Programme Structure & Syllabus

Four Year UG Programme + 1 year PG
2024-25

Department of Economics
Central University of Rajasthan

Department of Economics
Central University of Rajasthan
Structure of the 4-yr UG + 1-yr PG Program

• The NEP 2020 based Four-Year UG Programme is an 8-semester (4-year) programme of 160 credits with multiple exit and entry options at the successful completion of courses assigned at the end of each year.

• Students who opt to exit after completion of the first year and have secured 40 credits will be awarded a UG certificate if, in addition, they complete one vocational course of 4 credits during the summer vacation of the first year. These students are allowed to re-enter the degree programme within three years and complete the degree programme within the stipulated maximum period of seven years.

• Students who opt to exit after completion of the second year and have secured 80 credits will be awarded the UG diploma if, in addition, they complete one vocational course of 4 credits during the summer vacation of the second year. These students are allowed to re-enter within a period of three years and complete the degree programme within the maximum period of seven years.

• Students who wish to undergo a 3-year UG programme will be awarded UG degree in the Major discipline after successful completion of three years securing 120 credits.

• Students who wish to undergo a 4-year UG programme will be awarded UG Honours degree in the major discipline after successful completion of four years degree programme with 160 credits.

• Students who meet minimum requirement of CGPA of 7.5, shall be eligible for a UG Honours with Research degree in respective discipline/field of study after successful completion of 160 Credit, including 12/16 Credits from a research project.

Outline of Courses:

• **Major and Minor Courses:** Major and minor courses are 4 credits courses. An additional one to two credits may be for tutorials or practices.

• **Other Courses:** The Other courses are 3 Credits courses which included multi-disciplinary, Ability enhancement (language) and skill enhancement courses.

• **Value Added Courses (Common):** Courses under value-added, summer internship/ apprenticeship/ community outreach activities of 2 credits.

• **Final year research project/ dissertation:** Final year research project or dissertation will of 12 credits.

• Students qualifying and taking one-year Master's degree programme and have secured 200 credits will be awarded the Master's degree in Economics.

Structure of the 4-Year UG+1-Year PG Programme

Minimum Credit requirements to Award Certificate/Diploma/Degree under each category

S. No.	Broad category of Course	Minimum Credit requirement					
		UG Certificate (1-year)	UG Diploma (2-year)	UG Degree (3-year)	UG Honours Degree (4-year)	UG Honours with Research Degree (4-year)	PG degree (1year)
1	MAJOR	8	30	60	80	80	100
2	MINOR	8	16	24	44	32	48
3	MULTI/INTER DISCIPLINARY COURSES(**IDC**)	6	9	9	9	9	9
4	ABILITY ENHANCEMENT COURSES(**AEC**)	4	8	8	8	8	8
5	SKILL ENHANCEMENT COURSES (**SEC**)	6	9	9	9	9	9
6	VALUE-ADDED COURSES(**VAC**)	8	8	8	8	8	8
7	SUMMER INTERNSHIP	4*	4*	2	2	2	2
8	RESEARCH PROJECT/ DISSERTATION	-	-		-	12	16
	Total	**40+4***	**80+4***	**120**	**160**	**160**	**200**

CORE: MAJOR AND MINOR
IDC: INTERDISCIPLINARYCOURSES
AEC: ABILITY ENHANCEMENT COURSES (LANGUAGE)
SEC: SKILL ENHANCEMENT COURSES
VAC: COMMON VALUE ADDED COURSES
INT: INTERNSHIP,
DISS: DISSERTATION

Number of courses (with Credits) under each category of courses:

S N	Semester		CORE		IDC	AEC	SEC/INT/ DISS.	VAC/ GE/DE
1	I		1 (4C)	1 (4C)	1 (3C)	1 (2C)	1 (3C)	1 (4C)
2	II		1 (4C)	1 (4C)	1 (3C)	1 (2C)	1 (3C)	1 (4C)
3	III		2 (8C)	1 (4C)	1 (3C)	1 (2C)	1 (3C)	-
4	IV		4 (14C)	1 (4C)	-	1 (2C)	-	-
5	V		4 (14C)	1 (4C)	-	-	INT. (2C)	-
6	VI		4 (16C)	1 (4C)	-	-	-	-
Total			**16(60C)**	**6(24C)**	**3 (9C)**	**4 (8C)**	**3 (9C)+INT (2C)**	**2 (8C)**
7	VII		3 (12C)	2 (8C)	-		-	-
8	VIII		2 (8C)	3 (12C)*	-		PROJECT (12C)	-
Total			**21 (80C)**	**11(44C) OR 8(32C)+Proj(12C)**	**3 (9C)**	**4 (8C)**	**3(9C)+INT(2C)**	**2 (8C)**
9	**I**		3 (12C)	1 (4C)	-	-	-	DE (4C)
10	**II**		1 (4C)	**-**	-	-	PROJECT (12C)	GE (4C)
Total			**26 (100C)**	**12 (48C)**	**3 (9C)**	**4 (8C)**	**3(9C)+INT(2C) +Project(16C)**	**2(8C) +DE (4C)+ GE(4 C)**

* Project of 12 Credits in place of Minor courses for the 4-year UG Honours with Research degree progamme

Course Structure

Semester-I

S. No.	Title of Courses	Type of Course	Credits
1.	**4.5ECO01 Microeconomics I** **For other Departments it may be treated as minor**	**Major**	**4**
2	Core 2: (Maths/CS/ST/Physics/ECO etc.)	Minor	4
3	IDC 1**:** Annexure I (Level 1)	IDC	3
4	SEC 1: Annexure II (Level 1)	SEC	3
5	AEC 1: Annexure III (Level 1)	AEC	2
6	VAC 1: Annexure IV (Level 1)	**VAC**	**4**
		Total	**20**

Semester-II

S. No.	Title of Courses	Type of Course	Credits
1	**4.5ECO11: Macroeconomics I** **For other Departments it may be treated as minor**	**Major**	**4**
2	Core 4: (Maths/CS/ST/Physics/ECO etc)	Minor	4
3	IDC 2: Annexure I (Level I)	IDC	3
4	SEC 2: Annexure II (Level I)	SEC	3
5	AEC 2: Annexure III (Level 1)	AEC	2
6	VAC 2: Annexure IV (Level I)	**VAC**	**4**
		Total	**20**

Semester-III

S. No.	Title of Courses	Type of Course	Credits
1	**5ECO01: Microeconomics II** **For other Departments it may be treated as minor**	**Major**	**4**
2	**5ECO02: Macroeconomics II** **For other Departments it may be treated as minor**	**Major**	**4**
3	Core 7: (Maths/CS/ST/Physics/ECO etc)	**Minor**	**4**
4	IDC 3 : Annexure I (Level II)	IDC	3
5	SEC3: Annexure II (Level II)	SEC	3
6	AEC 3 : Annexure III (Level II)	AEC	2
		Total	**20**

Semester-IV

S. No.	Title of Courses	Type of Course	Credits
1	**5ECO11: History of Economic Thought** **For other Departments it may be treated as minor**	**Major**	**4**
2	**5ECO12: Introduction to Environmental Economics** **For other Departments it may be treated as minor**	**Major**	**4**
3	Core 10: (Maths/CS/ST/Physics/ECO etc)	**Major**	**4**
4	Core 11: MOOC Course	Major	2
5	Core 12: (Bio/Math/Physics/EVS/CS/Eco/Stats/Linguistics etc.)	Minor	4
6	AEC 4 : Annexure III (Level II)	AEC	2
		Total	**20**

Semester-V

S. No.	Title of Courses	Type of Course	Credits
1	**5.5ECO01: Fundamentals of International Trade**	**Major**	**4**
2	**5.5ECO02: Economics of Money and Banking**	**Major**	**4**
3	**5.5ECO03: Fundamentals of Game Theory**	**Major**	**4**
4	Core 16: MOOC Course	**Major**	**2**
5	**5.5ECO04: Internship**	**SEC**	**2**
6	Core 17: (Maths/CS/ST/Physics/ECO etc)	Minor	4
		Total	20

Semester VI

S. No.	Title of Courses	Type of Course	Credits
1	**5.5ECO11: Economics of Industrial Organization**	**Major**	**4**
2	**5.5ECO12: Public Finance and Policy**	**Major**	**4**
3	**5.5ECO13: Introduction to Economic Growth Theories**	**Major**	**4**
4	**5.5ECO14: Introduction to Development Economics**	**Major**	**4**
5	Core 22: (Maths/CS/ST/Physics/ECO etc)	Minor	4
		Total	**20**

Semester-VII

S. No.	Title of Courses	Type of Course	Credits
1	**6ECO01: Advanced Microeconomics**	**Major**	**4**
2	**6ECO02: Advanced Macroeconomics**	**Major**	**4**
3	**6ECO03: Statistical Methods in Economics**	**Major**	**4**
4	**6ECO04 : Mathematical Methods in Economics**	**Major**	4
5	Core 27 (from department/ School/ another department)	Minor	4
		Total	**20**

Semester-VIII

S. No.	Title of Courses	Type of Course	Credits
1	**6ECO11: Trade Theory and Policy**	**Major**	**4**
2	**6ECO12: Econometrics.**	**Major**	**4**
3	Core 30 (from department/ School/ another department)	Minor/Elective	4
4	Core 31 (from department/ School/ another department)	Minor/Elective	4
5	Core 32 (from department/ School/ another department)	Minor/Elective	4
6	**6ECO16 Project (In place of Core 30, 31, 32)**	SEC	12*
		Total	**20**

* Project of 12 Credits in place of Minor courses for the 4-year UG Honours with Research degree progamme

Semester-I (PG)

S. No.	Title of Courses	Type of Course	Credits
1	**6.5ECO01: Economic Growth Theories**	**Core**	**4**
2	**6.5ECO02: Development Economics**	**Core**	**4**
3	**Elective from Department**	**DE**	4
4	**Elective from Department**	**DE**	4
5	Core 31 (from School/ another department)	GE	4
		Total	**20**

Semester-II (PG)

S. No.	Title of Courses	Type of Course	Credits
1	**6.5ECO11: Public Economics**	**Core**	**4**
2	**Elective from other Department**	**GE**	**4**
3	**6.5ECO12: Project**	**DE**	**12**
		Total	**20**

Annexure I: List of IDC Courses Offered –

Level 1-Semester I-II

1. 4.5ECO41 Indian Economy I
2. 4.5ECO42 Fundamentals of Agricultural Economics
3. 4.5ECO43 Gender Economics

Level 2-Semester III-IV

4. 5ECO51 Indian Economy II
5. 5ECO52 Political Economy
6. 5ECO53 Rural Economics

Annexure II: List of SEC Courses

Level 1-Semester I-II
4.5ECO 61 Introduction to Mathematics in Economics I
4.5ECO 62 Data Analytics and Computer Applications I
Level 2-Semester III-IV
5ECO71 Introduction to Mathematics in Economics II
5ECO72 Data Analytics and Computer Applications II

Annexure III: List of AEC Courses

Level 1-Semester I-II
4.5ECO 81 Quantitative Economics
4.5ECO 82 Fundamentals of Finance
Level 2-Semester III-IV
5ECO 91 Mathematical Finance

Annexure IV: List of VAC Courses

Level 1-Semester I-II

4.5ECO 99 Indian Knowledge Systems

List of Departmental Specific Elective Courses offered by the Department

Sr. No	Course Code	Course Name	Course Credit
1	6ECO21	Agricultural Economics	4
2	6ECO22	Environmental Economics and Policy	4
3	6ECO23	Political Economy & Development	4
4	6ECO24	Labor Economics	4
5	6ECO25	Economics of Money Banking and Financial Development in India	4
6	6.5ECO21	Monetary Economics	4
7	6.5ECO22	Economics of Mathematical Finance	4
8	6.5ECO23	Behavioral Economics	4
9	6.5ECO24	Advanced Econometrics	4
10	6.5ECO25	Economics of Industrial Organization	4
11	6.5ECO26	Game Theory	4
12	6.5ECO27	Economics of Environmental Issues and Sustainable Development	4
13	6.5ECO28	Health Economics	4
14	6.5ECO29	Natural Resource Economics	4
15	6.5ECO30	Introduction to Environmental Valuation	4
16	6.5ECO 31	Financial Economics	4
17	6.5ECO32	Data Analytics for Economics	4
18		Any Other MOOC/ Online Course as approved by Board of Studies & School Board	4

Programme Outcome

1. In depth knowledge about economic theory regarding the utilization and allocation of resources, including labour, natural resources and capital
2. Developing competency in transferring acquired knowledge and skills and decision making with cost-benefit approach
3. Analyze how markets for goods and services function and how income is generated and distributed. Such analyses may have a national and international perspective, and a time frame that may be either short-term (business-cycles and crises) or long term (economic growth)
4. Knowledge of statistical software package To formulate mathematical economic models, as well as how to quantify model
5. Analytical problem solving: To develop the understanding of using information, mathematical operations, and its appropriate interpretation
6. Insight into special fields of your choice, like financial markets, environmental and resource economics, development economics and international trade, Health Economics
7. To Develop Critical Thinking in students, theory cum application based learning and to assess policy relevant issues. Analyze existing economic models and evaluate their relevance for theoretical and practical problem solving
8. To Develop Quantitative Reasoning in students to assess the validity of various economic and policy relevant arguments and to know the interpretation of statistical and economic evidences
9. To Develop the understanding of Theory and Practices, using and collecting information and data, and its evaluation
10. Concretize economic problems to be analyzed and understand how the theoretical framework and actual empirical conditions are connected

Students would develop the following Graduate Attributes:
1. Disciplinary Knowledge
2. Analytical and Critical Thinking
3. Quantitative and Computational Skills
4. Application of Economic Theories
5. Interdisciplinary Competence
6. Ethical Reasoning and Social Responsibility
7. Communication Skills
8. Digital Literacy

Major Courses

Course: Microeconomics I (4.5ECO01)		
TEACHING SCHEME	EXAMINATION SCHEME	CREDITS ALLOTED
Theory: 4 hrs per week	End Semester Examination: 60 marks Internal Assessment: 40 marks	Theory: 4
		Total: 4

	Course Pre-requisites:
1	Knowledge of Elementary Economics

Course Objective:	
	This course provides an introduction to a core area of economics known as microeconomics. The purpose of this course is to provide a key incite on the behaviour of individual economic agents, including consumer behaviour and demand, producer behaviour and supply, price and output decisions by firms under various market structures. This course is also designed to provide the complete information on different ways in which various decision making units in the economy (individuals and firms) make their consumption and production decisions and how these decisions are coordinated.

Course Outcomes: The students will be able to	
1	Understand the operation of a competitive market economy
2	Identify the central economic problems that every competitive economy faces.
3	Explain how competitive markets organize the allocation of scarce resources and the distribution of goods and services
4	Identify the Opportunity Costs involves in various courses of action in their real life
5	Strategies employed by different economic agents –consumer, producer/business firm, factor of production- while making decision regarding their economic activities.
6	Describe the effects of different markets on the price of a product, the quantity of a product, the allocation of society's resources
7	Interpret charts, graphs, and tables and use the information to make informed judgments
8	Identify the similarities and differences between the product market factors market

Course Content:		
UNIT I	**Basic concepts** The Basic Economic Problem- Scarcity and Choice, the Basic Market Model; Interfering with the market versus working through the Market. Distinction between Microeconomics and Macroeconomics. Concepts of equilibrium- statics, dynamics, comparative statics, partial Equilibrium and General Equilibrium analysis. Positive Economics and Normative Economics.	10 hrs
UNIT II	**Consumer's Behavior** Utility:CardinalversusOrdinal;IndifferenceCurve-AssumptionsandProperties;Consumer's Equilibrium; Price Effect-Income Effect, Substitution Effect; Engel's Curve Derivation of the Demand Curve; Giffen Paradox; Merits and Limitations of Indifference Curve Analysis; Labour leisure choice, consumer's surplus, its application and limitations. The Revealed Preference approach.	10 hrs
UNIT III	**Demand - Supply and market equilibrium** Law of Demand, factors explaining inverse relationship between price and quantity demand, Elasticities of demand – price, income and cross, relation between price elasticity of demand, price and marginal revenue, relation between price elasticity and total expenditure. Market supply: law of supply, role of time element in supply, Elasticity of supply.	10 hrs
UNIT	**Theory of Production-I**	10

IV	Organization of Production; Level of Productions and Scale of production, Production Function and its related concepts ;Total, Average and Marginal Products and the Law of Variable Proportions	hrs
UNIT V	**Theory of Production-II** Production with two variable inputs- Isoquants; Factor Elasticity of Substitution; Returns to Scale; Least cost input combination; ExpansionPath;ContractCurveandthederivationofProductionPossibilityCurve;equilibrium of the producer - constrained output maximization and constrained cost minimization, output and substitution effects – elasticity of substitution – expansion path, returns to scale.	10 hrs
UNIT VI	**Theory of Cost and Revenue** Cost function: different concepts of costs, short run cost analysis and long run cost Analysis- relation between the expansion paths and cost function–total, average and Marginal cost curves –long run cost curves as envelope of short run cost curves. Optimum Size of Firm	10 Hrs

Internal Assessment:	
CIA 1	Unit I, Unit II
CIA 2	Assignment submission and/or presentation

Text Books:

Varian, H. (2005), *Intermediate Microeconomics: A Modern Approach* W.W. Norton, New York.

Koutsoyiannis A Modern Microeconomics 2nd Revised edition Macmillan (2008)

Robert Pindyck and Daniel Rubin field, Micro Economics, edtion 7, Prentice Hall

Reference Books:

G S Maddala and Ellen Miller, Micro Economic Theory and Application, Tata MacGraw Hill

Dominick Salvatore, Micro Economics- Theory and Applications, Oxford University Press

N.Y Melliwra H A. Book Co. 3. Koutsoyiannis, A., Modern Microeconomics*, London, Macmillan, (Latest. Edition).

James Mitchell Henderson, Richard E. Quandt, Microeconomic Theory, edition 3, McGraw-Hill, 1980

Hal R. Varian Intermediate Microeconomics: A Modern Approach (Eighth Edition) 2009, W. W. Norton & Company

Karl E. Case, Ray C. Fair, Principles of Economics, Pearson Education Asia

Sampat Mukherjee, Modern Economic Theory, New Age International Publishers

Rahul A. Shastri, Micro Economic Theory, University Press (India) Limited

D. N. Dwivedi , Micro Economic Theory and Applications, Pearson Education

Paul A Samuelson William Nordhaus, Microeconomics 19th Edition, MacGrawhill

PO-CO Compliance Matrix

	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO 9	PO 10
CO1	3	1				2	2		2	2
CO2	2	1				2	2		1	1
CO3	3	3			1	2	2		2	2
CO 4	3	3			1	2	2		2	2
CO 5	3	3	1	2	1	2	2		2	2
CO 6										
CO 7										
CO 8	2	2					2		2	2

*1: Low, 2: Medium, 3: High

Course: Macroeconomics-I (4.5ECO11)		
TEACHING SCHEME	EXAMINATION SCHEME	CREDITS ALLOTED
Theory: 4 hrs per week	End Semester Examination: 60 marks Internal Assessment: 40 marks	Theory: 4
		Total: 4

	Course Pre-requisites:
1	Knowledge of Elementary Economics

Course Objective:	
	The main purpose of this course is to equip students with the tools and ideas necessary to understand the aggregate economy and to make informed opinions about different macroeconomic theories on national income and employment determination, determination of household consumption expenditure on final consumer goods and services, determination of household saving behavior. This course also provides an introduction to other core areas of macroeconomics such national income, methods of measuring national income, Circular flow of income.

