data analysis software (s) and conduct meaningful analysis of data	Business and Society / Appreciate the importance of responsibilities of businesses and government towards the society	Environment and sustainability/ Contemplate on societal and global issues resulting from environmental concerns	Ethics / Appreciate individual ethical behavior and be able to discharge community responsibilities to the society	Leadership and Team work / Learn Leadership skills, Team work, and develop strong emotional and social aptitude to be a lifelong learner.	Communication: Develop verbal and non-verbal communication skills for a successful career in Industry, Business and Entrepreneurship
Course Code		Course Title	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8
ECO207		Indian Economic Issues	3			3	2	2	1	3



Semester V

ECO307	INTRODUCTORY ECONOMETRICS	L	T	P	C
Version 1.0	Contact Hours: 60	3	1	0	4
Pre-requisites/Exposure	Basic knowledge of Mathematics at 10+2 level				
Co-requisites	Knowledge of Microeconomics and Macroeconomics				

Course objectives

Econometrics is concerned with the application of statistical theory to the analysis of economic data and the estimation of economic relationships. This course intends to expose students to the statistical techniques that economists use for estimating, testing, and forecasting economic relationships. In this paper students will be introduced with what 'Econometrics' is about. The basic concept of linear regression model under classical assumptions, statistical inference tools and techniques in a regressed model will be taught in a lucid approach. Moreover, the consequences of violations of classical assumptions will also be taught. This course covers a range of applications through statistical software.

Course Outcomes:

At the end of the course, the student will be able to:

CO1: **Understand** the econometrics as a discipline, its importance and various statistical techniques that economists use for estimating, testing, and forecasting economic relationships.

CO2: **Demonstrate** the basic concept of simple linear regression model under classical assumptions.

CO3: **Understand** the tools and techniques of statistical inference mainly in a simple linear regression model.

CO4: **Develop** insights about the sources, the consequences of violations of classical assumptions and the tests associated with it.

CO5: **Apply** the econometric tools to the analysis of economic data and the estimation of economic relationships.



Course Content:

Unit I: Introduction to Basic Statistics 7 Hrs

Data - Classification and presentation; Frequency distribution - Diagrammatic representation of frequency distribution; Measures of Central Tendency; Measures of Dispersion; Measures of Skewness & Kurtosis; Bivariate data: correlation, covariance.

Unit II: Introduction to Econometrics

[8 Hrs]

What is Econometrics? Steps in Econometric Analysis; Specification of Econometric Model and Assumptions; Basic Concepts of Estimation and Desirable Properties of Estimators; Data for Econometric Analysis.

Unit III: Classical Linear Regression Model

[15 Hrs]

Stochastic and non-stochastic relationships; The concept of regression, Two Variable Case, Specification of the relationship; Estimation- Method of Least Squares, Assumptions; Gauss-Markov Theorem; Properties of Least Squares estimates; BLUE.

Unit IV: Statistical Inference in Classical Linear Regression Model

[15 Hrs]

Testing of Hypothesis: Confidence Intervals, p-values, Type-I and Type-II Errors, Simple applications of tests for the Mean and Variance of a Univariate Normal Population.

Statistical Inference in simple linear regression model- Confidence Intervals for parameters, Testing of Hypothesis-Testing of regression coefficient; Test for regression as a whole, Coefficient of determination, Goodness of Fit, F-test, Analysis of Variance.

Pedagogy:

The Faculty may choose pedagogies suitable to the nature of course from following:

- Student Lecture and Presentation
- Case Study Analysis
- Teaching-learning Strategy using Multimedia
- Mind Mapping
- Chunking strategy
- Z to A Approach
- Collaborative and cooperative learning
- Anchored Instruction
- Peer Tutoring
- Microteaching and Simulated Teaching



- Blended learning
- Problem Based Learning (PBL)
- Rotation Model
- Flex Model
- Enriched Virtual Model

Modes of Examination: Assignment / Quiz / Project / Presentation / Course Work / Article reviews / Book Reviews / Reports / Written Exam / Jury / Survey // any other method that suits to assess the given course outcome

Examination Scheme:

Components	Internal +Attendance	Mid Term	End Term
Weightage (%)	20+10 = 30	20	50

Text Books:

1. Damodar N. Gujarati, Dawn C. Porter, and Sangeetha Gunasekar. Basic Econometrics. McGraw Hill Education (India) Private Limited; 5th edition (2011)
2. G. S. Maddala, K. J. Lahiri. Introduction to Econometrics. Wiley India Pvt Ltd; 4th edition (2012)

Reference book:

1. Jeffrey M. Wooldridge. Introductory Econometrics: A Modern Approach Cengage Learning India Pvt. Ltd.; 5th edition (2014)

Relationship between the Course Outcomes (COs) and Program Outcomes (POs)

Mapping of COs and POs		
	Course Outcomes (COs)	POs
CO1	Understand the econometrics as a discipline, its importance and various statistical techniques that economists use for estimating, testing, and forecasting economic relationships.	PO1, PO2
CO2	Demonstrate the basic concept of simple linear regression model under classical assumptions.	PO1, PO2
CO3	Understand the tools and techniques of statistical inference mainly in a simple linear regression model.	PO1, PO2, PO3, PO8



CO4	Develop insights about the sources, the consequences of violations of classical assumptions and the tests associated with it.	PO1, PO2, PO3, PO8							
CO5	Apply the econometric tools to the analysis of economic data and the estimation of economic relationships.	PO1, PO2, PO3, PO7, PO8							
		Domain specific knowledge and skills/ Acquire knowledge of core economic theories and adequately identify the issues related to economy, public policy and society	Problem Analysis and Critical thinking / Develop skills necessary to analyze economic data, think critically on alternatives and propose viable solutions	Modern IT Tools / Become proficient in using economic data analysis software (s) and conduct meaningful analysis of data	Business and Society / Appreciate the importance of responsibilities of businesses and government towards the society	Environment and sustainability / Contemplate on societal and global issues resulting from environmental concerns	Ethics / Appreciate individual ethical behavior and be able to discharge community responsibilities to the society	Leadership and Team work / Learn Leadership skills, Team work, and develop strong emotional and social aptitude to be a lifelong learner.	Communication: Develop verbal and non-verbal communication skills for a successful career in Industry, Business and Entrepreneurship
Course Code	Course Title	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8
ECO 307	Introductory Econometrics	3	3	3	2	2	1		3



Semester VI

ECO308	Elements of Public Economics	L	T	P	C
Version 2.0	Contact Hours: 60	3	1	0	4
Pre-requisites/Exposure	Basic exposure of Micro and Macroeconomics				
Co-requisites	--				

Course Objectives:

This paper aims at analysing and explaining the Government budget, public expenditures and taxation and their components. The subject encompasses a host of topics including VAT, GST, public goods, market failures, and externalities. The course intends to develop students' analytical and consulting skills in the area of public finance. It will introduce students to the public sector reform agenda with a focus on public finance issues. The course will help students to study public policy from the points of view of economic efficiency and equity. The study is a blend of theoretical developments, issues and problems confronted by India and their proposed and adopted solutions. The course aims to develop analytical skills of the students in major areas of public finance and train students to critically analyse government budgets and fiscal policy.

Course Outcomes:

On completion of this course, the students will be able to

- CO1. **Identify** and analyse government budgets, debt, public expenditures
- CO2. **Understand** various theories of tax incidence and various types of tax structure
- CO3. **Analyse** critically public goods and market failures
- CO4. **Analyse** public policy from the points of view of economic efficiency and equity.

Course Content

Unit 1: Introduction to Public Finance

[4 lecture hours]

Functions of Government - Economic functions -allocation, distribution and stabilization; Regulatory functions of the Government and its economic significance;

Unit 2: Public Expenditure and Public Goods

[13 lecture hours]



Concept of public goods—characteristics of public goods; national vs. local public goods; determination of provision of public good; Externality, concept of social versus private costs and benefits; externalities, natural monopoly

Unit 3: Principles of Taxation

[4 lectures]

Benefit principle (Bowen- Lindahl- Samuelson) – Ability to Pay Principle

Unit 4: Effects of Taxation

[12 lectures]

Effect of taxes on price and output under different market conditions; effect of taxes on wage on work effort

Unit 5: Fiscal policy and stabilisation

[10 lecture hours]

Fiscal policy and built-in stabilisers, public debt and intergenerational burden, India's public finance scenario

Core Text:

7. Musgrave and Musgrave: Public Finance in Theory and Practice (Fifth Edition).
8. Brown, C.V. and P.M. Jackson: Public Sector Economics, Wiley- Blackwell, 1991 (4th edition)
9. H L Bhatia. Public Finance. Vikas Publishing House Pvt. Ltd.