Course Outcomes: The students will be able to	
1	Understand the historical aspects of macroeconomics and Identify the major differences between microeconomics and macroeconomics
2	Examine how the economy behaves at the aggregate level and how national income is measured and determined.
3	Understanding classical theory of Income and employment determination
4	Understanding Keynesian theory of Income and employment determination
5	Identify the major factors explaining household consumption expenditure on final consumer goods Understand how the households behaves while making decision regarding their consumption expenditure on final goods and services
6	Identify the major factors explaining household saving behavior

Course Content:		
UNIT I	**Introduction to Macroeconomics** Origin and Roots of macroeconomics, the rationale for the distinct examination of macroeconomics, Scope of macroeconomics, Macroeconomic Variables- Stocks and Flows, Problem of Aggregation: Macroeconomic Equilibrium.	10 hrs
UNIT II	**Introduction to National Income** Concepts of national income, Circular flow of income in two, three and four sectors, real flow and money flow, measurement of gross domestic product; income, expenditure & output method, Difficulties in measurement of national income, nominal and real GDP, GDP and welfare, GDP deflator, the inter-relation of income and product aggregates. Inter temporal and international comparisons of National income; National income estimation in India.	10 hrs
UNIT III	**Determination of Income and Employment** Essential features and implications of Classical theory, self-adjustment mechanism in classical theory, Say's law in barter economy and money economy,	10 hrs
UNIT IV	**Keynesian Theory of Income and Employment** Keynes'objections to classical theory, Theory of Effective Demand; Simple Keynesian model of Income Determination for a closed economy, Fiscal Policy and Government Budget.	10 hrs
UNIT V	**Consumption function** Keynesian consumption function, Features of consumption function, Shifts/Drifts in	10 hrs

	the consumption function, Discrepancy between short run and long run consumption-income Relationship, Overview of Life Cycle Hypothesis, Permanent Income Hypothesis and Relative Income hypothesis and the economic Implications.	
UNIT VI	**Saving Function** Meaning, significance, determents of savings, non-Income factors effecting households saving, Paradox of Thrift, Nexus between Saving and Economic Growth, Impact of fiscal and monetary policy on household savings.	10 Hrs

Internal Assessment:		
CIA 1	Unit I, Unit II	
CIA 2	Assignment submission and/or presentation	

Text Books:
Dornbusch, Fischer and Startz, Macroeconomics, McGraw Hill, 11th edition, 2010
N. Gregory Mankiw. Macroeconomics, Worth Publishers, 7th edition, 2010
Andrew B. Abel and Ben S. Bernanke, Macroeconomics, Pearson Education, Inc.,

Reference Books:
Shapiro, E.: Macroeconomic Analysis.
SurajB.Gupta : Monetary Economics, S.Chand and Company Ltd.
Olivier Blanchard, Macroeconomics, Pearson Education, Inc., 5th edition, 2009.
Errol D'Souza, Macroeconomics, Pearson Education, 2009.
Andrew B. Abel and Ben S. Bernanke, Macroeconomics, Pearson Education, Inc

PO-CO Compliance Matrix

	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO 9	PO 10
CO1	1	2				2	2		2	2
CO2	2	2				2	2		1	1
CO3	2	2				2	2		2	2
CO4	3	3			1	2	2		2	2
CO5	3	3	1	2	1	2	2		2	2
CO6	1	3				3	1		2	2
*1: Low, 2: Medium, 3: High										

Course: Microeconomics –II (5ECO01)		
TEACHING SCHEME	EXAMINATION SCHEME	CREDITS ALLOTED
Theory: 4 hrs per week	End Semester Examination: 60 marks Internal Assessment: 40 marks	Theory: 4
		Total: 4

Course Pre-requisites:	
1	Knowledge of Microeconomics I

Course Objective:
The purpose of this course is to provide a key incite on the behavior of individual economic agents, including consumer behavior and demand, producer behavior and supply, price and output decisions by firms under various market structures. This course is also designed to provide the complete

	information on different ways in which various decision making units in the economy (individuals and firms) make their consumption and production decisions and how these decisions are coordinated.	
Course Outcomes: The students will be able to		
1	Understand the operation of a competitive market economy	
2	Identify the central economic problems that every competitive economy faces.	
3	Describe the effects of different markets on the price of a product, the quantity of a product, the allocation of society's resources	
4	Interpret charts, graphs, and tables and use the information to make informed judgments	
5	Identify the similarities and differences between the product market factors market	
6	Develop the hypothetical frameworks on determination of prices of various factors of production under different market conditions	
7	In depth knowledge about economic theory regarding the utilization and allocation of resources	
Course Content:		
UNIT I	**Theory of Perfect Competition** Perfect competition and pure competition—Short run and long run equilibrium of a competitive firm- Short run and long run supply curves—Long run equilibrium of the competitive industry-price determination in a competitive industry-existence, uniqueness and static stability of equilibrium –long run supply curves of the industry- effects of external economies and diseconomies–effect of change in cost–effect to firm position of tax-effectof price control.	10 hrs
UNIT II	**Imperfect Competition-I** Theory of monopoly: Characteristics-AR and MR curves under monopoly-Relation among AR, MR and Elasticity of demand-Equilibrium under monopoly-major features of monopoly-index of monopoly power- price discrimination–when possible?- when desirable? –	10 hrs
UNIT III	**Imperfect Competition-II** Degree of price discrimination-equilibrium under price discrimination-Social welfare under price discrimination, Equilibrium under multi-plant monopoly-Monopsony-Equilibrium under bilateral monopoly Monopolistic competition: Short run and long run equilibrium-excess capacity.	10 hrs
UNIT IV	**Theory of oligopoly** Characteristics of oligopoly-Oligopolistic indeterminacy non-collusive oligopoly models of Cournot and Stackelberg–collusive oligopoly–price leadership–market sharing model-price rigidity under oligopoly.	10 hrs
UNIT V	**Theory of factor pricing-I** Basics of distribution, Traditional theory of distribution, modern theory of distribution. Theory of wage - Choice between work and leisure–derivation of individual labour supply curve–total labour supply curve–demand for labour–determinationofequilibriumincompetitivelabourmarket-collectivebargainingand wage rate.	10 hrs
UNIT VI	**Theory of factor pricing-II** Theory of rent - Transfer earning and economic rent – quasi rent – Rent and price Theory of profit - Gross and net profit- elements of profit- risk and uncertainty theory- Innovation theory of profit.	10 Hrs
Internal Assessment:		
CIA 1	Unit I, Unit II	
CIA 2	Assignment submission and/or presentation	
Text Books:		
Varian, H. (2005), *Intermediate Microeconomics: A Modern Approach* W.W. Norton, New York.		

Koutsoyiannis A Modern Microeconomics 2nd Revised edition Macmillan (2008)
Robert Pindyck and Daniel Rubinfield, Micro Economics, edtion 7, Prentice Hall
Reference Books:
G S Maddala and Ellen Miller, Micro Economic Theory and Application, Tata MacGraw Hill
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	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO 9	PO 10
CO1	3	1				2	2		2	2
CO2	2	1				2	2		1	1
CO3	3	3			1	2	2		2	2
CO 4	3	3			1	2	2		2	2
CO 5	3	3	1	2	1	2	2		2	2
CO 6										
CO 7										

*1: Low, 2: Medium, 3: High

Course: Macroeconomics-II (5ECO02)		
TEACHING SCHEME	EXAMINATION SCHEME	CREDITS ALLOTED
Theory: 4 hrs per week	End Semester Examination: 60 marks Internal Assessment: 40 marks	Theory: 4
		Total: 4

Course Pre-requisites:

1	Knowledge of Macroeconomics I

Course Objective:

The main purpose of this course is to equip students with the tools and ideas necessary to understand the behavior of business firms, aggregate economy and to make informed opinions about different macroeconomic theories on determination of the market rate of interest, business cycles, investment expenditure on acquisition of capital goods by business firms. This course also provides an introduction to other core areas of macroeconomics such money and monetary policy, inflation, deflation, stagflation and the inflation & unemployment trade-off.

Course Outcomes: The students will be able to

1	Understand how the business firms behaves in general and what methods they adopt while taking decision regarding their investment projects

2	Identify the major factors explaining the market rate of Interest and its impact on the economy as a whole	
3	Understanding major theories of Business cycles	
4	Understanding the concept of money demand and supply	
5	Interpret different macroeconomic concepts such as output growth, money, inflation and unemployment	
6	Understand the monetary policy framework	

Course Content:		
UNIT I	**Investment Function** Meaning and types of Investment, Business Fixed Investment, The Determinants of Investment, Tobin's *q*, Residential Investment, Inventory Investment -Reasons for Holding Inventories, How the Real Interest Rate and Credit Conditions Affect Inventory Investment. Classical theory of investment, and Keynesian theory of investment; Marginal Efficiency of Capital. Theory of investment Multiplier, Accelerator Theory,	10 hrs
UNIT II	**Theory of Interest rate** Meaning, measurement, impact of interest rate, factors determining the market rate of Interest, theories of Interest rate; classical theory of interest rate, Neo-classical theory of Interest rate, Keynesian theory of Interest rate	10 hrs
UNIT III	**Business Cycles** Meaning, Characteristics and effects of Business Cycles, Theories of business cycle; Hawtrey's monetary theory, Real Business Cycle (RBC) Theory, Hayek's Over Investment Innovation and Diffusion Theory, and Cobweb theory. Measures to control business cycles.	10 hrs
UNIT IV	**Money Demand and Supply** Concept, functions and significance, Theories of Demand for Money: Classical, Cambridge and Keynes. Theories of Rate of Interest: Classical, Loanable and liquidity preference.	10 hrs
UNIT V	**Inflation and Unemployment** Meaning, Impact and control of inflation, demand pull and cost push inflation, inflationary and deflationary gap analysis, inflation and its social cost, inflation and under developed countries, choice between inflation, deflation and stagflation, overview of inflation and unemployment trade-off.	10 hrs
UNIT VI	**Monetary Policy** Meaning, objectives, instruments of monetary policy, Importance of monetary policy, impact of monetary policy on price, output and employment.	10 Hrs

Internal Assessment:		
CIA1	Unit I, Unit II	
CIA 2	Assignment submission and/or presentation	

Text Books:

Dornbusch, Fischer and Startz, Macroeconomics, McGraw Hill, 11th edition, 2010

N. Gregory Mankiw. Macroeconomics, Worth Publishers, 7th edition, 2010

Andrew B. Abel and Ben S. Bernanke, Macroeconomics, Pearson Education, Inc.,

Reference Books:

Shapiro, E.: Macroeconomic Analysis.

SurajB.Gupta : Monetary Economics, S.Chand and Company Ltd.

Olivier Blanchard, Macroeconomics, Pearson Education, Inc., 5th edition, 2009.

Errol D'Souza, Macroeconomics, Pearson Education, 2009.

Andrew B. Abel and Ben S. Bernanke, Macroeconomics, Pearson Education, Inc

PO-CO Compliance Matrix										
	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO 9	PO 10
CO1	3	2				2	2		2	2
CO2	2	2				2	2		1	1
CO3	2	2				2	2		2	2
CO4	3	3			1	2	2		2	2
CO5	3	3	1	2	1	2	2		2	2
CO6	3	3				3	3		2	2
*1: Low, 2: Medium, 3: High										

Course: History of Economic Thought (5ECO11)		
Teaching Scheme	**Examination Scheme**	**Credits Allotted**
Theory:4Hrsper week	EndSemesterExamination:60marks InternalAssessment:40marks	4

Course Pre-requisites:

1	Student must have completed the knowledge elementary Economics.

Course Objective:

This course is an introduction to the history of the development of economics, particularly economic theory under the different school of thoughts in the context of historical environment-social, political and economic. The course offers the student an exposure to the key models and concepts of the history of economic thought; the controversies between its major schools of thoughts and historical consciousness of economic ideas.

Course Outcomes: The students will be able to

1	Comprehend the development to f the economic thought and the theory of economics in historical perspective
2	Comprehend the analysis of ancient economic thinkers in different parts of the world
3	Comprehend the distinction between economic thought and economic ideas
4	Debate similarities and differences among different economic schools
5	Comprehend similarities and differences between different early school economic thought
6	Interpret and analyze critically classical school of economics including analysis of Adam Smith, David Ricardo R.T. Malthus along with the analysis of Karl Marx's theory.
7	Appreciate the genesis of Indian Economic Thought and Leading Early Thinkers Starting from Kautilya, Nairoji ,to Ambedkar and Gandhi

Course Content:

Units	Contents	Lectures/ Hrs
Unit-I	Evolution of History of Economic Thought and main periods in the History of Economics; Need of studying History of Economic Thought ;Various ways tostudyHistoryofEconomicThought;HistoryofEconomicThoughtversusEconomicIdeas.	10
Unit -II	Lack of agreement in Economic Thought; Genesis of Economics and Ancient Economic Thinkers: Hesoid, Homer, Xenophone,Aristotle, Plato, Fan Li, and Abu Yusuf.	10

\Unit-III	Early Schools of Thought: Mercantilism – Traders and trade policy, surplus, role of government, William Colbert; Physiocracy– Agriculture, land and surplus, taxation, Natural Order, Net Product and Circulation of Wealth (Quesnay's Tableau Economique). William Petty and Richard Cantillion.	10
Unit-IV	Classical–Economicgrowth,LaissezFaire&Stationerystate;AdamSmith-Wealthofnations,Divisionoflabourandspecialization,TheoryofInvisiblehandandSelf-interest,Adam Smith's Theory of Value and Distribution; David Ricardo-Theory of Value	10
Unit-V	Theory of distribution & Diminishing returns; R.T .Malthus Population theory; Karl Marx-Theory of Value, Surplus Value and Class Struggle, Capitalist Crisis and Removal of Capitalism.	10
Unit-VI	Genesis of Indian Economic Thought and Leading Early Thinkers: Kautilya – Role of state, Taxation, Foreign trade, Good governance; D. B. Nairoji – Economic nationalism, Brain drain, Poverty; B.R Ambedkar –Caste system in India &Division of Labourers, Golden path of development – Balance between Public and Private sectors; M.K. Gandhi – Environmentalism, Self-reliance, Distinction between 'Standard of living' and 'Standard of life',Rural development.	10

Assessments

CIA- I	UNITS I to III	Marks: 20
CIA- II	UNITS IV to VI Assignment submission and/or presentation	Marks: 20
ESE	UNITS IV to VI	Marks: 60

Text Books/ References

1. Haney H. – History of Economic Thoughts
2. Eric Roll – History of Economic Thoughts
3. Bhatia H.L.– History of Economic Thoughts
4. Gide and Rist –History of Economic Doctrine
5. Sinha V.C. – AarthikVicharon KaItihaas
6. Ganguly B.N. – Indian Economic Thought

PO-CO Compliance Matrix

	PO-1	PO-2	PO-3	PO-4	PO-5	PO-6	PO-7	PO-8	PO-9	PO-10
CO-1	2	3	2			2				
CO-2							2		2	2
CO-3	2	2	2			2			3	3
CO-4	2	2	2			2	3			
CO-5	2	2	2			2				
CO-6						3	2		3	3
CO-7	2	2				2				

*1:Low,2:Medium,3: High

	Course Name: Introduction to Environmental Economics (5ECO12)		

TEACHING SCHEME	EXAMINATION SCHEME	CREDITS ALLOTED	
Theory:4hrsper week	EndSemesterExamination:60marks InternalAssessment:40marks	Theory:4	
		Total:4	

Course Pre-requisites:

1	Must possess knowledge of elementary microeconomics

Course Objective:

	The course aims to acquaint the students with tools of microeconomics in dealing with environmental problems. This course targets to apprise the environment-economy interactions and familiarize the various Economic regulatory tools in handling environmental problems.

Course Outcomes :The students will be able to

1	Relate the nature of Environmental problems through the economic lens.
2	Analyze and assess the implications of using various environmental policy instruments and evaluate the costs and benefits of undertaking pollution control projects, a skill that is applicable to other social projects.
3	Appreciatehowmarketsallocategoodsandwhytheysometimesfailallocateenvironmentalgoodsoptimally.
4	Plan regulatory framework for correcting market failures.
5	Useeconomictechniquestoanalyzeenvironmentalproblemsandtoassessenvironmentalpolicies
6	Have the knowledge of the components of environmental policy, criteria for its design and assessment, and critique of these matters.
7	Apply the various quantitative regulations on the basis of criteria of cost effectiveness.

Course Content:

UNITI	Meaning, Definition and Relevance of Environmental Economics; Basic Concepts and Tools in Environmental Economics; Comparison with Other Sub-disciplines like Ecological Economics and Natural Resource Economics; Major Problems and Key Concerns of Environmental Economics;	10 hrs
UNITII	Welfare Economics applications: Market-efficiency, Optimality, Consumers and Producers Surplus	10hrs
UNITIII	Optimal Provision of public Goods and Bads; Externality and Market Failure; Pigouvian Fee	10 hrs
UNITIV	Environmental Values and Non-market Valuations: Revealed Preference Methods (Part-2); Stated Preference Methods	10 hrs
UNITV	Theory of Environmental Regulation : Command and Control and Economic Incentives Methods	10 hrs
UNITVI	TheProblemofuncertaintyandriskinEnvironmentalpolicychoice;Adverse Selection and Moral hazard in Environment Issues; Environmental Risk and uncertainty.	10 hrs

Internal Assessment:

CIA1	UnitI, UnitII
CIA2	Assignment submission and/or presentation

Text Books:

1. Kolstad, C,D.(2003)Environmental Economics, Oxford university Press

Reference Books:

1. Thomas and Callan, Environmental Economics, Cengage Learning,2009.
2. Tietenberg,T.(1996),EnvironmentalandNaturalResourceEconomics,HarperCollins,College Publishers, New York, Fourth Edition
3. Bhattacharya,R.N.(Edited)(2001),EnvironmentalEconomics:AnIndianPerspective,Oxford University Press, New Delhi.

PO-CO Compliance Matrix										
	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10

CO1	2	2	2			3				
CO2	2	2	2			3			3	3
CO3	2	2				2			2	2
CO4									3	3
CO5									3	2
CO6	2	2	2			3	3		3	
CO7				3		3		3	2	
*1:Low,2:Medium,3: High										

Course: Fundamentals of International Trade (5.5ECO01)		
TEACHING SCHEME	**EXAMINATION SCHEME**	**CREDITS ALLOTED**
Theory: 4 hrs per week	End Semester Examination: 60 marks Internal Assessment: 40 marks	Theory: 4
		Total: 4

Course Pre-requisites:	
1	Student must have completed the knowledge elementary macroeconomics.

Course Objective:

The purpose of this course is to provide students with a thorough grounding in the theory of international trade as well as international trade policy and to demonstrate the relevance of the theory in the analysis of (a) existing patterns of international trade and what determines them, (b) the conduct of trade policy and (c) the economic implications of international trade. Course is also dealing with the concepts of balance of payment accounting and foreign exchange market.

Course Outcomes: The students will be able to

1	Understand, at the level of formal analysis, the major models of international trade and be able to distinguish between them in terms of their assumptions and economic implications
2	Understand the principle of comparative advantage and its formal expression and interpretation within different theoretical model
3	Understand the Heckscher Ohlin model of trade and its interpretation and implications
4	Demonstrate the basic understanding of new trade theories
5	Be able to apply partial equilibrium in analyzing the economic effects of trade policy instruments such as tariffs, quotas, export subsidies
6	Be familiar with, and be able to critically analyze the main arguments for protection and conversely be able to critically evaluate the relevance and realism of arguments for free trade, taking into account the costs and benefits of trade policy measures on different sections of the community and the implications for the formulation of trade policy.
7	Be familiar with the Balance of Payment accounting and foreign exchange market system.

Course Content:

UNIT I	**Unit 1. Introduction and Classical Trade Theories** What is international economics about? An overview of world trade. Mercantilist View on International Trade, Theory of Absolute Advantage, Theory of Comparative Advantage	10 hrs
UNIT II	**Neo-classical and New Trade Theories** Theory of Opportunity Cost and Heckscher-Ohlin models; new trade theories:, Krugman and	10 hrs

	Factor Availability;	
UNIT III	**International Trade Policy I** Instruments of trade policy; international monetary systems Free Trade and Protection-Arguments for and against Free Trade and Protection; Tariffs-Classifications of Tariffs, Effects of Tariffs- Partial Equilibrium analysis,	10 hrs
UNIT IV	**International Trade Policy II** Offer Curve, Trade Indifference Curve, Concept of Optimum Tariff; Quotas- Types, Effects; Tariffs versus Quotas. Partial Equilibrium effect of Export Subsidy, Partial Equilibrium Effect of Custom Union	10 hrs
UNIT V	**Balance of Payment** The Structure of BOP; Accounting Principle; Disequilibrium in BOP- Types of Disequilibrium; Causes of Disequilibrium; Adjustment Mechanism- Correction under Fixed and Flexible Exchange Rate regimes,	10 hrs
UNIT VI	**Foreign Exchange** Functions of Foreign Exchange Market; Determination of Equilibrium Exchange Rate; Concepts of Spot and Forward Rates. Forward Premium and Forward Discounts, Expectations	10 Hrs

Internal Assessment:	
CIA 1	Unit I, Unit II
CIA 2	Assignment submission and/or presentation

Text Books:

1. Dominick Salvatore, *International Economics: Trade and Finance*, John Wiley International Student Edition, 10th edition, 2011.

Reference Books:

1. Paul Krugman, Maurice Obstfeld, and Marc Melitz, *International Economics: Theory and Policy*, Addison-Wesley (Pearson Education Indian Edition), 9th edition, 2012.

PO-CO Compliance Matrix										
	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO 9	PO 10
CO1	3	3								
CO2	3	3								
CO3	3	3	2							2
CO4	3	3	2							
CO5			2			2			2	2
CO6						3	2		3	3
CO7	3	3				2				

*1: Low, 2: Medium, 3: High

Course: Economics of Money and Banking (5.5ECO02)		
TEACHING SCHEME	**EXAMINATION SCHEME**	**CREDITS ALLOTED**
Theory: 4 hrs per week	End Semester Examination: 60 marks Internal Assessment: 40 marks	Theory: 4
		Total: 4

Course Pre-requisites:	
1	Student must have completed the knowledge elementary macroeconomics.

Course Objective:
This course explores the practical aspects of money and banking within the economy. Topics will include money creation, banking operation, central banking system-conduct of monetary policy, and monetary

management in an open economy. Emphasis is given to the changing role of financial institutions as well as new financial instruments. The course develops a number of theoretical frameworks for the analysis of domestic economic perspective related to money, banking operation, monetary transmission mechanisms, which provides a base for the understanding of classical and Keynesian approaches for monetary theory and their empirical evidence. The course also focuses on the issues of monetary policy implementation in the closed and open economy contexts, like determinants of the price level, rate of inflation, exchange rate in different regimes.

Course Outcomes: The students will be able to	
1	Understand the basic concepts of money including its origin, functions
2	Understand the role of money, money demand and money supply in the economy
3	Describe the process of money creation by the banking system and the role of the central bank
4	Understand the general principles of bank management
5	Identify the key banking sector reforms in India and policy implications of those reforms with respect to development of Indian economy
6	Elucidate the liability and asset portfolio management "problem" of banks
7	Elucidate the liability and asset portfolio management "problem" of banks.
8	Assess and evaluate the conduct of monetary policy by the central bank with respect to an open economy management
9	Understand the analysis of market for reserves and federal funds rate with special reference to changes in monetary policy tools
10	Asses the changing role of financial institutions as well as new financial instruments in the economy

Course Content:		
UNIT I	**Money** Concept, functions, measurement; Supply of money: Mechanics of money supply creation; measures of money supply in India. Demand for money: Fisher, Cambridge, and Keynesian and Friedman theories.	10 hrs
UNIT II	**Commercial Banking System I** Meaning, functions, assets and liabilities-Balancing liquidity with profitability, Process of credit creation by commercial banks.	10 hrs
UNIT III	**Commercial Banking System I** General principles of banking management, Indian banking system: Changing role and structure; banking sector reforms.	10 hrs
UNIT IV	**Central Banking** Meaning and functions, techniques of credit control with special reference to India, conduct of monetary policy: Goals, targets, indicators and instruments of monetary control; Analysis of market for reserves and federal funds rate with special reference to changes in monetary policy tools. Monetary management in an open economy.	10 hrs
UNIT V	**Financial Institutions I** Economic analysis of financial structure; Basic puzzles about financial structure throughout the world, transaction costs and its impact on financial structure,	10 hrs
UNIT VI	**Financial Institutions II**	10 Hrs

	Problem of asymmetric information – adverse selection and moral hazard and its impact on financial structure. Role of financial markets and institutions in Economic development.

Internal Assessment:		
CIA 1	Unit I, Unit II	
CIA 2	Assignment submission and/or presentation	

Text Books:
1. SurajB.Gupta, Monetary Economics, S. Chand and Company Ltd
2. SurajB.Gupta., Monetary Planning for India, University Press, New Delhi.
3. Frederic S. Mishkin., The Economics of Money, Banking and Financial Markets, Pearson, Addison, Wesley. Newyork, 7th Edition (2004)

Reference Books:
4. Peter Howells and Keith Bain., the Economics of Money and Banking, Pearson, Education Limit. 3rdEdtion (2005).
5. L. M. Bhole and J. Mahukud, Financial Institutions and Markets, Tata McGraw Hill, 5th edition, 2011

PO-CO Compliance Matrix

	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO 9	PO 10
CO1	3	3								
CO2	3	3								
CO3	3	3	2							2
CO4	3	3	2							
CO5	3	3	2							
CO6	3	3								
CO7	3	3								
CO8						2			3	3
CO9						2			2	3
CO10						2			3	3

*1: Low, 2: Medium, 3: High

Course: Fundamentals of Game Theory (5.5ECO03)		
TEACHING SCHEME	**EXAMINATION SCHEME**	**CREDITS ALLOTED**
Theory: 4 hrs per week	End Semester Examination: 60 marks Internal Assessment: 40 marks	Theory: 4
		Total: 4
Course Pre-requisites:		
1	Student must have completed the knowledge elementary microeconomics	
Course Objective:		

	Game theory is a formal study of conflicts and cooperation. The game theoretic concepts apply whenever the actions of several agents (individuals, groups, firms etc. or any combination of these) are interdependent. The concept of Game theory provides a language to formulate structure, analyze, and understand the strategic scenario. This course would provide the students the main ideas of how the game theories can help to understand the economic and social phenomena. It emphasizes the idea behind the theories rather than their mathematical expression typically taught in mathematics. The course would introduce some equilibrium concepts of game theory and their usage in economics along with various numerical examples and applications. The basic knowledge of game theory can dramatically improve the strategic instinct and the decision making skill of students.

Course Outcomes: The students will be able to	
1	Understand the economic and social phenomena easily
2	Understand the actions of several economic agents (individuals, groups, firms etc. or any combination of these) in any market structure
3	Improve their strategic instinct and the decision making skill
4	Elucidate the concept of equilibrium in any branch economics
5	Understand, clearly, the concept of Nash Equilibrium, different market strategies and zero-sum game

Course Content:		
UNIT I	Introduction to Game Theory; History of Game Theoretic Analysis; classifications of games; theory of rational choice	10 hrs
UNIT II	Strategic Game: The Pay-off matrix; the Prisoner's dilemma.	10 hrs
UNIT III	Nash Equilibrium: The concept of Nash Equilibrium; dominating and dominated strategies; zero-sum game	10 hrs
UNIT IV	Mixed Strategy Nash Equilibrium: concepts and examples; strategic game with randomization. Games with perfect information.	10 hrs
UNIT V	Games with imperfect information; Bayesian Games; Cournot's duopoly game with imperfect information; auction; other applications.	10 hrs
UNIT VI	Repeated, Cooperative Games and Core game using Shapely Values	10 Hrs

Internal Assessment:		
CIA 1	Unit I, Unit II	
CIA 2	Assignment submission and/or presentation	

Text Books:
1. Osborne J Martin (2004), An Introduction to Game Theory, Oxford University Press

Reference Books:
1. Fudenberg, D. and Tirole, J. (1991), Game Theory, MIT Press
2. Gibbons, R. (1992), A Primer in Game Theory, Prentice-Hall
3. Myerson, R. (1991): Game Theory: Analysis of Conflict, Harvard University Press

PO-CO Compliance Matrix										
	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO 9	PO 10
CO1	3	3								
CO2	3	3								
CO3	3	3								
CO4	3	3								
CO5	3	3								

*1: Low, 2: Medium, 3: High

Course: Economics of Industrial Organization (5.5ECO11)		
TEACHING SCHEME	**EXAMINATION SCHEME**	**CREDITS ALLOTED**
Theory: 4 hrs per week	End Semester Examination: 60 marks Internal Assessment: 40 marks	Theory: 4
		Total: 4

Course Pre-requisites:

1	Student must have completed the knowledge elementary microeconomics

Course Objective:

This course provides a foundation for the study of theoretical models of industrial organization. This field of study is mainly concerned with different strategic motives and interactions in oligopolistic markets, employing the techniques taught in the compulsory course on Game Theory. It also provides a theoretical framework for analysis of antitrust/competition policy, as well as other policies relating to regulation, innovation, intellectual property rights, and strategic trade policy, which are covered in other courses.

Course Outcomes: The students will be able to

1	Think analytically, using game theoretic tools, about the principal issues concerning oligopolistic markets, competition,
2	Apply them to the real world of industry. They would also be prepared to understand competition policy more naturally and foundationally.

Course Content:

UNIT I	Introduction to Industrial Organization, Competing Through Quantity and Price: Homogeneous Goods : Markets for Homogeneous Goods , Short-Run Price Competition	10 hrs
UNIT II	Competing Through Quantity and Price: Heterogeneous Goods: Markets for Differentiated Products , Product Differentiation	10 hrs
UNIT III	Game theory : Nash Equilibrium, Dominant strategies, mixed strategies, prisoner's dilemma	10 hrs
UNIT IV	Spatial models of horizontal and vertical product differentiation.	10 hrs
UNIT V	Static oligopoly models with homogenous and differentiated products. Strategic substitutes and strategic complements. Stackelberg and free entry. Stability and sustainability of cartels.	10 hrs
UNIT VI	Mergers, advertising, Innovation, Vertically related markets and vertical contracts between firms. Advertising	10 Hrs

Internal Assessment:

CIA 1	Unit I, Unit II	
CIA 2	Assignment submission and/or presentation	

Text Books:

1. P. Belleflamme, M. Peitz: Industrial Organisation: Markets and Strategies, Cambridge University Press (2015)
2. L. Cabral: Introduction to Industrial Organization, MIT Press (2017)

Reference Books:

3. M. Armstrong, R. Porter: Handbook of Industrial Organization, Vol. III, North-Holland (2007)
4. O. Shy: Industrial Organization: Theory and Applications, MIT Press (1996)
5. J. Tirole: The Theory of Industrial Organization, MIT Press (1988)
6. Hay, D.A., Morris, D.(1991). *Industrial Economics and Organisation*. Oxford University Press

7. Krouse, Clement G. (1990). *Theory of Industrial Economics*. Basil Blackwell Ltd

8. Sen, A. (ed.) (1996). *Industrial Organisation*. Oxford University Press

9. Waterson, M. (1984). *Economics Theory of the Industry*. Cambridge University Press

PO-CO Compliance Matrix									
	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO 9	PO 10

CO1	3	3				3			2	2
CO2	3	3				3	2	2	2
*1: Low, 2: Medium, 3: High									

<table>
<tr><td colspan="3" align="center">Course: Public Finance and Policy (5.5ECO12)</td></tr>
<tr><td align="center">TEACHING SCHEME</td><td align="center">EXAMINATION SCHEME</td><td align="center">CREDITS ALLOTED</td></tr>
<tr><td align="center">Theory: 4 hrs per week</td><td>End Semester Examination: 60 marks
Internal Assessment: 40 marks</td><td align="center">Theory: 4</td></tr>
<tr><td></td><td></td><td align="center">Total: 4</td></tr>
</table>

Course Pre-requisites:

1. Student must have completed the knowledge elementary macroeconomics

Course Objective:

Study the functioning of modern public finance. After successful completion of the course students will be able to critically assess the mechanism of functioning of modern public finance

Course Outcomes: The students will be able to

1	Analyse the functioning of modern public finance and the role of the Government related to various functions (allocation, distribution, stabilization, public goods, provision of social goods, mixed goods, etc.). Thus, students will be able to explain why government intervention is needed, how it influences the behaviour of the private sector and what the welfare effects of such influences are.
2	Identify the types of public needs and the mechanisms of their financing.
3	Argue the theoretical basis of public expenditures and taxes and to analyse their types and economic effects.
4	Classify public revenues and expenditures through the budget and to analyse the instruments and objectives of budgetary policy.
5	Understand the effects of Public Debt and the theories related to it.
6	Understand the Centre-State financial relations.

Course Content:

UNIT I	Scope of Public Finance Scope of Public Finance, fiscal functions –allocation function, Distribution function and stabilization, The Concept of Public Goods: Reasons for Governmental Allocation Intervention- Externalities, Allocation or Distribution which comes first..	10 hrs
UNIT II	Public Expenditure Introduction, meaning and scope, difference between public and private expenditure, Reason for growth of public expenditure, Types and Canons of Public Expenditure, Benefit principle i.e. Lindhal theory and samuelson 's model Pigou's Ability to pay Theory, , Wagner's Law of Increasing Governmental Activities.	10 hrs
UNIT III	Public Revenue I Source of Public Revenue, Direct vs. indirect, Objectives of Taxation, Concepts- Impact of Tax, incidence of Tax, Shifting of Tax and Taxable capacity,	10 hrs
UNIT IV	Public Revenue II	10 hrs

	Indian Tax Structure- Classification of Taxes, Features & limitation of Indian Tax System.	
UNIT V	Public Debt Issues relating to Public Debt: Sources of internal and external Public Debt, danger of public debt, safe limit of public debt, debt burden analysis and management of public debt,	10 hrs
UNIT VI	federal finance in India- allocation of revenue resources between centre and state under constitution, shortcoming of federal finance, Concept of Budget Deficit - Revenue, Fiscal, Primary.	10 Hrs

Internal Assessment:		
CIA 1	Unit I, Unit II	
CIA 2	Assignment submission and/or presentation	

Text Books:

1. R.A. Musgrave and P.B. Musgrave, Public Finance in Theory & Practice, McGraw Hill Publications.

2. Musgrave, R.A.: Theory of Public Finance, McGraw Hill

Reference Books:

1. Andley K.K &Sundharam, K.P.M.: Public Economics and Public Finance, Rattan PrakashanMandir.

PO-CO Compliance Matrix										
	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO 9	PO 10
CO1	2	2	2			2			2	2
CO2	2	2								
CO3	2	2				2			2	2
CO4	3	2				2			2	2
CO5	2	2				2				
CO6	2	3				2				

*1: Low, 2: Medium, 3: High

Course Name: Introduction to Economic Growth Theories (5.5ECO13)		
TEACHING SCHEME	**EXAMINATION SCHEME**	**CREDITS ALLOTED**
Theory: 4 hrs per week	End Semester Examination: 60 marks Internal Assessment: 40 marks	Theory: 4
		Total: 4

Course Pre-requisites:	
1	Student must have completed the knowledge of Macroeconomics

Course Objective:
This course offers an introduction to the theories and models of economic growth. It will use these models to shed light both on the process of economic growth at the world level and on sources of income and growth differences across countries. Topics covered include income distribution and economic growth, where Kaldor and Pasinetti's work will be mentioned, and the standard economic growth model of Solow. Macroeconomic questions addressed include: Why are some countries rich and some poor? What differences among countries can explain economic success and failures? This course is aimed at Economics students on the Mathematical

	Pathway and homework questions will typically involve solving problems etc. Course also employs the knowledge of endogenous growth models of AK, Lucas and Romer and its interpretation within theoretical model.	
Course Outcomes: The students will be able to		
1	Demonstrate a deep analytical understanding of exogenous and endogenous growth models	
2	Understand the main insights into the economic growth process that economists have gleaned over the past half century.	
3	Solve and manipulate a variety of simple models in economic growth.	
4	Identify applications and limitations of the models learned.	
5	Develop an understanding of the evolution of growth models;	
6	Display a good grasp of those factors that contribute to or inhibit economic growth (population, capital, technology, human capital, and institutions;	
7	Develop the understanding of Solow growth model and its applications in real life	
8	Understand the conditional and unconditional convergence in growth models	
9	Develop the understanding of role of money, wealth, saving, physical capital, income distribution, and role of initial per capita, in economic growth.	

Course Content:		
UNIT I	Economic Growth and its Determinants Meaning of Economic Growth and Meaning of Economic Development: Traditional View; The Concept of Economic Development: The Modern View; Factors Determining Economic Growth: Capital Formation; Foreign Capital: Foreign Aid and Foreign Investment, Human Capital: Education and Health; Technological Progress and Economic Growth; Human Capital Education and Economic Growth; The Growth of Population; Capital-Output Ratio.	10hrs
UNIT II	Conceptions of Development: Alternative measures of development, documenting the international variation in these measures, comparing development trajectories across nations and within them.	10hrs
UNIT III	Theories of Economic Growth and Development: Classical theory, Marxian theory; Schumpeterian theory; Rostow's stages of economic growth; Solow model and convergence with population growth and technical progress.	10hrs
UNIT IV	Theory of Development with Surplus Labour: Lewis Model: Lewis Model of Development with Surplus Labour; Profit as the Main Source of Capital Formation; A Critique of Lewis Model	10hrs
UNIT V	Nature of Unemployment in Labour Surplus Developing Countries: Basic Explanation: Lack of Capital Stock Relative to Labour Force–-Lack of Wage Goods and Unemployment in Developing Countries, Use of Capital-Intensive Technology, The Concept of Disguised Unemployment, Prof. Amartya Sen's Analysis of Disguised Unemployment.	10hrs
UNIT VI	Sen Vs. Bhagwati: Debate on Growth and Distribution: Bhagwati's Approach, Evaluation of Bhagwati's Approach, Prof. Amartya Sen on Growth, Poverty and Distribution – Evaluation.	10hrs

Internal Assessment:		
CIA 1	Unit I, Unit II	
CIA 2	Assignment submission and/or presentation	

Text Books:
1. Jones C.I., "Introduction to Economic Growth" W.W. Norton & Company, New York
2. H.G. Jones, "An Introduction to Modern Theories of Economic Growth" McGraw-Hill Book Company
3. Barro, Robert J. and Xavier Sala-i-Martin, Economic Growth, McGraw-Hill,
4. Debraj Ray. Development Economics. Oxford.
5. Michel P. Todaro and Stephen C. Smith. Economic Development. Pearson

Reference Books:
6. Romer, David, Advanced Macroeconomics, New York: McGraw-Hill Co.,
7. Sen, A.K.,ed.(1970) Growth Economics, Penguin Books
8. Blanchard, O. and Fischer, S. 1989. Lectures on Macroeconomics.

PO-CO Compliance Matrix								
	PO1	PO2	PO3	PO4	PO5	PO6		

CO1	3	3								
CO2	2	2								
CO3			3	3						
CO 4			3	3						
CO5			3	3						
CO6	3	3								
CO7			3	3	2	3				
CO8	2	3								
CO9	3	3								
*1: Low, 2: Medium, 3: High										

Course Name: Introduction to Development Economics (5.5ECO14)		
TEACHINGSCHEME	**EXAMINATIONSCHEME**	**CREDITSALLOTED**
Theory:4 hrs per week	End Semester Examination: 60 marks Internal Assessment: 40 marks	Theory:4
		Total:4

Course Pre-requisites:	
1	Basic Understanding of Economics
Course Objective:	
	This course familiarizes the students with emergence of the field of development economics in the context of International events. It aims to focus on various development theories and approaches in dealing with under development and pressing issues of poverty and inequality, with the concepts and measurement.
Course Outcomes: The students will be able to	
1	Analyze the shift of focus from economic growth as a single dimensional concept to economic development which is a multi-dimensional concept.
2	Demonstrate familiarity with some central themes and issues of economic development.
3	Examine the factors responsible for perpetuation of the conditions of underdevelopment in same Economies.
4	Differentiate different measures of poverty and inequality and pros and cons of different measurement.
5	Review the policy implications of these key development economic theories
6	Critically analyze how the theory of development economics impacts up on practical implementation macro Development policies in varying local and global contexts
Course Content:	

UNITI	Meaning and measurement, Features of underdeveloped economies, developing economies, determinants of economic development, Economic and noneconomic factors of development, Obstacles in growth and development. Arguments on growth Vs development: Sen's View), Role of state in economic development	10 hrs
UNITII	Absolute and Relative, causes of poverty, trends in poverty, economic inequality, Kuznet inverted 'U' curve, Population problem and growth pattern - Theory of demographic transition; demographic dividend.	10 hrs
UNITIII	Classical model: the Marxian model; Schumpeter's model; Keynesian model; Harrod – Domar model, Social and technological dualism, Harris Todaro Model.	10 hrs
UNITIV	The Problem of Unemployment ,Types of Unemployment, Unemployment and Underemployment Estimates The Theory of Employment Determination and Developing Countries, Ingredients of an Employment Policy	10 hrs

UNITV	Capital formation, - Importance of Capital Formation ,The Three Stages of Capital Formation ,Sources of Capital ,Capital-Output Ratio	10 hrs
UNITVI	The Origin of Economic Crisis in the Early 1990s , Economic Reforms in India, Macroeconomic Stabilization ,Structural Reforms , An Appraisal of Economic Reforms	10 hrs

Internal Assessment:		
CIA1	UnitI, UnitII	
CIA2	Assignment submission and/ or presentation	

Text Books:
1. Mishra and Puri, Economics of Development and Planning. HPH
2. DRay:Development Economics,OUP.

Reference Books:
3. S.Ghatak:Introduction to Development Economics,Rutledge.
4. KaushikBasu:Analytical Development Economics The Less Developed Economy Revisited, OUP.
5. DLal;The Poverty of Development Economics, OUP.

PO-CO Compliance Matrix										
	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO 9	PO 10
CO1						3	2	2	2	2
CO2	3	3								
CO3	3	3	2			2				
CO4		2			1	2	2	1	2	
CO5	3	3								
CO6		2		2	2	3	2		2	
CO7		2		3	3	3	2	2	1	2
*1:Low,2:Medium,3: High										

Course: Advanced Microeconomics (6ECO01)		
TEACHING SCHEME	**EXAMINATION SCHEME**	**CREDITS ALLOTED**
Theory: 4 hrs per week	End Semester Examination: 60 marks Internal Assessment: 40 marks	Theory: 4
		Total: 4

Course Pre-requisites:	
1	Student must have completed knowledge of elementary microeconomics
2	Must Have aptitude for microeconomics

Course Objective:
The Course examines how individuals and firms make decisions by weighing up preferences, costs and benefits, and how the interaction of their decisions leads to utility-maximization, market and social outcomes. The model of market supply and demand is employed to examine the effects of taxes, subsidies and other government interventions in market activity. The implications of different market structures, including perfect competition and monopolistic are examined. Course further give insights about understanding of theory of factor pricing, general equilibrium model , welfare economics and externalities.