Reference Books:

10. Gruber J: *Public Finance and Public*. Worth Publishers
11. Amaresh Bagchi (ed.). Readings in Public Finance. Oxford University Press.

Pedagogy:

The Faculty may choose pedagogies suitable to the nature of course from following:

- Student Lecture and Presentation
- Case Study Analysis
- Teaching-learning Strategy using Multimedia
- Mind Mapping
- Chunking strategy
- Z to A Approach
- Collaborative and cooperative learning
- Anchored Instruction
- Peer Tutoring
- Microteaching and Simulated Teaching
- Blended learning
- Problem Based Learning (PBL)



- Rotation Model
- Flex Model
- Enriched Virtual Model

Modes of Examination: Assignment / Quiz / Project / Presentation / Course Work / Article reviews / Book Reviews / Reports / Written Exam / Jury / Survey / / any other method that suits to assess the given course outcome

Examination Scheme:

Components	Continuous Internal Assessment	End Term
Weightage (%)	50	50

Relationship between the Course Outcomes (COs) and Program Outcomes (POs):

Mapping between COs and POs		
	Course Outcomes (Cos)	Mapped Program Outcomes
CO1.	Identify and analyse government budgets, debt, public expenditures	PO1, PO2, PO4
CO2.	Understand various theories of tax incidence and various types of tax structure	PO1, PO2, PO4, PO6
CO3.	Analyse critically public goods and market failures	PO1, PO2, PO6
CO4.	Analyse public policy from the points of view of economic efficiency and equity.	PO1, PO2, PO4, PO6



Course Code	Course Title	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8
ECO308	Elements of Public Economics	3	3	-	2	-	3	-	-
		Domain specific knowledge and skills/ Acquire knowledge of core economic theories and adequately identify the issues related to economy, public policy and society	Problem Analysis and Critical thinking / Develop skills necessary to analyze economic data, think critically on alternatives and propose viable solutions	Modern IT Tools / Become proficient in using economic data analysis software (s) and conduct meaningful analysis of data	Business and Society / Appreciate the importance of responsibilities of businesses and government towards the society	Environment and sustainability / Contemplate on societal and global issues resulting from environmental concerns	Ethics / Appreciate individual ethical behavior and be able to discharge community responsibilities to the society	Leadership and Team work / Learn Leadership skills, Team work, and develop strong emotional and social aptitude to be a lifelong learner.	Communication: Develop verbal and non-verbal communication skills for a successful career in Industry, Business and Entrepreneurship



Semester- VII

ECO309	Introductory Development Economics	L	T	P	C
Version 1.0	Contact Hours: 60	3	1	0	4
Pre-requisites/Exposure	10+2 passed from any recognized Board or equivalent				
Co-requisites	--				

Course Objectives:

This course aims at a basic introduction to the ideas of growth and development. A chronological development of the measures of development and the major theoretical works is to be attempted to make it clear to the students that development is a multidimensional process and need to be addressed accordingly. Concept of poverty, inequality and also to learn about commonly used inequality and poverty measures are also discussed. Finally, the recent advances in the direction of free trade as a vehicle of development are to be discussed.

Course Outcomes

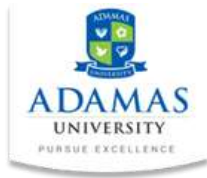
On completion of this course, the students will be able to

- CO5. **Understand** the core economic principles, concepts and theories of modern economic analysis and various economic development issues.
- CO6. **Explain** the interplay between markets, institutions and income distribution in causing and perpetuating underdevelopment; the inequalities between rich and poor countries and how the differences have evolved over time.
- CO7. **Analyze** effects of economic growth on inequality and poverty ; the empirical evidence on the patterns of economic development.
- CO8. **Assess** the effectiveness of various policies in combating underdevelopment.

Course Content

Unit-1: Concepts and measures of development

(15 Hrs)



Nature, Questions and Values of Development, Meanings of development – economic growth, redistribution form growth and capabilities approach to development, objectives of development. Measures of development- purchasing power parity and per capita income as an index of development, difference between growth and development, human development index, characteristics of a developing economy.