Course Outcomes: The students will be able to	
1	Demonstrate an understanding of the concepts of utility functions, demand functions and preference structure to compare the choices of consumer
2	Demonstrate the ability to apply optimization techniques to decisions made by consumers and firms
3	Students will be able to demonstrate an understanding of producer choice, including cost and production function analysis
4	Demonstrate an understanding of how markets work to allocate resources and the optimal individual decision making that underlies market outcomes
5	Identify perfect competition, monopoly and monopolistic market structures and discuss their implications for resource allocation
6	Explain the advantages and potential shortcomings of markets, discuss the conditions under which markets do and do not work well
7	Apply the microeconomic concepts and theories in welfare economics
8	Demonstrate an understanding of theory of factor pricing in different markets
9	Analyze and apply the decisions and problems of duopoly, oligopoly and game theory

Course Content:		
UNIT I	Theory of Consumer Preference relations and their properties, Consumption Decision (Optimizing Behaviour of the consumer under alternative preference structures- Utility, Indifference curves and revealed preference). Derivation of demand functions: Perfect Substitute, perfect compliments and quasi-linear utilities, Indirect Utility and Expenditure Functions. Comparative statics of the consumer's decision, income and substitution effect –Hicks and Slutsky analysis Slutsky Equation, derivation of ordinary and compensated demand function, Demand elasticity. Consumer's surplus,	10 hrs
UNIT II	Theory of Production and Costs I : The Production function- Assumptions, Variation in Scale, Variation in input proportions, the multi-product firm and production possibility set. Minimization of costs in the long and the short run, Derivation of cost functions from production functions; Cobb-Douglas, CES, and Trans-log production functions and their properties;	10 hrs
UNIT III	Theory of Market I Perfect competition — short run and long run equilibrium of the firm and industry, supply curve; Monopolistic Competition-Chamberlin approaches to equilibrium, equilibrium of the firm and the group with product differentiation and selling costs, excess capacity under monopolistic and imperfect competition,	10 hrs
UNIT IV	Theory of Market II Monopoly — short run and long run equilibrium, price discrimination, welfare aspects, monopoly control and regulation; Natural Monopoly, Oligopoly & Game Theory: Non-collusive (Cournot, Bertrand, Edgeworth, Non-collusive (Cournot, Bertrand, Edgeworth, Chamberlin, kinked demand curve and Stackelberg's solution) and collusive (Cartels and mergers, price leadership) models; Price and output determination under monopsony and bilateral monopoly; Mixed and pure strategies, Repeated Games	10 hrs
UNIT V	Theory of Distribution and General Equilibrium Theory of Distribution: Neo-classical approach — Marginal productivity theory; Product exhaustion theorem; Elasticity of technical substitution, technical progress and factor shares; Theory of distribution in imperfect product and factor markets; General Equilibrium: Core of Exchange economy; Market exchange; General equilibrium models of exchange and production; Existence of competitive equilibria; Uniqueness and Stability of Competitive equilibrium;	10 hrs
UNIT VI	Welfare Economics and Externalities Welfare Economics : First and Second Fundamental Theorems of Welfare Economics. Pareto Criterion; Kaldor Criterion; Scitovsky Criterion; Social welfare function; Compensation principle; Theory of Second Best, Arrow's impossibility theorem; Rawl's theory of justice, Externalities: Market Failure: Market failure; Sources of market failure and their implications - Externalities; Public Good; Asymmetric Information.	10 Hrs

Internal Assessment:		
CIA 1	Unit I, Unit II	
CIA 2	Assignment submission and/or presentation	

Text Books:

1. Varian, H. (2005), *Intermediate Microeconomics: A Modern Approach* W.W. Norton, New York.

2. Varian, H. (2004), *Microeconomic Analysis*, W.W. Norton, New York.

Reference Books:

1. Gravelle, H and Ray Rees (2004), *Microeconomics*, 3rd edition, Prentice Hall Longman London.

2. Sen, A. (1999), *Microeconomics : Theory and Applications*, Oxford University Press, New

3. Microeconomic Theory: Basic Principles and Extensions (Upper Level Economics Titles)Cengage; 11 edition (2014)

4. Roy Choudhary, K Microeconomics, Vol 1.

5. Nicholson, W., Microeconomic Theory: Basic Principles and Extensions, eighth edition, South Western Thomson Learning, 2002

6. Modern Microeconomics 2e,Koutsoyiannis 2nd Revised edition Edition 2nd Publisher: Macmillan,

7. Henderson &Quandt, 1988, Microeconomic Theory - A Mathematical Approach, McGraw Hill. (Henderson).

<div align="center">PO-CO Compliance Matrix</div>

		PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO 9	PO 10
CO1	CO1	2	2		2						1
CO2	CO2	2	2		2	2				2	1
CO3	CO3	2	2	2	2					1	1
CO 4	CO 4	2	2	1	1	2	2			2	1
CO 5	CO 5	2	2	3		2	3			2	1
CO 6	CO 6	2	2	2			2			2	1
CO 7											
CO 8											
CO 9											

*1: Low, 2: Medium, 3: High

Course: Advanced Macroeconomics (6ECO02)		
TEACHING SCHEME	EXAMINATION SCHEME	CREDITS ALLOTED
Theory: 4 hrs per week	End Semester Examination: 60 marks Internal Assessment: 40 marks	Theory: 4
		Total: 4
Course Pre-requisites:		
1	Student must have completed the knowledge of elementary macroeconomics	
Course Objective:		
	This course Introduces students to the main classes of models in modern macroeconomics. The first half of the course will be aimed at providing students with astound knowledge of modern macroeconomic theories of income and employment determination ,integration of goods and money market and the use of fiscal and monetary police to achieve economic goals while the second half will deal with the open economy along with measures to analyze money demand –supply, unemployment and inflation including contrasting economic views on unemployment.	

Course Outcomes: The students will be able to	
1	Improve to make economic policy debate.
2	Understand the determination of interest rate and output in the short-run
3	Demonstrate how the economy works at different situations both in short-run as well as long-run.
4	Understand simultaneous equilibrium in goods market, money market and balance of payments account
5	Define money and describe the theories on money demand and money supply including the process of money creation by the banking system
6	Apply macroeconomic measures to analyze unemployment and inflation including contrasting economic views on unemployment.

Course Content:		
UNIT I	Macroeconomic Debate The Economy in the long run; Classical Macroeconomics, Keynesian approach of Macroeconomics. Models of Income and Employment Determination: An Overview. Walrasian interpretation of Keynesian unemployment; New Keynesian Interpretation, Post-Keynesian Interpretation.New classical macroeconomics.	10 hrs
UNIT II	Economy in the short-run Goods markets and the IS curve, Financial or money market and the LM curve, Goods market and money market together-The IS-LM model- closed economy case; Fiscal policy and monetary policy under alternative supply assumptions, Policy Mix. Aggregate demand and supply.	10 hrs
UNIT III	Output, Price and Employment : A Keynesian – Classical Synthesis Determination of price and output, derivation of aggregate demand, aggregate demand policy under alternative supply assumptions, Supply side economics; the classical and Keynesian approaches to aggregate supply curve, Aggregate demand – Supply model : Over view, achieving full employment – policy options, supply shocks and policy dilemma	10 hrs
UNIT IV	Open Economy Goods market equilibrium, money market equilibrium, Balance of payments account equilibrium Macroeconomics, the Mundell-Flemming Model under fixed exchange rates, perfect capital mobility and flexible exchange rates	10 hrs
UNIT V	Money demand-Supply Demand for Money- Friedman, Baumol, Tobin, Patinkin's Real Balance Effect, Theory of money supply; Issues regarding endogenous and exogenous supply of money, R.B.I.'s Approach to Supply of Money	10 hrs
UNIT VI	Inflation and Unemployment Demand-Pull and Cost-Push Inflation, Phillips Curve Controversy, stagflation, expected inflation and the inflation expectations – Augmented Philips curve, Natural Rate of Unemployment-Adaptive expectations, Rational expectation models of inflations, wage –unemployment relationship: why are wages sticky	10 Hrs

Internal Assessment:	
CIA 1	Unit I, Unit II
CIA 2	Assignment submission and/or presentation

Text Books:
Dornbusch Rudi, Fischer, Stanley and Startz Richard. *Macroeconomics*, Tata McGraw-Hill Publishing Co. Ltd.
N. Gregory Mankiw. Macroeconomics, Worth Publishers, 7th edition, 2010
Andrew B. Abel and Ben S. Bernanke, Macroeconomics, Pearson Education, Inc.,
Reference Books:

Shapiro, E.: Macroeconomic Analysis.										
SurajB.Gupta : Monetary Economics, S.Chand and Company Ltd.										
Olivier Blanchard, Macroeconomics, Pearson Education, Inc., 5th edition, 2009.										
Errol D'Souza, Macroeconomics, Pearson Education, 2009.										
Andrew B. Abel and Ben S. Bernanke, Macroeconomics, Pearson Education, Inc										
PO-CO Compliance Matrix										
	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO 9	PO 10
CO1	3	2			3	2	2		2	2
CO2	2	2				2	2		1	1
CO3	2	2				2	2		2	2
CO4	3	3			2	2	2		2	2
CO5	3	3	1	2	1	2	2		2	2
CO6	1	3				3	1		2	2
*1: Low, 2: Medium, 3: High										

Course Name: Statistical Methods in Economics (6ECO03)		
TEACHING SCHEME	**EXAMINATION SCHEME**	**CREDITS ALLOTED**
Theory:4hrsper week	EndSemesterExamination:60marks Internal Assessment: 40 marks	Theory:4
		Total:4

Course Pre-requisites:

1	Aptitude and skills in Quantitative Analysis
2	Must possess knowledge of elementary statistics

Course Objective:

The Course deals with simple tools and techniques, which will help a student in data collection, presentation, analysis and drawing inferences about various statistical hypotheses. The students are expected to formulate problems in economic theory and learn simple solutions with one or two variables.

Course Outcomes: The students will be able to

1	Compare and contrast various types of data.
2	Select and estimate measures of central tendency and dispersion based on specific economic problems.
3	Apply various sampling methods based on the context and need of the study.
4	Apply the rules of probability theory and able to identify which approach is used in a given scenario.
5	Understand the concept of Bayes theorem with its economic applications.
6	Use correlation analysis on different types of datasets to find the degree of association.
7	Estimate cause and effect relationship through regression analysis
8	Able to select a good estimator in the process of estimation.
9	Perform hypothesis testing using z test t-test, chi-square and f-tests and interpret the results.

Course Content:

UNITI	Typical data sets arising in economics, Qualitative, Quantitative, Income, Expenditure, Time Series and Panel data. Major sources of datasets: Census, Government agencies, e-resources, Graphical representations, Measures of Central tendency, Measures of dispersion. Sampling methods: Census, simple random sample with and without replacement, stratified sampling methods.	10 hrs
UNITII	Probability theory I:Laws of addition and multiplication; Independence of events, Conditional probability and concept of independence; Bayes theorem with applications;	10 hrs
UNITIII	Probability theory II: Random variable; Discrete and Continuous random variables; Probability density functions; Binomial, Poisson and Normal distributions, their mean and Variance ,graphs of normal density functions.	10 hrs
UNITIV	Correlation: Pearson's product moment and Spearman's rank correlation-their properties; Partial and multiple correlations	10 hrs
UNITV	Estimation: Concept of an estimator and its sampling distribution: Desirable properties of a Good estimator; Point and Interval estimation.	10 hrs
UNITVI	Testing of statistical hypotheses – Formulation of the problem; Null and alternative hypothesis; Type 1 and Type 2 errors, Goodness of fit; Confidence intervals and level of significance; Hypothesis testing based on standard normal, t,Chi-square and F tests.	10 hrs

Internal Assessment:

CIA1	UnitI, UnitII	
CIA2	Assignment submission and/or presentation	

Text Books:
1. Lee,C.F.,Lee,J.C.andLee,A.C.Statistics for Business and Financial Economics.(2000),World Scientific, Singapore.
2. Newbold,P.,Carlson,W.L.&ThorneB.M.StatisticsforBusinessandEconomics,Pearson

Reference Books:
1. Black, Ken .Business Statistics.(2004),JohnWiley&Sons.
2. Taylor, S. Business Statistics.(2001),Palgrave.
3. Bluman, A.G.Elementary Statistics.(2009),McGraw-Hill

PO-CO Compliance Matrix

	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO 9	PO 10
CO1				2	2			2		
CO2				3	2			3		
CO3					2				2	2
CO4				3	2			3	2	2
CO5	2	2	2	3	2			3		
CO6				3	2			2		
CO7				3	2			3		
CO8				3	2			3		
CO9				3	2			3	2	2
*1:Low,2:Medium,3:High										

Course Name: Mathematical Methods in Economics (6ECO04)		
TEACHING SCHEME	EXAMINATION SCHEME	CREDITS ALLOTED
Theory: 4 hrs per week	End Semester Examination: 60 marks Internal Assessment: 40 marks	Theory: 4

			Total: 4

Course Pre-requisites:	
1	Student must have completed Bachelor's Degree
2	Aptitude and skills in Quantitative Analysis
3	Must possess knowledge of elementary mathematics

Course Objective:
The course covers a wide range of mathematical methods in applied economics. Specifically, it aims to provide the basics of mathematical methods and the range of mathematical techniques that are used to explain various applied economics problems. Also the course attempt to provide the insight of some advance level mathematical tools in understanding and formulating various economic theories.

Course Outcomes: The students will be able to	
1	Familiar with a wide range of mathematical tools that are used to explain various economic theories.
2	Successfully demonstrate the economic meaning of mathematical models.
3	Optimize the resources and thus understand how the economic policy makers make decision.
4	Demonstrate most of the theories in economics precisely and strategically.
5	Understand the economic dynamics.

Course Content:		
UNIT I	Concept of a function; Limits, continuity and differentiability of a real valued function; Convex and concave functions, Differentiation- Partial and total; Interpretation of partial derivatives.	10 hrs
UNIT II	Optimization with single and multivariable functions- Unconstrained and constrained optimization in simple economic problems. Integration-simple and Definite, Applications to Economic variables	10 hrs
UNIT III	Concept of a vector - its properties; Concept of matrix - their types, Simple operations on matrices, matrix inversion. Determinants and their basic properties; Solution of simultaneous equations through Cramer's rule; Jacobians and Hessians: Input-output Analysis.	10 hrs
UNIT IV	Difference equations - Solution of first order and second order difference equations; Differential Equations	10 hrs
UNIT V	Linear programming — Basic concept; Formulation of a linear programming problem — Its structure and variables; Nature of feasible, basic and optimal solution; Solution of simple linear programming problems through graphical and simplex method; Concept of duality and statement of duality theorems; Formulation of the Dual and its interpretation.	10 hrs
UNIT VI	Game Theory: an introduction. Dominated and Dominant Strategies: The Prisoner's Dilemma, mixed strategy Nash Equilibrium; Saddle point solution; Simple applications to economics.	10 hrs

Internal Assessment:	
CIA 1	Unit I, Unit II
CIA 2	Assignment submission and/or presentation

Text Books:
1. Chiang, Alpha, C. and Kevin Wainwright. Fundamental methods of Mathematical

Reference Books:
1. Economics, latest edition, McGraw Hill.
2. Knut Sydsaeter and Peter J Hammond. Mathematics for Economic Analysis, Pearson Education India.
3. Carl P Simon and Lawrence Blume. Mathematics for Economists, W. W. Norton & Company.
4. Mike Rosser. Basic Mathematics for Economists, Routledge
5. Eric Rasmusen. Games and Informations, Basil Blackwell.
6. Martin, J Osborne. An Introduction to Game Theory, Oxford University Press

PO-CO Compliance Matrix										
	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO 9	PO 10
CO1	2	2	2		3					

CO2				3	3			3		
CO3				3	3			2	3	3
CO 4	2	2	2		3	2			2	2
CO 5	2	2			3	2			2	2

*1: Low, 2: Medium, 3: High

Course Name: Trade Theory and Policies (6ECO11)		
TEACHING SCHEME	**EXAMINATION SCHEME**	**CREDITS ALLOTED**
Theory: 4 hrs per week	End Semester Examination: 60 marks Internal Assessment: 40 marks	Theory: 4
		Total: 4

Course Pre-requisites:

1	Student must have completed the elementary knowledge of Macroeconomics, and Microeconomics

Course Objective:

The course examines the gains from trade, the determinants of patterns of international trade and the effects of trade on income distribution, the relationship between trade, and economic growth. The course relies predominantly on a standard collection international trade models to understand the motivations behind modern trade policies. Course employs the understanding of classical, neo-classical and modern trade theories and its implications for economic welfare and gain. Course develops the understanding of analyzing the partial and general equilibrium effect of trade policies and theory of custom union. This course is also discussing about the recent issues of WTO and regional trade agreements.

Course Outcomes: The students will be able to

1	Compare at the level of formal analysis, the major models of international trade and be able to distinguish between them in terms of their assumptions and economic implications.
2	Develop the basic understanding of trade theories and its interpretation and implication on world economy
3	Analyze the partial and general equilibrium effect of trade policies, a) trade policy instruments such as tariffs, quotas, export subsidies, (b) retaliatory measures such as anti-dumping duties and countervailing duties and (c) the creation of regional trading arrangements such as free trade areas, customs unions and common market.
4	Distinguish and critically analyze the main arguments for protection and conversely be able to critically evaluate the relevance and realism of arguments for free trade, taking into account the costs and benefits of trade policy measures on different sections of the community and the implications for the formulation of trade policy.
5	Analyze the partial and general equilibrium effect of theory of custom union
6	Analyze the effects of Immiserizing growth and intra-industry trade
7	Identify major recent developments in the world trading system, and be able to critically analyze the WTO negotiations and regional trading arrangements.
8	Analyze the country's gain in free, restricted and no trade situations
9	measure the economic welfare and gain of participating international trade
10	Measure the trade gain through offer curves, trade indifference curve and production possibility curves

Course Content:

UNIT I	Classical trade theories on comparative advantage, Refinements of Comparative Advantage, gains from trade, Opportunity cost. Incomplete specialization. Theory of opportunity Cost. Free trade is better than no trade, Free trade is better than restricted trade, restricted trade is better than free trade	10 hrs
UNIT II	Heckscher-Ohlin factor endowment model. Factor price equalization Theorem. Stolper-Samuelson theorem. Specific Factor Model, terms of trade and offer curve analysis, empirical approaches and paradox	10 hrs

UNIT II	Factor intensity reversals and pattern of trade, Intra and inter industry trade. Imperfect Competition: Imperfect competition, homogeneity: Krugman, Trade and growth; Rybczynski theorem, Immiserizing growth; endogenous growth with homogeneity and heterogeneity.	10 hrs
UNIT IV	New Trade Theories: Vernon, Posner, Krugman, Kravis	10 hrs
UNIT V	General and partial equilibrium effects of tariffs on welfare. Arguments for protection, Political economy of trade agreements and upcoming issues of protections, Effective rate of protection. Non tariff barriers: Quota, Voluntary Export Restraints, Countervailing duties and export subsidies, dumping. Effects of tariffs on factor prices.	10 hrs
UNIT VI	Theory of customs union – 'second best' argument – trade creation and trade diversion, General equilibrium effect of custom union Stages of integration Regional trade groupings, GATT and WTO, Regional trade blocks	10 hrs

Internal Assessment:

CIA 1	Unit I, Unit II	
CIA 2	Assignment submission and/or presentation	

Text Books:

1. Dominick Salvatore, International Economics: Trade and Finance, John Wiley International Student Edition, 10th edition, 2011.

Reference Books:

2. Pugel, T.A.(2008), International Economics, 13th Edition, Tata Mcgraw hill publishing Co, New Delhi.
3. Bhagwati, J. N., A. Panagariya and T.N. Srinivasan (1998), Lectures on International Trade, OUP,NewDelhi, Second Edition.
4. Krugman, P.A. and M Obstfeld (2003), International Economics: Theory and Policy, Sixth Ed.

PO-CO Compliance Matrix

	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO 9	PO 10
CO1	2	2	3			3				
CO2	2	2	3			3				
CO3							2		3	3
CO 4							3		2	2
CO5			2			2			2	2
CO6			2			2			2	2
CO7	2	2	2			3	3		2	2
CO8			2			2	2		2	2
CO9					1	2		1	2	2
CO 10			2		1	2		1	2	2

*1: Low, 2: Medium, 3: High

Course Name: Econometrics (6ECO12)		
TEACHING SCHEME	**EXAMINATION SCHEME**	**CREDITS ALLOTED**
Theory:4hrsper week	EndSemesterExamination:60marks InternalAssessment:40marks	Theory:4
		Total:4

Course Pre-requisites:

1	Student must have completed a course in Statistical and Mathematical applications

Course Objective:

	The course is quantitatively rigorous and requires advanced knowledge of mathematics and statistics. An important objective of the course is to introduce regression analysis to students so that they are able to understand its applications in different fields in economics. Attention is also given to the violations of CLRM model, aspects of discrete choice models, and simultaneous equations models. Specifically, by the end of the course, students will be able to specify assumptions, formulate and estimate appropriate models, interpret the results and test their statistical significance. Students are required to conduct research in teams where they apply the techniques learnt during the course and present their results.
Course Outcomes: The students will be able to	
1	Estimate the regression model, derive the parameter estimators and learn to interpret.
2	Learn the consequences of the violations of CLRM assumptions, how to detect the problems of autocorrelation And Heteroskedasticity and also able to learn to learn the remedial measures.
3	Understand and would learn to quantify the qualitative variables and the interpretations..They would learn to Use the dummy variables both as explanatory as well as dependent variable.
4	Learn the important simultaneous equation models and the simultaneous equation bias.
5	Use these techniques of econometrics in dissertations
Course Content:	

UNITI	Classical Linear Regression Model-two and three variables-assumptions, estimation, testing And forecasting, BLUE properties of OLS estimators (derivation and proof);	10 hrs
UNITII	Variance of disturbance term; Introduction to multiple linear regression model and tests of Linear restrictions; Simple regression coefficients versus partial regression coefficients.	10 hrs
UNITIII	Multicollinearity, Autocorrelation, and Heteroskedasticity: Nature, Causes, Consequence s, Detection and Remedial measures.	10 hrs
UNITIV	Dummy variables; Models for Binary Choice-Linear Probability Model;The logitandthe Probit Model. Distributed lag models	10 hrs
UNITV	Simultaneous Equation Models(Structural form and Reduced form)and Simultaneous Equation Bias;	10 hrs
UNITVI	Identification (Under-identified, Exactly identified and Over-identified model);Various Methods of Simultaneous Equation Model Estimation.	10 hrs

Internal Assessment:		
CIA1	UnitI, UnitII	
CIA2	Assignment submission and/or presentation	

Text Books:
1. DamodarN.Gujarati,*BasicEconometrics;*4thEdition,McGrawHill,2008.
2. JafferyWooldridge,**IntroductoryEconometrics:AModernApproach,CengageLearning**

Reference Books:
1. Koutsyannis,**Theory of Econometrics**,Palgrave
2. G.S.Madalla,**IntroductiontoEconometrics**,McMillanPublishingCompany
3. Dimitrios Asterious and Stephen G.Hall,**Applied Econometrics,** Palgrave
4. Christopher Daugherty :Introduction to Econometrics

PO-CO Compliance Matrix										
	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO 9	PO10
CO1	CO1				3	2			2	
CO2	CO2	2	2		2	2			2	
CO3	CO3	2	2		3	2			3	
CO4	CO4	2	2		2	2			2	
CO5	CO5				2	2			2	3
*1:Low,2:Medium,3: High										

Course Name: Economic Growth Theories (6.5ECO01)		
TEACHING SCHEME	**EXAMINATION SCHEME**	**CREDITS ALLOTED**
Theory: 4 hrs per week	End Semester Examination: 60 marks Internal Assessment: 40 marks	Theory: 4
		Total: 4

Course Pre-requisites:	
1	Student must have completed the knowledge of Macroeconomics

Course Objective:
This course offers an introduction to the theories and models of economic growth. It will use these models to shed light both on the process of economic growth at the world level and on sources of income and growth differences across countries. Topics covered include income distribution and economic growth, where Kaldor and Pasinetti's work will be mentioned, and the standard economic growth model of Solow. Macroeconomic questions addressed include: Why are some countries rich and some poor? What differences among countries can explain economic success and failures? This course is aimed at Economics students on the Mathematical Pathway and homework questions will typically involve solving problems etc. Course also employs the knowledge of endogenous growth models of AK, Lucas and Romer and its interpretation within theoretical model.

Course Outcomes: The students will be able to	
1	Demonstrate a deep analytical understanding of exogenous and endogenous growth models
2	Understand the main insights into the economic growth process that economists have gleaned over the past half century.
3	Solve and manipulate a variety of simple models in economic growth.
4	Identify applications and limitations of the models learned.
5	Develop an understanding of the evolution of growth models;
6	Display a good grasp of those factors that contribute to or inhibit economic growth (population, capital, technology, human capital, and institutions;
7	Develop the understanding of Solow growth model and its applications in real life
8	Understand the conditional and unconditional convergence in growth models
9	Develop the understanding of role of money, wealth, saving, physical capital, income distribution, and role of initial per capita, in economic growth.

Course Content:		
UNIT I	Problem of Economic Growth- Problem of Economic Growth and the General Solution; Growth Equilibrium; Harrod –Domar Model of Economic Growth	10hrs
UNIT II	Ms. Joan Robinson and Concept of Golden Age and Golden Rule of Accumulation; Models of Optimum Economic Growth- Keynes-Ramsey Rule, Cass-Koopmans Model	10hrs
UNIT III	Neo-Classical Models of Growth: Growth model of R.M. Solow, Instability & Convergence debate,	10hrs
UNIT IV	Neo-Keynesian Models of Growth & Distribution- Kaldor and L. Pasinetti Technology and Growth- Hicks, Harrod and Solow- Neutrality of Technical Change, Embodied and Dis-embodied Technical Change,	10hrs
UNIT V	Growth Accounting. Money and Growth- James Tobin and H.G. Johnson;	10hrs
UNIT	Endogenous Growth Models- AK Models, Lucas Model of Human Capital, Romer	10hrs

VI	Model of Endogenous Innovation.	
Internal Assessment:		
CIA 1	Unit I, Unit II	
CIA 2	Assignment submission and/or presentation	
Text Books:		
	1. Jones C.I., "Introduction to Economic Growth" W.W. Norton & Company, New York	
	2. H.G. Jones, "An Introduction to Modern Theories of Economic Growth" McGraw-Hill Book Company	
	3. Barro, Robert J. and Xavier Sala-i-Martin, Economic Growth, McGraw-Hill,	
	4. Daron Acemoglu. Introduction to Modern Economic Growth. Princeton University Press.	
Reference Books:		
	5. Romer, David, Advanced Macroeconomics, New York: McGraw-Hill Co.,	
	6. Sen, A.K.,ed.(1970) Growth Economics, Penguin Books	
	7. Blanchard, O. and Fischer, S. 1989. Lectures on Macroeconomics.	

PO-CO Compliance Matrix

	PO1	PO2	PO3	PO4	PO5	PO6			
CO1	3	3							
CO2	2	2							
CO3			3	3					
CO 4			3	3					
CO5			3	3					
CO6	3	3							
CO7			3	3	2	3			
CO8	2	3							
CO9	3	3							

*1: Low, 2: Medium, 3: High

Course Name: Development Economics (6.5ECO02)		
TEACHING SCHEME	**EXAMINATION SCHEME**	**CREDITS ALLOTED**
Theory: 4 hrs per week	End Semester Examination: 60 marks Internal Assessment: 40 marks	Theory: 4
		Total: 4
Course Pre-requisites:		
1	Student must have completed the knowledge of Macroeconomics.	
Course Objective:		
	This course familiarizes the students with emergence of the field of development economics in the context of international events. It aims to focus on various development theories and approaches in dealing with underdevelopment and pressing issues of poverty and inequality, with the concepts and measurement.	
Course Outcomes: The students will be able to		
1	Analyze the shift of focus from economic growth as a single dimensional concept to economic development which is a multi-dimensional concept.	
2	Demonstrate familiarity with some central themes and issues of economic development.	
3	Demonstrate the understanding of the difference between growth and development, major development and growth theories, the measurement of inequality, significance of agriculture in developing countries, poverty and population issues facing the world, international trade, and importance of foreign aid.	

4	Examine the factors responsible for perpetuation of the conditions of underdevelopment in same economies.	
5	Differentiate different measures of poverty and inequality and pros and cons of different measurement.	
6	Review the policy implications of these key development economic theories	
7	Critically analyze how the theory of development economics impacts upon practical implementation macro development policies in varying local and global contexts	

Course Content:

UNIT I	Concept of Development – From GDP per capita to holistic indicators.PPP and international differences. International poverty line and estimates of poor. Factors of development. Colonialism and dependency theories.	10 hrs
UNIT II	Schumpeter –Innovation, enterprise and process of 'creative destruction'. Rejection of trade as the 'engine of growth'. Nurkse and Prebisch arguments. Structural changes: Kuznets analysis of structural change.	10 hrs
UNIT III	Concept and Measures of Poverty-, Pareto Distribution, Head- Count Ratio, Income Gap Ratio, FGT Index. Concept and Measures of Inequality – Lorenz Curve and Gini coefficient, Issues in composite Indices, Problems of Aggregation. Inequality and Growth- the inverted U curve hypothesis, Inequality and growth –Interrelationships.	10 hrs
UNIT IV	Role of capital formation – vicious circle arguments, Rostow's stages of development, Kuznet's economic history analysis of characteristics of development.	10 hrs
UNIT V	Capital formation and allocation of investment- Balanced and unbalanced growth theories. Rosenstein –Rodan and Hirschman. Denison's growth accounting – Contribution of labour, capital and Technology.	10 hrs
UNIT VI	Role of agriculture. Dual economies and surplus labour argument, Ranis-Fei Model, Unemployment- efficiency wage theory as an explanation for wage rigidity and involuntary unemployment, Collusive theory of unemployment. Population growth and critical Minimum Effort. Demographic transition. Demographic dividend.	10 hrs

Internal Assessment:

CIA 1	Unit I, Unit II	
CIA 2	Assignment submission and/or presentation	

Text Books:

1. A.P. Thirlwall: Growth and Development, ELBS.
2. D Ray: Development Economics, OUP.

Reference Books:

3. S. Ghatak: Introduction to Development Economics, Rutledge.
4. Kaushik Basu: Analytical Development Economics The Less Developed Economy Revisited, OUP.
5. D Lal; The Poverty of Development Economics, OUP.
6. G. Meier: Leading issue in Economic Development (4th Edition),OUP.
7. Meier and Rauch: Leading Issues in Economic Development (8th Edition),OUP

PO-CO Compliance Matrix

	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO 9	PO 10
CO1						3	2	2	2	2
CO2	3	3								
CO3	3	3	2			2				
CO 4		2			1	2	2	1	2	
CO5	3	3								
CO6		2		2	2	3	2		2	
CO7		2		3	3	3	2	2	1	2

Course Name: Public Economics (6.5ECO11)		
TEACHING SCHEME	**EXAMINATION SCHEME**	**CREDITS ALLOTED**
Theory: 4 hrs per week	End Semester Examination: 60 marks Internal Assessment: 40 marks	Theory: 4
		Total: 4

Course Pre-requisites:	
1	Student must have completed the knowledge of Macroeconomics, and Microeconomics

Course Objective:	
	The main goal of the course is to provide students with the necessary skills to formulate public policies with an understanding of their economic implications. Topics covered include welfare economics, market failures, fiscal tools (budget, taxes, expenditure, public debt, and fiscal federalism), regulations, and political economy.

Course Outcomes: The students will be able to	
1	Learn the basic tools, concepts and models necessary for competence in key topics in Public Economics.
2	Understand the role that prices play in a market economy, both as a method of allocating resources in the private sector, and as a guide for public policy.
3	Understand the twin objectives of efficiency and equity, and explain why there is often a trade-off between these two objectives.
4	Understand the connection between relative prices and notions of efficiency.
5	Discuss the use of taxes, public expenditures, public debt, and federal finances for promoting socially efficient resource allocation and a desirable income distribution. Also, go through rigorous theories related to these fiscal tools.
6	Analyze policy challenges facing governments around the world and learn about potential solutions to these challenges as well as obstacles in implementing them.
7	Learn a set of perspectives into the economic activities of the government sector that will help them become enlightened participants - engaged citizens, voters, politicians, and/or civil servants - in society.
8	Discuss critically key issues in public economics, informed by recent research.
9	Present a coherent argument orally and in writing on topics in public economics.

Course Content:		
UNIT I	Market Failure and the rationale for Government Intervention. Alternative Classifications of Public Goods, Optimal Provision of Public Goods; Voluntary theory of optimal allocation, ability pay theory of optimal allocation, public and private goods in general equilibrium, optmum allocation of quasi-public goods, Club Goods Model. Externalities: Positive and Negative, Externalities and Social Costs. Pigouvian Tax.	10hrs
UNIT II	Fiscal Policies and instruments: Taxation: Efficiency, Equity, Cost of Collection and Compliance; Trade-off between Efficiency and equity; Effect of Taxes on labor supply and Savings-Income, commodity and wealth tax.	10hrs
UNIT III	Laffer's Curve, Direct and indirect taxes. Tax Reforms in India.Non-Tax Fiscal Instruments**: Profit and Dividends, Rents and Royalties, Non-revenue Effects of	10hrs

	Non-Tax Instruments			
UNIT IV	Public Debt: Public Debt and External Debt, Theories of Public Debt, Ricardian Equivalence, Debt Management Techniques. Budget and Fiscal Policy: Capital and Revenue Accounts, Dynamic Nexus between Two Accounts, Budget Deficits, Theories of Deficits.			10hrs
UNIT V	Public Expenditure: Theories of Public expenditure. **Pure theory of public expenditure, Wagner's law of increasing economic activities, Wiseman and Peacock Hypothesis**, Efficiency and Equity Tradeoff, Transfers and Subsidies, Financing of Social Programs.			10hrs
UNIT VI	Fiscal Federalism: Principles Determining Federal Division of Revenue and expenditure, Vertical and Horizontal Imbalances, Transfer Mechanism in India, Role of Finance & Planning Commissions, Sharing of Taxes, Non-tax Revenues and Grants.			

Internal Assessment:	
CIA 1	Unit I, Unit II
CIA 2	Assignment submission and/or presentation

Text Books:

1. Musgrave R.A. and P.B. Musgrave. *Theory and Practice of Public Finance*, Tata McGraw Hills

Reference Books:

2. Jonathan Gruber. *Public Finance and Public Policy*, Worth Publishers
3. John Leach. *A course in Public Economics* , Cambridge University Press
4. Jean Hindriks and Gareth D. Myles, *Intermediate Public Economics*, MIT Press
5. Gupta Janak Raj. *Public Economics in India: Theory and Practice*, Atlantic Publisher
6. BagchiAmaresh. *Readings in Public Finance*, Oxford University Press

PO-CO Compliance Matrix

	PO1	PO2	PO3	PO4	PO5	PO6			
CO1	2	2							
CO2	2	3							
CO3	2	3	2	2					
CO 4	2	2			1	1			
CO5	2	3	1	1					
CO6	2	3	2	2	2	2			
CO7	2	2			2	2			
CO8	2	2							
CO9		3			3	3			

*1: Low, 2: Medium, 3: High

IDC Courses

Course Name: Indian Economy I (4.5ECO41)		
TEACHING SCHEME	EXAMINATION SCHEME	CREDITS ALLOCATED
Theory: 3 hrs per week	End Semester Examination: 60 marks Internal Assessment: 40 marks	Theory: 3
		Total: 3 credit

Course Prerequisites:	
1	Must possess knowledge of elementary economics

Course Objective:

The course introduces the students to the various dimensions of the Indian Economy and the contemporary Problems of Indian Economy. This course is also aims to provide the basic information regarding the developmental strategies and structural adjustment reform measures that countries across the world adopt to eradicate the poverty and unemployment, to reduce inequalities and regional imbalances. The course also focuses on the changing role of state, markets and civil society institutions with respect to economic development.

Course Outcomes: The students will be able to

1	Understand the Indian economy better and will get some idea about the problems faced by the Indian economy
2	Demonstrate the development process in India after independence
3	Develop a perspective on the external sector reforms and industrial sector reforms undertaken in global economies including in India for last three decades
4	Demonstrate various structural adjustment programs and reform measure that the government of India has been initiated to eradicate poverty and unemployment, to reduce inequalities and regional imbalances since Independence
5	Understand what the primary measures of inflation in India are and be able to assess the impact of inflation on inflow and outflow of foreign capital India.

Course Content:

UNIT I	Economic Development since Independence Major features of the economy at independence; growth and development under different policy regimes, Post 1991 development in global economies; Trade and exchange rate liberalization, market oriented reforms.	10 hrs
UNIT II	Growth and Distribution Trends and policies in poverty. Rural Livelihood, Structure of rural poverty, Food security and the Public Distribution System;	10 hrs

UNIT III	Unemployment: problems and reasons. Population and Human Development Demographic trends and issues; education; health and malnutrition. Capital formation in India	10 hrs
UNIT IV	Growth of Indian economy since independence – Sectoral growth rates and changing structure. Basic features of agriculture, industry and services sectors in India.	10 hrs
UNIT V	Fiscal policy issues: fiscal policy instruments, public expenditure and public debt management issues.	10 hrs
UNIT VI	Capital formation in India. Role of foreign capital - borrowing, equity and direct investment. Technology inflows. Monetary policy issues: Price level and inflationary trends – Composition of wholesale price index. Retail prices.	10 hrs
Internal Assessment:		
CIA 1	Unit I, Unit II	
CIA 2	Assignment submission and/or presentation	
Text Books:		
1. Uma Kapila, Indian Economy: Issues in Development & Planning and Sectoral Aspects		

Course Name: Fundamentals of Agricultural Economics (4.5ECO42)		
TEACHING SCHEME	**EXAMINATION SCHEME**	**CREDITS ALLOTED**
Theory: 3 hrs per week	End Semester Examination: 60 marks Internal Assessment: 40 marks	Theory: 3
		Total: 3

Course Pre-requisites:

1	Must possess knowledge of elementary economics

Course Objective:

1. To impart knowledge on applications of economic theories in agricultural sector,
2. To make students understand the linkage between agriculture and other sectors of the economy. 3. To impart knowledge on new developments in the policy paradigms related to agricultural sector.

Course Outcomes: The students will be able to

1	To understand the importance of agriculture in economic development and demonstrate the decision-making related to the agricultural sector
2	Understanding the land reforms, green revolution, microfinance in agricultural sector of India
3	To examine various policies (credit, input, pricing, food security, marketing, trade) pertaining to Indian agricultural sector. And Develop the understanding about agricultural issues of national and international

Course Content:

UNIT I	**Agriculture and Economic Development:** Agricultural Economics– Definition, Nature, and Scope; Role of Agriculture in Economic Development. Traditional agriculture and its modernization.	10 hrs
UNIT II	**Agricultural Growth in India**: Agricultural growth in India since independence – Sources of Growth and instability in Indian agriculture; Risk and Uncertainty in Agriculture; cropping pattern shifts.	10 hrs
UNIT III	**Green Revolution and Sustainability:** Green revolution and its impact, Agricultural technology– Irrigation, HYV seed, Fertilizers, and micronutrients; Critique of green revolution and need of sustainable and water-conservation agriculture.	10 hrs
UNIT IV	**Agricultural Production Economics:** Agricultural production; Production function analyses in agriculture; size of farm and law of returns; Factor Product, Factor-factor, Product- Product Relations; Costs and supply curves; Farm budgeting and cost concepts.	10 hrs
UNIT V	**Land Reforms:** Meaning, objectives and features, types of land reforms (abolition of the intermediaries, tenancy reform, and the redistribution of land using land ceilings), Bhoodan movement in India and its effectiveness.	10 hrs
UNIT VI	**Agricultural and Micro Finance in India**: Role of Capital in Agriculture, Meaning, scope and significance – Factors determining demand for credit; Classification and sources of Agricultural Credit –- Cooperation - Microfinance and SHGs.	10 hrs

Internal Assessment:

CIA 1	Unit I, Unit II	
CIA 2	Assignment submission and/or presentation	

Text Books:

1. Soni R. N. & M. Sangeeta: **Leading Issues in Agricultural Economics**, Vishal Publishing Co. Jalandhar

2. Sadhu and Singh: Fundamentals of Agricultural Economics, Himalaya Publishing House Mumbai

3. Drummond H. Evan & Goodwin John W.: **Agricultural Economics**, Printice Hall

4. Dantwala, M.L. et. al (1996), Indian Agricultural Development Since Independence, Oxford & IBH, New Delhi.

5. Heady, Earl (1954). Economics of Agricultural Production and Resource Use. Prentice-Hall, Inc.

Reference Books:

1. Tsakok Isabelle: **Success in Agricultural Transformation**, Cambridge University Press

2. Barkley Andrew, et al: **Principles of Agricultural Economics**, Routledge London

3. Puri VK & Mishra: **Indian Economy**, Himalaya Publishing House

4. Ramaswami, Bharat; Ravi, Shamika; Chopra, S.D. (2004). Risk Management. State of the Indian Farmer: (Vol. 22) Department of Agriculture and Cooperation, Ministry of Agriculture, Government of India and Academic Foundation (New Delhi, India)

5. Larson, D. W., Jones, E., Pannu, R. S., &Sheokand, R. S. (2004). Instability in Indian agriculture—a challenge to the green revolution technology. Food Policy, 29(3), 257-273.

6. GOI: **Economic Survey 2022-23 and onwards**

PO-CO Compliance Matrix									
	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9
CO1	2	2			1				2
CO2		2	1	2	1	2	3	2	1
CO3	2	3							2

*1: Low, 2: Medium, 3: High

Course Name: Gender Economics (4.5ECO43)		
TEACHING SCHEME	EXAMINATION SCHEME	CREDITS ALLOTED
Theory: 3 hrs per week	End Semester Examination: 100 marks	Theory: 3
		Total: 3

Course Pre-requisites:

1	Must Complete the knowledge of elementary economics

Course Objective:

Gender biases in societal practices and development policies have resulted in persistent gender inequalities. It is increasingly being realized that mitigating such inequalities and enhancing women's capabilities and entitlements are crucial to the overall development of the country. This course "Economics of Gender and Development" would provide students an understanding of the nature of the economic role of women and their contribution to the national economy on the basis of a scientific and non-sexist analysis. The modules incorporated in this course provide an analysis of issues at the theoretical level and also with regard to specificity of issues prevailing in the Indian context.