Unit-2: Development theories

(15 Hrs)

Different approaches- viciouscycle of poverty, circular causation, the Big Push, balanced and unbalanced growth; Dual economy Models- Lewis, Harris-Todaro, , Choice of technique in a labour surplus economy,

Unit 3: Development- Population, Inequality and Poverty

(15 Hrs)

Concepts of Population: definitions of fertility, mortality, birth rates, death rates, fertility rate, life expectancy, infant mortality rate, youth dependency ratio; Theory of demographic transition. Meaning of inequality, Causes and effects of inequality, Measures of Inequality - Gini-coefficient, Kuznet's Inverted U hypothesis.

Poverty, relative and absolute deprivation with respect to income, Poverty line, Poverty measures– Head count ratio, Poverty gap ratio, Income gap ratio, Human Poverty Index.

Pedagogy:

The Faculty may choose pedagogies suitable to the nature of course from following:

- Student Lecture and Presentation
- Case Study Analysis
- Teaching-learning Strategy using Multimedia
- Mind Mapping
- Chunking strategy
- Z to A Approach
- Collaborative and cooperative learning
- Anchored Instruction
- Peer Tutoring
- Microteaching and Simulated Teaching
- Blended learning
- Problem Based Learning (PBL)
- Rotation Model
- Flex Model
- Enriched Virtual Model



Modes of Examination: Assignment/Quiz/Project/Presentation/ Course Work / Article reviews / Book Reviews / Reports / Written Exam / Jury / Survey // any other method that suits to assess the given course outcome

Examination Scheme:

Components	Continuous Internal Assessment	End Term
Weightage (%)	50	50

Text Books

T1. Thirlwall, *Growth and Development*, Palgrave McMillan; 8th edition (2010)

T2. Todaro, and Smith. *Economic Development*, Pearson India; 10th edition (2011)

Reference Books

R1 D. Ray, *Development Economics*, Oxford University Press; 1st edition (1999)

R2 S. Gupta, and A. K. Mohapatra. *Recent Economic Growth in India: Contemporary Issues*. Prateeksha Publications (2011)

R3. K. Basu. *Analytical Development Economics: The Less Developed Economy Revisited*. Oxford University Press.

R4. G.M. Meier and J.E. Rauch. *Leading Issues in Economic Development*. Oxford University Press. (2005)

Relationship between the Course Outcomes (COs) and Program Outcomes (POs)

Mapping between COs and Pos		
	Course Outcomes (COs)	Mapped Program Outcomes
CO1	Understand the core economic principles, concepts and theories of modern economic analysis and various economic development issues.	PO1, PO3
CO2	Explain the interplay between markets, institutions and income distribution in causing and perpetuating underdevelopment; the inequalities between rich and poor countries and how the differences have evolved over time.	PO4, PO5
CO3	Analyze effects of economic growth on inequality and poverty ; the empirical evidence on the patterns of economic development.	PO6, PO7
CO4	Assess the effectiveness of various policies in combating underdevelopment.	PO2, PO8



			Domain specific knowledge and skills/ Acquire knowledge of core economic theories and adequately identify the issues related to economy, public policy and society	Problem Analysis and Critical thinking / Develop skills necessary to analyze economic data, think critically on alternatives and propose viable solutions	Modern IT Tools / Become proficient in using economic data analysis software (s) and conduct meaningful analysis of data	Business and Society / Appreciate the importance of responsibilities of businesses and government towards the society	Environment and sustainability / Contemplate on societal and global issues resulting from environmental concerns	Ethics / Appreciate individual ethical behavior and be able to discharge community responsibilities to the society	Leadership and Team work / Learn Leadership skills, Team work, and develop strong emotional and social aptitude to be a lifelong learner.	Communication: Develop verbal and non-verbal communication skills for a successful career in Industry, Business and Entrepreneurship
Course Code	Course Title	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	
ECO309	Introductory Development Economics	3	3	2	1	2	3	3	1	

1=weakly mapped

2= moderately mapped

3=strongly mapped



Semester- VIII

ECO310	International Trade	L	T	P	C
	Contact Hours: 60	3	1	0	4
Pre-requisites/Exposure	Exposure to Basic Economic Theory				
Co-requisites	NA				

Course Objective:

This course develops a systematic exposition of models that try to explain the composition, direction, and consequences of international trade, and the determinants and effects of trade policy. It then builds on the models of open economy macroeconomics developed in earlier courses, focusing on national policies as well as international monetary systems. It concludes with an analytical account of the causes and consequences of the rapid expansion of international financial flows in recent years. Although the course is based on abstract theoretical models, students will also be exposed to real-world examples and case studies.