Course Outcomes: The students will be able to

1	Demonstrate a general understanding of the concept of women studies
2	Demonstrate gender bias in the economic theory and economic history
3	Demonstrate the demography of the female population in developing countries and India.
4	Demonstrate the level of access to nutrition, health, education and other resources along with their economic status and work participation rate
5	Demonstrate the determinants of power of decision making of women
6	Demonstrate and analyse the factors affecting female entry in the labour market
7	Analyse the female work participation in the different sector the economy
8	Appreciate labour market biases and gender discrimination wage differentials in female activities and determinants of wage differentials
9	Analyse the role of Self-Help Group in Social Security of Women
10	Understand and analyse the concept of gender planning, development policies and governance for mainstreaming the issues on gender in order to address them

Course Content:

UNIT I	Introduction and Review Families and households, Importance and concepts of women studies — Women in patriarchal and matriarchal societies and structures and relevance to present day society in India, Gender bias in the theories of value, distribution, and population, Women in the economic history , Race, class, and the economics of gender	10 hrs
UNIT II	Demography I Demography of female population: Age structure, mortality rates, and sex ratio — Causes of declining sex ratios and fertility rates in LDCs and particularly India —	10 hrs
UNIT III	Demography II Theories and measurement of fertility and its control; Women and their access to nutrition, health, education, and social and community resources, and their impact on female mortality and fertility, economic status, and in work participation rate.	
UNIT IV	Women in Decision Making Factors affecting decision making by women; property rights, access to and control over economic resources, assets; Power of decision making at household, class, community level; Economic status of women and its effect on work-participation	10 hrs

	rate, income level, health, and education in developing countries and India;	
UNIT V	Gender and the Economics of the Labor Market Labour force participation patterns, Labour force participation and family structure Factors affecting female entry in labour market; Supply and demand for female labour in developed and developing countries, particularly India; Studies of female work participation in agriculture, non-agricultural rural activities, informal sector, cottage and small-scale industries, organized industry, and services sector; Wage differentials in female activities	10 hrs
UNIT VI	Gender Planning, Development Policies and Governance Understanding Gender Inequality Index : Dimensions and sub-dimensions, Gender Budgeting, Paradigm shifts from women's wellbeing to women's empowerment; Democratic decentralization (panchayats) and women's empowerment in India, Role of Self-Help Groups in Providing Social Security	10 hrs

Text Books:
Blau, Francine, Marianne Ferber and Anne Winkler 1998. *The Economics of Men,Women and Work* (Englewood Cliffs, NJ: Prentice Hall, Third Edition). (BFW)
Krishnaraj, M., R.M. Sudarshan and A. Shariff (1999), Gender, Population and Development, Oxford University Press, New Delhi.
Boserup E. (1970), Women's Role in Economic Development, George Allen and Unwin, London.
Reference Books:
Desai, N. and M.K. Raj. (Eds.) (1979), Women and Society in India, Research Centre for Women Studies, SNDT University, Bombay.
Government of India (1974), Towards Equality — Report of the Committee on the Status of Women in India, Department of Social Welfare, Ministry of Education and Social Welfare,New Delhi.
Hoffman, Saul D. and Susan L. Averett 2004.*Women and the Economy: Family, Workand Pay* (Addison-Wesley-Longman). (HA)
Jacobsen, Joyce P.. 1998. *The Economics of Gender*, 2nd edition, New York: Blackwell.
Jacobsen, Joyce. 1998. *The Economics of Gender* (Cambridge: Blackwell, 2nd Edition).(On reserve at Odegaard).
Stack, Carol B. 1974. *All Our Kin: Strategies For Survival in a Black Community*. New York, NY: Harper & Row.
Seth, M. (2000), Women and Development : The Indian Experience, Sage Publications, New Delhi. Economics 179
Srinivasan K. and A. Shroff (1998), India : Towards Population and Development Goals,Oxford University Press, New Delhi.
Venkateswaran, S. (1995), Environment, Development and the Gender Gap, Sage Publications, New Delhi.
Wazir, R. (2000), The Gender Gap in Basic Education : NGOs as Change Agents, Sage Publications, New Delhi.
D'Emilio, John. 1993. "Capitalism and Gay Identity," reprinted in *The Lesbian and Gay Studies Reader*, Henry Abelove, et. al., eds., New York: Routledge.
Ehrenreich, Barbara and Deirdre English. 1973. "Women and the Rise of the American Medical Profession," reprinted in Wendy McElroy, ed., *Freedom, Feminism, and the State*, 2nd edition, New York: Holmes and Meier, 1991.
Hochschild, Arlie Russel. 1989. *The Second Shift*, New York: Avon, chapter 4.
McKenzie, Richard and Gordon Tullock. 1975. *The New World of Economics*, Homewood, IL: Richard Irwin, chapter 9.
Rhoads, Steven E.1993. *Incomparable Worth: Pay Equity Meets the Market*, Cambridge: Cambridge University Press, chapter 2.
Robinson, John P. and Melissa A. Milkie. 1998. "Back to Basics: Trends in and Role Determinants of

Women's Attitudes Toward Housework," *Journal of Marriage and the Family* 60, February: 205-18.		

Segalen, Martine. 1996. "The Industrial Revolution: From Proletariat to Bourgeoisie," in Andre Barguiere, et. al., eds, Sarah Hamburg Tenison, trans., *A History of the Family* vol. 2, Cambdrige, MA: MIT Press.

Walker, Deborah. 1995. "Feminism and Economics: Legislation or Markets?" in Rita J. Simon, ed., *Neither Victim nor Enemy*, Lanham, MD: Women's Freedom Network and University Press of America

Videos:
1900 House (selected episodes). Shown on the campus network

PO-CO Compliance Matrix

	PO1	PO2	PO3	PO4	PO5	PO6			
CO 1	3		3						
CO 2	2		2						
CO 3	2		2						
CO 4	2		3						
CO 5	2		2						
CO 6	2	3	2	3					
CO 7		3	3	3	3				
CO 8	2		2						
CO 9		3	3	3	3	3			
CO 10	3	3	3	3	3	3			

*1: Low, 2: Medium, 3: High

Course Name: Indian Economy II (5ECO51)		
TEACHING SCHEME	EXAMINATION SCHEME	CREDITS ALLOCATED
Theory: 4 hrs per week	End Semester Examination: 60 marks Internal Assessment: 40 marks	Theory: 3
		Total: 3

Course Prerequisites

1	Knowledge of elementary economics
2	Must possess analytical thinking

Course Objective:

The course introduces the students to the various dimensions of the Indian Economy and the contemporary Problems of Indian Economy. This course is also aims to provide the basic information regarding the developmental strategies and structural adjustment reform measures that countries across the world adopt to eradicate the poverty and unemployment, to reduce inequalities and regional imbalances. The course also focuses on the changing role of state, markets and civil society institutions with respect to economic development.

Course Outcomes: The students will be able to	
1	Understand the Indian economy better and will get some idea about the problems faced by the Indian economy
2	Demonstrate the development process in India after independence
3	Develop a perspective on the external sector reforms and industrial sector reforms undertaken in global economies including in India for last three decades
4	Demonstrate various structural adjustment programs and reform measure that the government of India has been initiated to eradicate poverty and unemployment, to reduce inequalities and regional imbalances since Independence
5	Understand what the primary measures of inflation in India are and be able to assess the impact of inflation on inflow and outflow of foreign capital India.

Course Content:

UNIT I	Post 1991 development in global economies; Trade and exchange rate liberalization, market oriented reforms, Capital flows from World Bank and IMF. Structural adjustment programmes and conditionality.	10 hrs
UNIT II	Growth of Indian economy since independence – Sectoral growth rates and changing structure. Poverty trends. Inequalities and regional imbalances. Population and Urbanization, Migration	10 hrs
UNIT III	Role of agriculture in Indian economy, institutional structure- land reforms. Sources of agriculture finance, agriculture financing and marketing. Problems and Remedies for rural indebtedness, Economic liberalization and emerging trends in Indian Agriculture.	10 hrs
UNIT IV	Industrial policy and setting up of regulatory structures like SEBI, TRAI, IRDA, etc. Foreign trade-Volume, composition and direction. FDI and FPI : Role of foreign capital - borrowing, equity and direct investment. Technology inflows. Capital Market in India	10 hrs
UNIT V	Unemployment: Labour market reforms. Rural Livelihood: Livelihoods and Employment: Structure of rural poverty, Food security and the Public Distribution System; Employment Security- MGNREGA	10 hrs
UNIT VI	Fiscal policy and Fiscal federalism. Monetary policy issues: Price level and inflationary trends – Composition of wholesale price index. Retail prices.	10 hrs

Internal Assessment:

CIA 1	Unit I, Unit II	
CIA 2	Assignment submission and/or presentation	

Text Books:

1. Uma Kapila, Indian Economy: Issues in Development & Planning and Sectoral Aspects
2. S.K. Mishra and V.K. Puri: Indian Economy
3. Economic Surveys and Economic Review of recent years

Course Name: Political Economy (5ECO52)		
TEACHING SCHEME	**EXAMINATION SCHEME**	**CREDITS ALLOCATED**
Theory: 3 hrs per week	End Semester Examination: 60 marks Internal Assessment: 40 marks	Theory: 3
		Total: 3

	Course Prerequisites:	
1	Must possess knowledge of elementary economics	

Course Objective:

	This course explores the relationship between political institutions and economic development, covering key theoretical issues as well as recent empirical evidence. Topics include corruption, democracy, dictatorship, and war. Discusses not just what we know on these topics, but how we know it, covering how to craft a good empirical study or field experiment and how to discriminate between reliable and unreliable evidence.

Course Outcomes: The students will be able to

1	Build a foundation for thinking about the role of political economy in understanding economic development.
2	Understand some core theoretical concepts in political economy, with illustrations from developing countries whenever possible.
3	Understand empirical evidence in economics. What makes a good empirical study? How do we learn about the world empirically? What are some of the techniques we can use to better understand the world?

Course Content:

UNIT I	Introduction and Historical Overview Perspective on political economy with a historical overview: capitalist development in the pre second world war period, the 'golden age' and later, Marxist, Shumpeter	10 hrs
UNIT II	Changing Dynamics of Capitalist Production, Organizational Form and Labour Process Fordist and post-fordist production; changing dynamics of organization of production, markets and labour process; the changing nature of job security and labour rights	10 hrs

Course Name: Rural Economics (5ECO53)		
TEACHING SCHEME	**EXAMINATION SCHEME**	**CREDITS ALLOTED**
Theory:3 hrs per week	EndSemesterExamination:60marks InternalAssessment:40marks	Theory:3
		Total:3

Course Pre-requisites: Knowledge of Elementary Economics	
1	None

Course Objective:	
	The Course is intended to highlight the working and significance of the rural economy along with the institutional involvement in implementing the government programmes. Agriculture, allied sectors, the non-farm sector and Co-operative movement is the thrust area of this course.

Course Outcomes: The students will be able to:	
1	Analyze the role of agriculture on the rural development
2	Understand the rural credit market
3	Analyze issues in rural economies like the agricultural wage, non-agricultural employment and rural-urban migration and the model to analyze rural-urban migration.
4	Analyze the need for and issues in agricultural diversification, rural industrialization

Course Content:		
UNITI	Role of agriculture in rural economic development, Conditions for Rural Development Industry and Agriculture: Complementary.	5 hrs
UNITII	Rural credit markets, Micro Finance in India: Microfinance and rural development, SHGs-Bank Linkage Programmes and emerging scenario of Microfinance regulation in India	9 hrs
UNITIII	Causes and effects of rural urbanization Migration, Harris-Todaro model of rural-urban migration,	8hrs
UNITIV	Agricultural wages in India; Non-agricultural rural employment- Trends and determinants	7hrs
UNITV	Rural Industrialization- Importance, Programmes, Progress and Problems of Small- Scale and Cottage Industries and Remedial Measures. .	8hrs
UNITVI	Rural social infrastructure: issues and problems in Educational and Health infrastructure; Housing and Sanitation; Drinking Water Supply; Rural Transport and Communication; Rural Electrification	8hrs

Internal Assessment:		
CIA1	UnitI, UnitII	
CIA2	Assignment submission and/or presentation	

Text Books:
1. Biradar, R.R.(2008): Rural Non-Agricultural Employment in India: An Analysis of Its Determinants and Impact on Poverty and Inequality, Concept Publishing Company, New Delhi.
2. Singh, Katar (1986): Rural Development: Principles, Polices and Management, Sage Publications, New Delhi, (Second Edition).

Reference Books:
1. Tyagi, B. P. (1998): Agricultural Economics and Rural Development, Jai Prakash Math and Co., Meerut.
2. Mishra and Puri, Economics of Development and Planning. HPH

PO-CO Compliance Matrix

	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO 9	PO 10
CO1						3				1
CO2						3		1		1
CO3					1	3		1	2	2
CO4					1	3		1	2	2
*1:Low,2:Medium,3: High										

SEC Courses

Course Name: Introduction to Mathematics I (4.5ECO61)		
TEACHING SCHEME	**EXAMINATION SCHEME**	**CREDITS ALLOTED**
Theory: 4 hrs per week	End Semester Examination: 60 marks Internal Assessment: 40 marks	Theory: 4
		Total: 4

Course Pre-requisites:

1	Aptitude and skills in Quantitative Analysis
2	Must possess knowledge of elementary mathematics

Course Objective:

The course covers a wide range of mathematical methods in applied economics. Specifically, it aims to provide the basics of mathematical methods and the range of mathematical techniques that are used to explain various applied economics problems. Also the course attempt to provide the insight of some advance level mathematical tools in understanding and formulating various economic theories.

Course Outcomes: The students will be able to

1	Familiar with a wide range of mathematical tools that are used to explain various economic theories.
2	Successfully demonstrate the economic meaning of mathematical models.
3	Optimize the resources and thus understand how the economic policy makers make decision.
4	Demonstrate most of the theories in economics precisely and strategically.
5	Understand the economic dynamics.

Course Content:

UNIT I	**Economic Models** Ingredients of a Mathematical Model: Real Number System, The concepts of Set, Relations and Functions, Types of Functions, Functions of two or more independent variables, The levels of generality.	10hrs
UNIT II	**Limits, Continuity and Series** The concept of Limits, Limit Theorems, Continuity: Continuous Functions and its properties, Continuity and differentiability of a real valued function, Infinite Sequences: Series.	10hrs

UNIT III	**Derivative of a Function** Rate of change and derivative; Derivative and slope of a curve; Continuity and differentiability of a function; Rules of differentiation for a function of one variable; Application- Relationship between total, average and marginal functions.	10hrs
UNIT IV	**Functions of two or more Independent Variables** Partial differentiation techniques; Geometric interpretation of partial derivatives; Partial derivatives in Economics; Elasticity of a function – demand and cost elasticity, cross and partial elasticity	10hrs
UNIT V	**Applications of Simple Derivatives and Differential Calculus** Cost curves, Revenue curves, Indifference curve, Income and Substitution Effects, Constant Product Curves, Profit and Cost Maximization.	10hrs
UNIT VI	**Matrices and Determinants** Matrices: concept, types, matrix algebra, transpose, inverse, rank; Determinants: concept, properties, solving problems using properties of determinants, solution to a system of equations - Crammer's rule and matrix inversion method.	10hrs

Internal Assessment:		
CIA 1	Unit I, Unit II	
CIA 2	Assignment submission and/or presentation	

Text Books:
2. Chiang, Alpha, C. and Kevin Wainwright. Fundamental methods of Mathematical

Reference Books:
7. Economics, latest edition, McGraw Hill.
8. Knut Sydsaeter and Peter J Hammond. Mathematics for Economic Analysis, PearsonEducation India.
9. Carl P Simon and Lawrence Blume. Mathematics for Economists, W. W. Norton & Company.
10. Mike Rosser. Basic Mathematics for Economists, Routledge
11. Eric Rasmusen. Games and Informations, Basil Blackwell.
12. Martin, J Osborne. An Introduction to Game Theory, Oxford University Press

PO-CO Compliance Matrix									
	PO1	PO2	PO3	PO4	PO5	PO6			
CO1	2	2	2	2					
CO2			3	3					
CO3			2	2	2	2			
CO 4			2	2	2	2			
CO 5		3	2	3					
*1: Low, 2: Medium, 3: High									

Course Name: Data Analytics and Computer Applications-I(4.5ECO62)		
TEACHING SCHEME	**EXAMINATION SCHEME**	**CREDITS ALLOTED**
Theory: 3 hrs per week	End Semester Examination: 60 marks Internal Assessment: 40 marks	Theory: 3
		Total: 3

	Course Pre-requisites:
1	Must possess knowledge of basic computer applications.

Course Objective:
The course aims to equip learners with the skills and knowledge needed to analyze and derive meaningful insights from data, making informed decisions in various domains.

	Course Outcomes: The students will be able to
1	Gain a fundamental understanding of what data is, types of data, and how data is collected.
2	Learn techniques for cleaning and preprocessing raw data to ensure accuracy and reliability in analysis.
3.	Develop skills to explore and visualize data,identify patterns, trends, and outliers using appropriate tools and techniques.

Course Content:

UNIT I	**Data Analytics:** overview, meaning, use, and nature. Types of data; qualitative and quantitative data, discrete and continuous, nominal scale, ordinal scale, ratio scale, interval scale, binary data, meta data, unit level data, spatial data, multivariate.	10 hrs
UNIT II	**Time-based classification of data and their properties:** Cross-sectional data, Time series data, Longitudinal or panel data, Real-time data.	10 hrs
UNIT III	**Introduction to database**: Meaning and usage, database management system (DBMS), Types of NSO surveys, CMIE, NFHS,INDIASTAT, EPWRF, FAO-UN, IMF, Bloomberg Terminal, WRDS, UN COMTRADE, EUROSTAT, ILO etc.	10 hrs
UNIT IV	**Introduction to Excel:** Use of Excel in data analysis, statistical measurement, V Lookup, MACROS, Pivot table, and Data visualization.	10 hrs
UNIT V	**Introduction to STATA:** Interface, data editor, data manager, variable manager, do files, tabulation, visualization, and statistics.	10 hrs
UNIT VI	**Introduction to SPSS**: Some basic commands and data entry defining variables, Statistical processing Techniques and Methods: Summarizing and analysis of data; An overview of Techniques used in Research: Univariate, Bivariate, and Multivariate analysis.	10 hrs

	Internal Assessment:	
CIA 1	Unit I, Unit II	
CIA 2	Assignment submission and/or presentation	

Text Books:
1. Alex Berson and Stephen J. Smith, "Data Warehousing, Data Mining & OLAP", Tata McGraw – Hill Edition, Tenth Reprint 2007.
2. Jiawei Han and Micheline Kamber, "Data Mining Concepts and Techniques", Second Edition, Elsevier, 2007.
3. Jordan Goldmeier "Advanced Excel Essentials" APress; 1st ed. edition (5 November 2014)
4. STATA User's Guide.

Reference Books:
1. Pang-Ning Tan, Michael Steinbach and Vipin Kumar, "Introduction to Data Mining", Person Education, 2007.

PO-CO Compliance Matrix									
	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9
CO1	1	2		3	3	3	3	1	1
CO2	1	2		2	3	3	3		1

*1: Low, 2: Medium, 3: High

Course Name: Introduction to Mathematics II (5ECO71)		
TEACHING SCHEME	EXAMINATION SCHEME	CREDITS ALLOTED
Theory: 4 hrs per week	End Semester Examination: 60 marks Internal Assessment: 40 marks	Theory: 4
		Total: 4

Course Pre-requisites:	
1	Aptitude and skills in Quantitative Analysis
2	Must possess knowledge of basics of Mathematics

Course Objective:

The course covers topics that are helpful in modeling and analyzing dynamic processes, making them essential for understanding the evolution of economic variables over time and informing economic policy decisions. This course offers practical applications in problem-solving, analysis, and modeling across a range of disciplines. This course has several application including economic forecasting, Asset Pricing Models, business cycle analysis, Repeated Games, resources depletion models, etc. It equips individuals with analytical tools to understand and model complex economic relationships, providing insights into the functioning of economies and supporting informed decision-making in various sectors for example Understanding Economic Interdependencies, Economic Impact Assessment, Regional Planning, Supply Chain Analysis, etc.

Course Outcomes: The students will be able to	
1	*To train the students to use the techniques of mathematical and statistical analysis, which are commonly applied to understand and analyze economic problems*
2	*To emphasize the mathematical methods rather than learning mathematics itself, which are usually used for understanding economic concepts*
3	*Gain the ability to model and solve real-world problems in areas such as finance, operations research, and logistics using multivariable optimization techniques.*
4	*To understand stability, convergence, and long-term behavior of systems evolving over discrete time steps*
5	*To understand Economic Interdependencies, Economic Impact Assessment, Regional Planning, Supply Chain Analysis, etc*

Course Content:		
UNIT I	Linear models: Input- Output Model: Basic concepts and structure of Leontief's open and static Input-Output model; Solution for equilibrium output in a three-industry model; The closed model	10hrs
UNIT II	Second and Higher Order Derivatives: Technique of higher order differentiation; Interpretation of second derivative; Second order derivative and curvature of a function; Concavity and convexity of functions; Points of inflection, Derivative of Implicit Function; Higher Order Partial Derivative.	10hrs
UNIT III	Simple Integration, Definite Integrals and Applications Indefinite Integrals; Rules of Integration; Techniques of Integration: Substitution Rule, Integration by parts, and Partial Fractions.	10hrs

UNIT IV	Single and Multivariable Optimization: Optimum values and extreme values; Relative maximum and minimum; Necessary versus sufficient conditions - First and Second derivative tests (using Hessian Determinants); Economic applications thereof, First and second order condition for extrema of multivariable functions; Convex functions and convex sets.	10hrs
UNIT V	Optimization with Equality Constraints: Effects of a constraint; Finding stationary value – Lagrange-Multiplier method (Two variable single constraint case only): First and second order condition; The Bordered Hessian determinant.	10hrs
UNIT VI	Difference Equation Difference equations - Solution of first order and second order difference equations; Differential Equations	10hrs

Internal Assessment:		
CIA 1	Unit I, Unit II	
CIA 2	Assignment submission and/or presentation	

Text Books:

Chiang, Alpha, C. and Kevin Wainwright. Fundamental methods of Mathematical

Reference Books:

Economics, latest edition, McGraw Hill.

Knut Sydsaeter and Peter J Hammond. Mathematics for Economic Analysis, PearsonEducation India.

Carl P Simon and Lawrence Blume. Mathematics for Economists, W. W. Norton & Company.

Mike Rosser. Basic Mathematics for Economists, Routledge

Eric Rasmusen. Games and Informations, Basil Blackwell.

Martin, J Osborne. An Introduction to Game Theory, Oxford University Press

PO-CO Compliance Matrix

	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9
CO1	3	3	2	2	3	3	3	3	
CO2	2			3	3			3	3
CO3		3				3	3		
CO 4	3		3	2	2	3	3		
CO 5	2	2	2	3		3			3

*1: Low, 2: Medium, 3: High

Course Name: Data Analytics and Computer Applications-II (5ECO72)		
EXAMINATION SCHEME	**EXAMINATION SCHEME**	**CREDITS ALLOTED**
End Semester Examination: 60 marks Internal Assessment: 40 marks	End Semester Examination: 60 marks Internal Assessment: 40 marks	Theory: 4
		Total: 4

Course Pre-requisites:

1	Must possess basic knowledge of analytical software like STATA, SPSS, etc.

Course Objective:

This course aims to introduce econometric and statistical applications through computer applications and statistical software to students. It will help the student to apply econometric applications in research and real-life economic issues and model building.

Course Outcomes: The students will be able to

1	Understand basic statistical concepts and methods for summarizing and interpreting data.
2	Understand how to work with databases.
3	Apply data analysis techniques to real-world problems and datasets to develop practical skills.

Course Content:

UNIT I	**Introduction to software:** MS Office, Excel, STATA, SPSS, E-views. Loading the data to Excel, STATA, SPSS, EViews, Differences in the use of different software packages	10 hrs
UNIT II	**Exploratory Data and Simple Statistical Analysis:** Tabular and Graphical Representation of data with interpretation. Displaying graphs on the screen– Saving and operating graphs– Printing graphs– Labelling graphs– Overlay (two scales) graphs– Multiple graphs on a page. **Descriptive Statistics:** Central Tendency, Dispersion and Shape. Mean, median and mode – Variance and Standard Deviation– Skewness and Kurtosis– Five number summary– Covariance – Correlation (zero order, rank, and partial correlation).	10 hrs
UNIT III	**Linear Regression:** Interpretation using applications: Two Variable Regression Model, Multiple Regression including dummy variable, Growth rate calculation, Trend Analysis.	10 hrs
UNIT IV	**Multicollinearity, Heteroskedasticity, and Autocorrelation:** Testing and remedial measures, Specification error, Simultaneous Equation Model- 2SLS, Qualitative Response Model- Probit, Logit and Tobit.	10 hrs
UNIT V	**Simple Parametric and Non-parametric tests:** T-test procedures, Z-test, F-test, Chi-Square, and Mann Whitney procedures.	10 hrs
UNIT VI	**Handling Data:** Cross-sectional data, time series data, longitudinal or panel data, survey data. Different econometric techniques especially with reference to valuation should be elaborated with suitable applications.	10 hrs

Internal Assessment:

CIA 1	Unit I, Unit II	
CIA 2	Assignment submission and/or presentation	

Text Books:

1.	Adesoji, F & Babatunde, Musibau. (2018), BASIC STATISTICAL TECHNIQUES IN RESEARCH
2.	Lyon, A. (2014), Why are normal distributions normal? The British Journal for the philosophy of science
3.	William H Greene: Econometric Analysis, Pearson 8th Edn.
4.	Cameron & Trivedi: Micro econometrics using STATA, Revised Edn.

5. Gujarati, DN: Basic Econometrics, McGraw Hills.								
Reference Books:								
Wooldridge: Econometric Analysis of Cross-section and Panel Data, MIT Press								
PO-CO Compliance Matrix								
	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9
CO1	1	2		3	3	3	3	1	1
CO2	1	2		2	3	3	3		1

*1: Low, 2: Medium, 3: High

Course Name: Project (ECO416)		
TEACHING SCHEME	**EXAMINATION SCHEME**	**CREDITS ALLOTED**
Theory: 12 hrs per week	End Semester Examination: 60 marks Internal Assessment: 40 marks	`12
		Total: 12

Course Pre-requisites:	
1	Student must have completed the knowledge of Macroeconomics, Microeconomics, Econometrics and Data Analytics
Course Objective:	
	The purpose of the Project is to encourage students to undertake independent economic research, use analytical application to analyse data and interpretation to foster research-related skills, which should benefit future study and employment.
Course Outcomes: The students will be able to	
1	Analyse and interpret the collected data
2	Apply the economic models, theories and tools of research to process, code , present and interpret the data
3	Use statistical software to analyze the data
4	Present research findings and argument in a suitably structured and sequenced thesis that conforms to protocols of academic presentation and research practice.
5	Demonstrate the ability to critique literature and conduct analyses at a Masters level.

Assessment:		
CIA 1	Presentation of Synopsis	20
CIA 2	Presentation of Data Analysis Work	20
ESE	The students are required to submit their Project report as per guidelines prescribed by the department at the end of the specified period. The students are also required to attend viva voce examination in ESE. Out of total 60 marks in this Project, 30 marks are of project report to be assessed by the Department (by constituting a panel of examiners including internal & external examiners) and remaining 30 marks are of viva voce to be awarded by internal & external examiners.	60

PO-CO Compliance Matrix									
	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10
CO1					2	2	2	2	2	2
CO2			2	2	2	2	2	2	2	2
CO3			3	3			3	3		
CO 4						2	2	2		2
CO5			2		2	2			2	

*1: Low, 2: Medium, 3: High

AEC Courses

Course Name: Quantitative Economics (4.5ECO81)		
TEACHING SCHEME	**EXAMINATION SCHEME**	**CREDITS ALLOTED**
Theory:2 hrs per week	EndSemesterExamination:60marks InternalAssessment:40marks	Theory:2
		Total:2

Course Pre-requisites:	
1	Aptitude and skills in Quantitative Analysis

Course Objective:
The course covers basic mathematical tools in economics. Specifically, it aims to provide the basics of mathematical methods and the range of mathematical techniques that are used to explain various applied economics problems.

Course Outcomes: The students will be able to:	
1	Interpret the economic meaning of mathematical models.
2	Understand how Optimizing can help economic policy makers in decision making
3	Apply of mathematical tools in framing index, growth rates.

Course Content:		
UNITI	Applications of derivatives in Economics: Elasticity of demand and supply, Average and Marginal functions;	5 hrs
UNITII	Problems of Optimization of one and two variables, constraint & unconstraint functions, Analysis of consumer's and producer's surplus..	5 hrs
UNITIII	Index Numbers: Problems and methods of construction index numbers Simple and weighted index numbers;	5 hrs
UNITIV	Fisher's Ideal Index, Chain and fixed base index numbers. Cost of living index numbers. Base conversion, splicing and deflating of index, uses of index number.	5 hrs
UNITV	Time Series Analysis: Components of time series. Measurement of trend and seasonal variations.	5 hrs
UNITVI	Calculation of simple, compound, exponential and trend growth rates.	5 hrs

Internal Assessment:		
CIA1	UnitI, Unit II	
CIA2	Assignment submission and/or presentation	

Text Books:
1. Alpha C. Chiang, Fundamental Methods of Mathematical Economics
2. Gupta, S.P. (2012), Statistical Methods, forty second edition Sultan Chand & Sons New Delhi.

Reference Books:
1.. Alien, R.G.D. (2008), Mathematical Analysis for Economists, Macmillan Press and ELBS, London.
2. Edward T, Dowling, Theory and Problems of Introduction to Mathematical Economics, 2009
3. Nagar & Das: Basic Statistics, Oxford university press.
PO-CO Compliance Matrix

	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO 9	PO 10
CO1				2	3		3	3		2
CO2		3		2	3		3	3		2
CO3					3		3	3		2
*1:Low,2:Medium,3: High

<table>
<tr><td colspan="3" align="center">Course: Fundamentals of Finance (4.5ECO82)</td></tr>
<tr><td align="center">TEACHING SCHEME</td><td align="center">EXAMINATION SCHEME</td><td align="center">CREDITS ALLOTED</td></tr>
<tr><td>Theory: 2 hrs per week</td><td>End Semester Examination: 60 marks
Internal Assessment: 40 marks</td><td align="center">Theory: 2</td></tr>
<tr><td></td><td></td><td align="center">Total: 2</td></tr>
</table>

Course Pre-requisites:

| 1 | Student must have completed the knowledge basic macroeconomics and Mathematics |

Course Objective:

| | This course introduces the basic concepts of finance and financial decisions that the firm and individual make. The course starts with the various objectives and functions of financial management and then eventually moves towards learning the basic theories of finance. While discussing the financial markets it also brings out the brief idea about equity shares, bond and derivatives. |

Course Outcomes: The students will be able to

1	While learning the basic theories and their implications students can identify the key theme in finance and are expected to grasp the necessary knowledge for evaluating the firm, equity shares and bonds etc.
2	Students can apply the fundamental tools of finance and understand the market players make decisions.
3	The concept of risk and uncertainty and portfolio analysis would enable the students to learn the investment decision making.
4	The course also intends to develop skills in analyzing the investment behavior in capital market and the pricing behavior of securities.

Course Content:

UNIT I	**An overview of Corporate Finance** Concept, scope, classification of finance function, objectives of financial management, profit maximization vs. wealth maximization. Financial markets and institutions.	10 hrs
UNIT II	**Sources of finance** Short term sources-Public deposits, Cash credit limit/Overdraft, Letter of credit, Commercial papers. Long term sources- Shares, Debentures /Bonds, Leasing, Hire-purchase, Venture capital, emerging financial instruments.	10 hrs
UNIT III	**Time value of money (introductory level)** Basic theory of interest, Valuations of bond and stocks: discounting and present value; internal rate of return; evaluation criteria. The term structure of interest rates; yield curves; spot rates and forward rates.	10 hrs
UNIT IV	**Financing and Investment Decisions** Cost of capital, Capital Structure, Dividend Decision. Capital budgeting-Nature, scope, techniques, NPV and other investment rules.	10 hrs
UNIT V	**Basic theories of Finance** Concept of Risk and Returns: types of risks, random asset returns; risk-return trade off; portfolios of assets; mean-variance portfolio analysis. Diversification of risks. Markowitz theory of portfolio. Efficient market hypothesis: random walk, technical analysis,	10 hrs

	fundamental analysis. CAPM: The capital market line; the capital asset pricing model; the beta of an asset and of a portfolio; security market line. Arbitrage pricing theory (APT).	
UNIT VI	Introduction to derivatives and options; forward and futures contracts; options; other derivatives;	10 Hrs

Internal Assessment:		
CIA 1	Unit I, Unit II	
CIA 2	Assignment submission and/or presentation	

Text Books:

1. Aswath Damodaran, *Applied Corporate Finance*, John Wiley & Sons

2. Richard A. Brealey and Stewart C. Myers, *Principles of Corporate Finance*, McGraw-Hill.

3. Stephen A. Ross, Randolph W. Westerfield and Bradford D. Jordan, *Fundamentals of Corporate Finance*. McGraw-Hill

Reference Books:

4. Prasanna Chandra. *Financial Management Theory and Practice*, Tata McGraw Hill

1. Seldon M Ross. *An Elementary introduction to Mathematical Finance,* Cambridge University Press

PO-CO Compliance Matrix									
	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO 9	PO 10
CO1	3	3								
CO2				2	2				2	2
CO3	3	3	2		2				2	2
CO4	3	3								

*1: Low, 2: Medium, 3: High

Course Name: Introductory Econometrics (ECO281)		
TEACHING SCHEME	**EXAMINATION SCHEME**	**CREDITS ALLOTED**
Theory:2 hrs per week	End Semester Examination:60 marks InternalAssessment:40marks	Theory:2
		Total:2

Course Pre-requisites:	
1	Student must possess basic understanding of Statistical and mathematical methods

Course Objective:	
	An important objective of the course is to introduce regression analysis to students so that they are able to understand its applications in different disciplines. The course provides a basic understanding of doing econometric analysis.

Course Outcomes: The students will be able to:	
1	Estimate the regression model, derive the parameter estimators and learn to interpret.
2	Understand and would learn to establish causal relationships and do the interpretations.

Course Content:		
UNIT I	Nature and meaning of econometric; Difference between mathematical economics, statistics and econometrics;	5 hrs
UNIT II	Methodology and Goals of econometrics	5 hrs
UNIT III	Estimation of model by method of ordinary least squares.	5 hrs

UNIT IV	Properties of estimators; goodness of fit;	5 hrs
UNIT V	Tests of hypotheses; scaling and units of measurement; confidence intervals; Gauss-Markov theorem	5 hrs
UNIT VI	Interpretation of the regression estimates with examples	5 hrs

Internal Assessment:

CIA1	UnitI, UnitII	
CIA2	Assignment submission and/or presentation	

Text Books:
1. DamodarN.Gujarati,*BasicEconometrics;*4thEdition,McGrawHill,2008.
2. JafferyWooldridge,**IntroductoryEconometrics:AModernApproach,CengageLearning**

Reference Books:
1.. Christopher Daugherty: Introduction to Econometrics

PO-CO Compliance Matrix										
	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO 9	PO 10
CO1	CO1				3	3	2	2	1	1
CO2	CO2				3	3	2	2	1	1

*1:Low,2:Medium,3: High

Course: Mathematical Finance (5ECO91)		
TEACHING SCHEME	**EXAMINATION SCHEME**	**CREDITS ALLOTED**
Theory: 2 hrs per week	End Semester Examination: 60 marks Internal Assessment: 40 marks	Theory: 2
		Total: 2

Course Pre-requisites:

1	Student must have completed the knowledge elementary macroeconomics and mathematics

Course Objective:

This course introduces the basic mathematics to be used in finance. It is ideal for the students who want to a rigorous study in finance in their final year of under-graduation level. This course ensures that students can experience mathematical and economic perspective of the subject. Using mathematics as a tool this course covers a wide range of topics in finance, such as, the time value of money, portfolio theory, capital market theory, security price modeling, and financial derivatives.

Course Outcomes: The students will be able to

1	Understand the mathematical foundation of quantitative finance.
2	Grasp the standard and advanced quantitative methodologies applied in the area of financial economics.
3	Create and evaluate the potential models for the pricing of shares and bonds.
4	Construct, analyze and evaluate the models for investment of financial assets.
5	Understand the emerging theories and techniques in the area of financial economics.

Course Content:

UNIT I	Review of basic mathematical tools, probability theory and random variables. Economic indicators that may affect the financial markets. Mathematics of the Time Value of Money: Simple interest, Compound interest, Annuities and amortization theory, NPV, IRR.	10 hrs

UNIT II	**Mathematics of Investment I** Buying and selling stocks, Common stock valuation, cost of new issues of common stock, stock value with two-stage dividend growth, Bond valuation, premium and discount prices, premium amortization, discount accumulation, estimating the yield rate.	10 hrs
UNIT III	**Mathematics of Investment II** Mathematics of Return and Risk: Expected rate of return, measuring the risk, risk aversion and risk premium, return and risk at the portfolio level.	10 hrs
UNIT IV	**Portfolio Theory I** Markowitz Portfolio Model, Two securities portfolio, N-securities portfolio, Investor Utility, Diversification and randomly selected securities. Capital market Theory: the financial beta (β), The Capital Market line, The CAPM equation,	10 hrs
UNIT V	**Portfolio Theory II** The Security Market Line, CAPM security risk decomposition. Portfolio Risk Measures: The Sharpe ratio, the Sortino ration, Value-at-Risk.	10 hrs
UNIT VI	**Derivatives** Forwards, Futures and Options. Dynamics of making profits with options, Intrinsic Values of Calls and Puts, Time value of Calls and Puts, The delta ratio, determinates of option value, Option valuation. Option Pricing: The Black-Scholes-Merton (BSM) mode. The BSM model vs market data.	10 Hrs

Internal Assessment:	
CIA 1	Unit I, Unit II
CIA 2	Assignment submission and/or presentation

Text Books:

1. A. O. Petters and X. Dong, *An Introduction to Mathematical Finance with Applications* (Springer, 2016)
2. S. Roman, *Introduction to the Mathematics of Finance* (Springer, 2004)

3. M. J. Alhabeeb, *Mathematical Finance*, (Wiley, 2012)

4. S. Ross, *An Elementary Introduction to Mathematical Finance*, Third Edition (Cambrige U. Press, Cambridge, 2011)

Reference Books:

5. J Janssen, R. Manca, and E. V. di Prignano, *Mathematical Finance: Deterministic and Stochastic Models* (Wiley, 2009)

PO-CO Compliance Matrix									
	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO 9	PO 10
CO1	3	3		2	2		2	2		
CO2	3	3		2	2		2	2		
CO3	3	3			2	3				2
CO4	3	3			2	3				2
CO5	3	3		2	2	2		2		2

*1: Low, 2: Medium, 3: High

VAC Courses

Course: Indian Knowledge Systems (4.5ECO99)		
TEACHING SCHEME	EXAMINATION SCHEME	CREDITS ALLOTED
Theory: 4 hrs per week	End Semester Examination: 60 marks Internal Assessment: 40 marks	Theory: 4
		Total: 4
Course Pre-requisites:		
1	Student must have completed 10+2	
Course Objective:		
	1. To sensitize the students about context in which they are embedded i.e. Indian culture and civilization including its Knowledge System and Tradition. Sanskrit Language and Literature 2. To help student to understand the knowledge, art and creative practices, skills and values in ancient Indian system. 3. To help to study the enriched scientific Indian heritage 4. To introduce the contribution from Ancient Indian system & tradition to modern science & Technology	
Course Outcomes: The students will be able to		
1	They will understand and appreciate the rich heritage that resides in our traditions	
2	Inculcate an understanding of the mind/voice dynamic and its function in Indian knowledge systems	
3	Learn to appreciate the need and importance of Sanskrit in getting to the roots of the philosophical concepts	
4	Being primed for practices that will prepare one for the inner-journey to discover the Self	
Course Content:		
UNIT I	**Introduction : Indian Knowledge Systems** Definition, Concept and Scope of IKS , Definition, Concept and Scope of IKS, IKS based approaches on Knowledge Paradigms, IKS in ancient India and in modern India Introduction to Indian Knowledge System (IKS),	10 hrs
UNIT II	**Indian Philosophy and Literature I** Philosophy and Literature (Maharishi Vyas, Manu, Kanad, Pingala, Parasar, Banabhatta, Nagarjuna and Panini), Mathematics and Astronomy (Aryabhatta, Mahavir acharya, Bodhayan, Bhashkaracharya, Varahamihira and Brahmgupta) Medicine and Yoga (Charak, Susruta, Maharishi Patanjali and Dhanwantri)	10 hrs
UNIT III	**Indian Philosophy and Literature II** Sahitya (Vedas, Upvedas, Upavedas (Ayurveda, Dhanurveda, Gandharvaveda) Puran and Upnishad) and shad darshan (Vedanta, Nyaya.Vaisheshik, Sankhya, Mimamsa, Yoga, Adhyatma and Meditation) Shastra (Nyaya, vyakarana, Krishi, Shilp, Vastu, Natya and Sangeet)	10 hrs
UNIT IV	**Indian Traditional communities, and their livelihood Practices** Geophysical aspects, Resources and Vulnerability, Resource availability, utilization pattern and limitations, Socio-Cultural linkages with Traditional Knowledge System Tangible and intangible cultural heritage.	10 hrs

UNIT V	**Indigenous Knowledge and Traditional Practices I** Myths, Rituals, Spirituals, Taboos and Belief System, Folk Stories, Songs, Proverbs, Dance, Play, Acts and Traditional Narratives, Agriculture, animal husbandry, Forest, Sacred Groves, Water Mills, Sacred Water Bodies, Land, water and Soil Conservation and management Practices, Indigenous Bio-resource Conservation,	10 hrs
UNIT VI	**Indigenous Knowledge and Traditional Practices II** Utilization Practices and Food Preservation Methods, Handicrafts, Wood Processing and Carving, -Fiber Extraction and Costumes, Vaidya (traditional health care system), Tantra-Mantra, Amchi Medicine System, Knowledge of dyeing, chemistry of dyes, pigments and chemicals	10 Hrs

Internal Assessment:		
CIA 1	Unit I, Unit II	
CIA 2	Assignment submission and/or presentation	

Text Books:
Pride of India: A Glimpse into India's Scientific Heritage, Samskrita Bharati, New Delhi.
Sampad and Vijay (2011). "The Wonder that is Sanskrit", Sri Aurobindo Society, Puducherry
Acarya, P.K. (1996). Indian Architecture, Munshiram Manoharlal Publishers, New Delhi.
Reference Books:
Kapoor Kapil, Singh Avadhesh (2021). "Indian Knowledge Systems Vol – I & II", Indian Institute of Advanced Study, Shimla, H.P.
Dasgupta,S. (1975). A History of Indian Philosophy- Volume 1, Motilal Banarsidass, New Delhi.
PLofker, K. (1963). Mathematics in India, Princeton University Press, New Jeresy, USA"

PO-CO Compliance Matrix

	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO 9	
CO1		2						2	2	
CO2		2						2	1	
CO3		2						2	2	
CO 4		2						2	2	
*1: Low, 2: Medium, 3: High										

Discipline Elective Courses

Course Name: Agricultural Economics (6ECO21)		
TEACHING SCHEME	**EXAMINATION SCHEME**	**CREDITS ALLOTED**
Theory: 4 hrs per week	End Semester Examination: 60 marks Internal Assessment: 40 marks	Theory: 4
		Total: 4
Course Pre-requisites:		
1	Must possess knowledge of elementary economics	
Course Objective:		