Course Outcomes:

On completion of the course it is expected that students will be able to:

CO1. Define fundamentals of international trade and trade policy.

CO2. Understand how international monetary system works.

CO3. Evaluate macroeconomic policy options in open economy settings.

Course Contents:

Unit I. Introduction 5hrs

What is international economics about? An overview of world trade.

Unit II. Theories of International Trade 17hrs

The Ricardian, specific factors, Heckscher-Ohlin theorems, Empirical validation and Leontief Paradox, new trade theories; the international location of production; firms in the global economy — outsourcing and multinational enterprises.

Unit III Trade Policy 12hrs

Partial Equilibrium Analysis: Tariff - cost-benefit, Quota, Quota- Tariff equivalence, effects of tariff, quota, subsidy and voluntary export restraint;



UNIT IV Balance of Payments & Exchange Rate

11hrs

Balance of Payment accounts in an open economy; Determination of National Income, Transfer problem, Introduction of foreign Country & repercussion effect; Fixed & Flexible Exchange Rate: adjustment of demand and supply of Foreign Exchange, Effect of devaluation, Effects of exchange rate on domestic prices and ToT

Pedagogy:

The Faculty may choose pedagogies suitable to the nature of course from following:

- Student Lecture and Presentation
- Case Study Analysis
- Teaching-learning Strategy using Multimedia
- Mind Mapping
- Chunking strategy
- Z to A Approach
- Collaborative and cooperative learning
- Anchored Instruction
- Peer Tutoring
- Microteaching and Simulated Teaching
- Blended learning
- Problem Based Learning (PBL)
- Rotation Model
- Flex Model
- Enriched Virtual Model

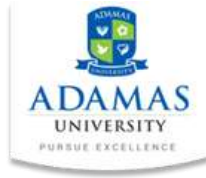
Modes of Examination: Assignment / Quiz / Project / Presentation / Course Work / Article reviews / Book Reviews / Reports / Written Exam / Jury / Survey / / any other method that suits to assess the given course outcome

Examination Scheme:

Components	Continuous Internal Assessment	End Term
Weightage (%)	50	50

Text and Reference:

1. Paul Krugman, Maurice Obstfeld, and Marc Melitz, *International Economics: Theory and Policy*, Addison-Wesley (Pearson Education Indian Edition), 9th edition, 2012.
2. Dominick Salvatore, *International Economics: Trade and Finance*, John Wiley



Course Code	Course Title	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8
ECO306	International Economics			3	2	3	2		

1=weakly mapped

2= moderately mapped

3=strongly mapped



Multidisciplinary Courses

ECO107	Principles of Economics	L	T	P	C
Contact Hours	60 hours	3	1	0	4
Pre-requisites/Exposure	NA				
Co-requisites	None				

Course Objective:

Economic principles guide us to think like an economist. Business on the same side encounter a number of situation where this economic intuition and thinking may help to find viable solution and answers to the questions pertaining to a particular business problem. These problems may come from variety of contexts, for example, from micro operations of the business unit such as production and consumer demand or from macro environment such as a steep rise in overall price level in the economy. Therefore, in order to understand the reasons of such business problems and discover their solutions, a fundamental knowledge of economic principles is required. This course intends to give a glimpse of core principles of economics (micro principles, macro principles and some basic ideas of international economics) such as main problems of an economic system, fundamentals of demand and supply, consumer and producer surplus, concepts related national income etc. to the students. The course will be taught by lectures on core concepts supplemented with numerical analysis, case studies and small projects presentations by students.

Course Outcomes:

On completion of the course it is expected that students will be able to:

CO 1 Demonstrate the understanding of main principles of economics as applied to commerce and business.

CO 2 Apply economic reasoning to the analysis of questions pertaining to business immediately.

CO 3 Demonstrate the ability to interpret data in view of economic theories and evidences.

Course Content:

Unit I: Introduction to the Principles 9 hrs

How people make decisions: Trade-offs; the cost of something is what you give up to get it; rational people think at margins; people respond to incentives



How people interact: Trade can make everyone better off; Markets are good way to organise economic activity; government can sometimes improve market outcome

How economy as a whole works: a country's standard of living depends on its ability to produce goods and services; price rise when government prints too much money; Society face a short run trade-off between inflation and unemployment.

The economists as scientists: the scientific models; role of assumptions; economic models; a few basic economic models; micro and macro economics

Unit II: The Market forces of Demand and Supply 9hrs

Market and competition

The demand curve: The relationship between price and quantity demanded

Market demand vs individual demand, Shifts in demand

The supply curve: relationship between price and quantity supplied

Market supply vs individual supply, Shifts in supply, Supply and demand together

Equilibrium, Three steps to analysing change in equilibrium

Unit III: Consumer, Producers and Efficiency of Markets

9 hrs

Consumer surplus

Willingness to pay; measuring consumer surplus

Producer surplus

Costs and willingness to sell: measuring producer surplus

Market efficiency

Unit IV: Behaviour of Economy as a Whole 9hrs

The economy's income and expenditure

The measurement of GDP (Gross Domestic Product)

Defining GDP: Precautions to be taken

The components of GDP

Consumption

Investment

Government Purchases

Net Exports

Real vs Nominal GDP

The GDP deflator

Measuring cost of living: The CPI and WPI

GDP deflator vs Price index

Unemployment: Basic concepts

Unit V: Interdependence and Gains from Trade

9 hrs



A parable of Modern Economy: Globalisation of Economic Activity

Production possibilities

Specialisation and Gains

Comparative Advantage: Driving force of specialisation

Absolute Advantage

Opportunity cost and comparative advantage

Comparative advantage add trade

Pedagogy:

The Faculty may choose pedagogies suitable to the nature of course from following:

- Student Lecture and Presentation
- Case Study Analysis
- Teaching-learning Strategy using Multimedia
- Mind Mapping
- Chunking strategy
- Z to A Approach
- Collaborative and cooperative learning
- Anchored Instruction
- Peer Tutoring
- Microteaching and Simulated Teaching
- Blended learning
- Problem Based Learning (PBL)
- Rotation Model
- Flex Model
- Enriched Virtual Model

Modes of Examination: Assignment/Quiz/Project/Presentation/ Course Work / Article reviews / Book Reviews / Reports / Written Exam / Jury / Survey / / any other method that suits to assess the given course outcome

Examination Scheme:

Components	Continuous Internal Assessment	End Term
Weightage (%)	50	50

Text and Reference:

Core Text:



MankiwGergory N (2007). “*Principles of Economics*”. India edition, Cengage learning, New Delhi.

Reference Readings:

Frank Robert H and Bernanke Ben S (2007), “*Principles of Economics*”. Third edition. Tata McGrawhill Publishing limited, New Delhi.

Samuelson Paul A and Nordhaus William D (2005). “*Economics*”. Eighteenth edition. Tata McGrawhill Publishing limited, New Delhi.

Joseph Nellis and David Parker (2006). “*Principles of Business Economics*” 2nd Edition, Pearson paperback edition.

Mapping between COs and POs		
	Course Outcomes (COs)	Mapped Programme Outcomes
CO1	Demonstrate the understanding of main principles of economics as applied to commerce and business.	PO1, PO2
CO2	Apply economic reasoning to the analysis of questions pertaining to business immediately.	PO1, PO4
CO3	Demonstrate the ability to interpret data in view of economic theories and evidences.	PO3



Course Code	Course Title	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8
ECO107	Principles of Economics	3	3	3	3				
		Domain specific knowledge and skills/ Acquire knowledge of core economic theories and adequately identify the issues related to economy, public policy and society	Problem Analysis and Critical thinking / Develop skills necessary to analyze economic data, think critically on alternatives and propose viable solutions	Modern IT Tools / Become proficient in using economic data analysis software (s) and conduct meaningful analysis of data	Business and Society / Appreciate the importance of responsibilities of businesses and government towards the society	Environment and sustainability / Contemplate on societal and global issues resulting from environmental concerns	Ethics / Appreciate individual ethical behavior and be able to discharge community responsibilities to the society	Leadership and Team work / Learn Leadership skills, Team work, and develop strong emotional and social aptitude to be a lifelong learner.	Communication: Develop verbal and non-verbal communication skills for a successful career in Industry, Business and Entrepreneurship

1=weakly mapped

2= moderately mapped

3=strongly mapped