	This course aims to provide alternative theoretical approaches to analyzing agrarian questions are discussed in this course, with particular reference to alternative interpretations of observed empirical trends. The focus is on analyzing structural patterns in Indian agriculture, and how policies have influenced farmers' choices and incomes. The approach is modular and will depend on the policy discourse.	
Course Outcomes: The students will be able to		
1	Participate in decision-making related to the agricultural sector,	
2	Have sufficient background to undertake independent research in this area.	
3	Develop the understanding about agricultural issues of national and international	
Course Content:		
UNIT I	**Agriculture and Economic Development:** Agricultural Economics– Definition, Nature, and Scope; Role of Agriculture in Economic Development; Inter-Sectoral Linkages of Agriculture (Backward & Forward Linkages and Feedback Effects); Role of Agriculture Indian Economy; Farming as a business or way of life.	10 hrs
UNIT II	**Theories of Agricultural Development:** Schult's Transformation of Traditional Agriculture; Mellor's Model of Agricultural Development; Boserup Model of Agriculture Development; Ranis–Fie Model of Agriculture Development; Hayami-Ruttan Induced Innovation Hypothesis.	10 hrs
UNIT III	**Issues in Indian Agriculture**: Indian Agriculture: Features, Problems, and Trends; Agricultural Productivity in India– Causes of low productivity and Suggestions to increase productivity in India, Agricultural Development and Five-Year Plans.	10 hrs
UNIT IV	**Agricultural Price Policy:** Origin, objectives, need, instruments, shortcomings, and suggestions for Reorientation of Agricultural Price Policy in India, MSP Debate on Economic System for Agricultural Marketing, Agriculture Marketing in India.	10 hrs
UNIT V	**Agricultural marketing**: Agricultural Marketing and its Importance; Components of Agriculture Market and Classifications; Marketable and Marketed Surplus; Marketing functions; Marketing Channels; Regulated Market; Marketing efficiency; Marketing Costs and Margins; Reforms in Agricultural Produce Marketing Regulation Act- Direct marketing, contract farming, private markets, Organized Retailing, Farmer Producer Organizations (Agricultural cooperatives); Agricultural Value Chains.	10 hrs
UNIT VI	**Agriculture and External Sector:** Issues in liberalization of domestic and international trade in agriculture; Impact of the World Trade Organization on Indian Agriculture; Agriculture and Environment– Sustainable Development; Food Security and International Trade – Concept, Threat, Indicators and Mechanism to Food Security.	10 hrs
Internal Assessment:		
CIA 1	Unit I, Unit II	
CIA 2	Assignment submission and/or presentation	
Text Books:		
1.Soni R. N. & M. Sangeeta: **Leading Issues in Agricultural Economics**, Vishal Publishing Co. Jalandhar		
2.Sadhu and Singh: **Fundamentals of Agricultural Economics**, Himalaya Publishing House Mumbai		
3.Drummond H. Evan & Goodwin John W.: **Agricultural Economics**, Printice Hall		
Reference Books:		
1.Tsakok Isabelle: **Success in Agricultural Transformation**, Cambridge University Press		
2.Barkley Andrew, et al: **Principles of Agricultural Economics**, Routledge London		
3.Puri VK & Mishra: **Indian Economy**, Himalaya Publishing House		
4. GOI: **Economic Survey 2022-23 and onwards**		
PO-CO Compliance Matrix		

	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9
CO1	2	2			1				2
CO2		2	1	2	1	2	3	2	1
CO3	2	3							2
*1: Low, 2: Medium, 3: High								

Course Name: Environmental Economics and Policy (6ECO22)			
TEACHING SCHEME	**EXAMINATION SCHEME**	**CREDITS ALLOTED**	
Theory: 4 hrs per week	End Semester Examination: 60 marks Internal Assessment: 40 marks	Theory: 4	
		Total: 4	

Course Pre-requisites:

1	Must possess knowledge of elementary microeconomics

Course Objective:

The course aims to acquaint the students with tools of microeconomics in dealing with environmental problems. This course targets to apprise the environment-economy interactions and familiarize the various economic regulatory tools in handling environmental problems.

Course Outcomes: The students will be able to

1	Understand the main interactions between the environment and the economy and the physical constraints that place limits on the interaction
2	Be familiar with the history of the discipline of environmental economics and what is included in the discipline
3	Appreciate how markets allocate goods and why they sometimes fail allocate environmental goods optimally.
4	Plan regulatory framework for correcting market failures.
5	Use economic techniques to analyze environmental problems and to assess environmental policies
6	Have the knowledge of the components of environmental policy, criteria for its design and assessment, and critique of these matters.
7	Apply the various quantitative regulations on the basis of criteria of cost effectiveness.

Course Content:

UNIT I	What is environmental economics? Distinction between environmental Economics and natural resource economics.	10 hrs
UNIT II	Introduction to Environmental Economics: Historical perspectives (classical, neo-classical and modern) Interface between Economy, Environment and Development; Environment versus development Controversy.	10 hrs
UNIT III	First and second law of thermodynamics. Efficiency and choice, Problems of Market Failure: Public bads and externalities. Social choice of optimum pollution	10 hrs
UNIT IV	Theory of environment Regulation: Pigovian solutions; Subsidies for Abatement of pollution, Property Rights and the Coasian Approach: bargain Solution.	10 hrs
UNIT V	Quantitative regulation: Command and Control- Standard setting; Tradable pollution permits; Refundable deposits, Output Tax.	10 hrs
UNIT VI	The Problem of uncertainty and risk in Environmental policy choice; Regulation with unknown Control cost; Monitoring emissions, enforcement and Moral hazard; Environmental Risk and uncertainty.	10 hrs

Internal Assessment:

CIA 1	Unit I, Unit II	

CIA 2	Assignment submission and/or presentation

Text Books:

1. Kolstad, C, D. (2003) Environmental Economics, Oxford university Press

Reference Books:

1. Thomas and Callan, Environmental Economics, Cengage Learning, 2009.
2. Tietenberg, T. (1996), Environmental and Natural Resource Economics, Harper Collins, College Publishers, New York, Fourth Edition
3. Bhattacharya, R. N. (Edited) (2001), Environmental Economics: An Indian Perspective, Oxford University Press, New Delhi.

PO-CO Compliance Matrix									
	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9
CO1	2	2	2			3			
CO2	2	2	2			3			3
CO3	2	2				2			2
CO4									3
CO5									3
CO6	2	2	2			3	3		3
CO7				3		3		3	2

*1: Low, 2: Medium, 3: High

Course Name: Political Economy and Development 6ECO23		
TEACHING SCHEME	EXAMINATION SCHEME	CREDITS ALLOCATED
Theory: 4 hrs per week	End Semester Examination: 60 marks Internal Assessment: 40 marks	Theory: 4
		Total: 4

Course Prerequisites:

1	Knowledge of elementary economics
2	Must possess analytical thinking

Course Objective:

	This course explores the relationship between political institutions and economic development, covering key theoretical issues as well as recent empirical evidence. Topics include corruption, democracy, dictatorship, and war. Discusses not just what we know on these topics, but how we know it, covering how to craft a good empirical study or field experiment and how to discriminate between reliable and unreliable evidence.

Course Outcomes: The students will be able to

1	Build a foundation for thinking about the role of political economy in understanding economic development.

2	Understand some core theoretical concepts in political economy, with illustrations from developing countries whenever possible.	
3	Understand empirical evidence in economics. What makes a good empirical study? How do we learn about the world empirically? What are some of the techniques we can use to better understand the world?	
Course Content:		
UNIT I	Political economy and development. Analyzing Social Change in Historical Perspective The method of historical materialism; the transition from feudalism to capitalism; capitalism as a historical process – alternative perspectives. Marxist political economy, Shumpeter approach	10 hrs
UNIT II	Does Political Economy Matter for Economic Development? Some Facts and Empirical Techniques. The Role of Leaders and Democratic Institutions; The Deep Determinants of Economic Development: Macro Evidence; The Deep Determinants of Economic Development: Micro Evidence; inequality and economic growth; political economy and social/human development	10 hrs
UNIT III	Voting I: The Median Voter Theorem; Voting in Practice: Citizen-Candidate Models, Politician Identity and the Failure of the Median Voter Theorem; Voting in Practice: Agency Models; Voting in Practice: Vote buying and voter intimidation;	10 hrs
UNIT IV	Voting II : Sometimes It Gets Complicated: Condorcet's Paradox and Arrow's Impossibility Theorem. Good vs. Bad Dictatorships; Commitment problems in Dictatorship	10 hrs
UNIT V	Collective Actions: The Logic of Collective Action; Ethnic Heterogeneity and Contributions to Public Goods; Monitoring and Collective Action Problems; Recovery from Civil War; Why Do Wars Happen; Civil War.	10 hrs
UNIT VI	Corruption: Is Corruption Inefficient; The Corrupt Official's Decision Problem: Balancing Risks, Rents, and Incentives; The Industrial Organization of Corruption; Politicians and Firms	10 hrs
	Internal Assessment	
CIA 1	Unit I, Unit II	
CIA 2	Assignment submission and/or presentation	
	Text Books:	
	1. Bardhan, P. (1998), *Political Economy of Development in India*, Oxford: Oxford University Press.	
	2. Charles Sackrey, Geoffrey Schneider and Janet Knoedler (2013), *Introduction to Political Economy*, 7th/8th edition, Dollars and Sense.	
	Reference Books:	

3. Bardhan (1999), Political Economy of Reforms in India, New Delhi: NCAER.	
4. Fine, Ben and Milonakis, Dimitris (2008), *From Political Economy to Economics: Method, the Social and the Historical in the Evolution of Economic Theory*. Routledge.	
5. Frankel, F. (2005), India's Political Economy: a gradual revolution, 1947-2004, Oxford University Press.	
6. Jevon, W. Stanley. The Theory of Political Economy	
7. Ricardo, David. (1817). *Principles of Political economy and Taxation*, the Sraffa edition.	
8. Roland, G. (2000) *Politics, Market and Firms*, The MIT Press: Cambridge, Mass.	
9. Roncaglia, Alessandro. (2005). *The Wealth of Ideas*. Cambridge University Press, Cambridge	
10. Simon, David (2005). *Fifty Key Thinkers on Development*, Routledge.	
11. Smith, Adam. (1776). *An inquiry into the nature and causes of the wealth of nations,* The Glasgow Edition.	
12. Sweezy, Paul (1970). *The Theory of Capitalist development: Principles of Marxian Political economy*. Modern Reader Paperbacks, New York	

PO-CO Compliance Matrix

	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9
CO1	1	2			1				1
CO2	1	2			2	1			2
CO3	1	2	1	2	2	1	2	1	2

*1: Low, 2: Medium, 3: High

Course Name: Labor Economics (6ECO24)		
TEACHING SCHEME	**EXAMINATION SCHEME**	**CREDITS ALLOTED**
Theory: 4 hrs per week	End Semester Examination: 60 marks Internal Assessment: 40 marks	Theory: 4
		Total: 4
Course Pre-requisites:		
1 Must possess knowledge of elementary microeconomics		
Course Objective:		

	The aim of this course is to introduce the student to labor economics with an emphasis on microeconomic theory and experience. The material covered will help the student to understand real-world issues relating to labor markets and to assess related public policy measures.
Course Outcomes:	The students will be able to
1	Understand the Basic economic forces behind employment and wages decisions
2	Identify Sources of labour market imperfections, driving forces for education and skill upgradation, discrimination among the workers and public polices for labour welfare

Course Content:		
UNIT I	Labour Supply: Choice between Consumption and Leisure; Incorporating Household Production and Decisions.	10 hrs
UNIT II	Labour Demand and Equilibrium: Labour Demand Function, Competitive Equilibrium, Compensating Wage Differentials and Hedonic Theory of Wages	10 hrs
UNIT III	Discrimination Theories of Discrimination, Measuring Discrimination, Affirmative Action	10 hrs
UNIT IV	Investment in Education: Theory of Human Capital, Education as a Signalling Device, Returns to Education	10 hrs
UNIT V	Job Search, incentives and efficiency of wages, Migration	10 hrs
UNIT VI	Labour Market Institutions and Policies Collective Bargaining and Labour Unions, Minimum Wage and Employment, Unemployment Insurance, Job security regulations	10 hrs

Internal Assessment:	
CIA 1	Unit I, Unit II
CIA 2	Assignment submission and/or presentation

Text Books:
1. Cahuc, P.; Carcillo, S. and Zylberberg, A. (2014): Labor Economics, MIT Press
2. Ehrenberg, R. G. and Smith, R. S.(2018): Modern Labor Economics: Theory and Public Policy, Routledge
3. Borjas, G. J. (2010): Labor Economics, McGraw-Hill/Irwin, Boston MA (5th edition)

Reference Books:
4. Card, D., and Ashebfelrer, O. (2011): Handbook of Labor Economics, Vol 4A & B, Elsevier

PO-CO Compliance Matrix										
	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO 9	PO 10
CO1	3	3							2	
CO2	3	3				3			3	

*1: Low, 2: Medium, 3: High

Course Name: Economics of Money Banking and Financial Development in India (6ECO25)		
TEACHING SCHEME	**EXAMINATION SCHEME**	**CREDITS ALLOTED**
Theory: 4 hrs per week	End Semester Examination: 60 marks Internal Assessment: 40 marks	Theory: 4
		Total: 4

Course Pre-requisites:	
1	Must possess knowledge of elementary macroeconomics

Course Objective:	
	Money, banking, and financial markets have emerged as instruments of payments for the services of factors of production, such as labour and capital and they also accommodate innumerable exchanges in the economy. Therefore, this course aims at providing students with a thorough understanding of the importance of money, banking, and financial markets in the economy.
Course Outcomes:	The students will be able to

1	Identify and describe the economic principles underlying the operation of financial intermediaries and markets	
2	Explain how central banks conduct monetary policy and be able to interpret the goals of monetary policy	
3	Identify the markets for stocks, bonds, derivatives, and currencies	
4	Describe the structure of financial markets, the factors that shape them, and how they are regulated	
5	Identify the general principles of banking management	
6	Acquire and demonstrate analytical and problem solving skills within money, banking, and financial market disciplines;	
Course Content:		
UNIT I	**Money:** Why Study Money and Monetary Policy: Money and Business Cycles; Structural Evidence model, Reduced form evidence model, Early Keynesian Evidence, Early Monetarists Evidence. Transmission Mechanism of money: Traditional interest rate channel - other asset price effects, q Theory - Credit view approach.	10 hrs
UNIT II	**Monetary policy:** Money and Inflation, Money and Interest Rates. Conduct of Monetary Policy: Tools, Goals and Targets of Monetary Policy.	10 hrs
UNIT III	**An Overview of financial system I:** Functions of financial markets, structure of financial markets: Debt and Equity markets, primary and secondary markets, exchange and over-the-counter markets, Money and capital markets.	10 hrs
UNIT IV	**An Overview of financial system II:** Function of financial intermediaries. An Economic Analysis of Banking Management. Analysis of market for reserves and federal funds rate with special reference to changes in monetary policy tools.	10 hrs
UNIT V	**Understanding interest Rates:** Measuring interest Rates: types of Credit Market Instruments, Present Value, Yield to maturity, The Distinction between Interest Rates and Returns, Distinction between Real and Nominal Interest Rates. Behavior of interest rate; determination of market rate of interest rate-theory of Asset demand, Loanable Funds Framework, Changes in equilibrium interest rate, The Fisher effect, Business Cycle effect. Supply and Demand in the Market for Money: The Liquidity Preference Framework.	10 hrs
UNIT VI	**Financial Development and Economic growth:** What is Financial Development, Measuring Financial development, Financial Development and Economic Growth: Theoretical and Empirical Literature, major issues in the field of finance-growth nexus. Financial development and economic growth in India - empirical evidence.	10 hrs
Internal Assessment:		
CIA 1	Unit I, Unit II	
CIA 2	Assignment submission and/or presentation	
Text Books:		

Text Books:
1. Mishkin, Frederic S and Stanley G Eakins, "Financial Markets and Institutions, Pearson Education, Sixth Edition, 2011.
2. H.J. Johnson, Financial Institutions & Markets: A Global Perspective; McGraw Hill, 1993 (Int. edition.)
3. Mishkin Frederic S, "The Economics of Money, Banking and Financial Markets", Pearson Education (AW), Seventh Edition, 2004.

Reference Books:
4. Paul Jastin and Padmalatha Suresh, "Management of Banking and Financial Services", Pearson

	Education, First Edition, 2007.
5. Jadhav Narendra, Challenges to Indian Banking: Competition, Globalisation& Financial Markets, (Union Bank of India, 1996, Macmillan India Ltd., 1996.	

PO-CO Compliance Matrix								
	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9
CO1	1	2			3	2			
CO2	1	2			3	2			
CO3	1	2		2	3	2			
CO 4		2			3	2			
CO 5	1	2			2	1			
CO 6		2	2	2	3	3	3		

*1: Low, 2: Medium, 3: High

Course Name: Project (ECO516)		
TEACHING SCHEME	**EXAMINATION SCHEME**	**CREDITS ALLOTED**
Theory: 12 hrs per week	End Semester Examination: 60 marks Internal Assessment: 40 marks	`12
		Total: 12

Course Pre-requisites:	
1	Student must have completed the knowledge of Macroeconomics, Microeconomics, Econometrics and Data Analytics

Course Objective:
The purpose of the Project is to encourage students to undertake independent economic research, use analytical application to analyse data and interpretation to foster research-related skills, which should benefit future study and employment.

Course Outcomes: The students will be able to	
1	Analyse and interpret the collected data
2	Apply the economic models, theories and tools of research to process, code , present and interpret the data
3	Use statistical software to analyze the data
4	Present research findings and argument in a suitably structured and sequenced thesis that conforms to protocols of academic presentation and research practice.
5	Demonstrate the ability to critique literature and conduct analyses at a Masters level.

Assessment:		
CIA 1	Presentation of Synopsis	20
CIA 2	Presentation of Data Analysis Work	20
ESE	The students are required to submit their Project report as per guidelines prescribed by the department at the end of the specified period. The students are also required to attend viva voce examination in ESE. Out of total 60 marks in this Project, 30 marks are of project report to be assessed by the Department (by constituting a panel of examiners including internal & external examiners) and remaining 30 marks are of viva voce to be awarded by internal & external examiners.	60

PO-CO Compliance Matrix									
	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO 9	PO 10
CO1					2	2	2	2	2	2
CO2			2	2	2	2	2	2	2	2
CO3			3	3			3	3		
CO 4						2	2	2		2

| CO5 | | 2 | | 2 | 2 | | | 2 | |

*1: Low, 2: Medium, 3: High

Course Name: Economics of Mathematical Finance (6.5ECO22)		
TEACHING SCHEME	**EXAMINATION SCHEME**	**CREDITS ALLOTED**
Theory: 4 hrs per week	End Semester Examination: 60 marks Internal Assessment: 40 marks	Theory: 4
		Total: 4

Course Pre-requisites:	
1	Must possess knowledge of elementary macroeconomics

Course Objective:
This course has aim to deliver the mathematical and economic perspective of topics of finance. Course is intended to make students able to apply the theories, construct and evaluate the potential models for shares and bonds, financial assets. Course is intended to apply the mathematics as a tool this course covers a wide range of topics in finance, such as, the time value of money, portfolio theory, capital market theory, security price modeling, and financial derivatives.

Course Outcomes: The students will be able to	
1	Understand the mathematical foundation of quantitative finance
2	Apply the standard and advanced quantitative methodologies applied in the area of financial economics.
3	Demonstrate and evaluate the potential models for the pricing of shares and bonds.
4	Analyze and construct the models for investment of financial assets.
5	Understand and apply the emerging theories and techniques in the area of financial economics.

Course Content:		
UNIT I	Introduction to financial markets, financial instruments, bonds, stocks and financial derivatives. Time value of money, simple and compound interest rate, net present value, internal rate of return and annuities.	10 hrs
UNIT II	Mathematics of Investment: Buying and selling stocks, Common stock valuation, cost of new issues of common stock, stock value with two-stage dividend growth, Bond valuation, premium and discount prices, premium amortization, discount accumulation,	10 hrs
UNIT III	Estimating the yield rate. Mathematics of Return and Risk: Expected rate of return, measuring the risk, risk aversion and risk premium, return and risk at the portfolio level.	10 hrs
UNIT IV	Markowitz portfolio theory, risk and return, two and multi asset portfolio theory, efficient frontier. Capital Asset Pricing Model and portfolio performance analysis. N-securities portfolio, Investor Utility, Diversification and randomly selected securities. Capital market Theory: the financial beta (β), The Capital Market line, The CAPM equation, The Security Market Line, CAPM security risk decomposition. Portfolio Risk Measures: The Sharpe ratio, the Sortino ration, Value-at-Risk.	10 hrs
UNIT V	No arbitrage principle, pricing of forwards and futures, properties of	10 hrs

	options. Derivative pricing by replication in binomial model. discrete probability spaces, filtration, conditional expectation, Discrete time martingales, Markov chain, risk-neutral pricing in binomial model for European and American derivatives. General probability spaces, conditional expectation, Brownian motion.	
UNIT VI	Forwards, Futures and Options. Dynamics of making profits with options, Intrinsic Values of Calls and Puts, Time value of Calls and Puts, The delta ratio, determinates of option value, Option valuation. Option Pricing: Ito integral, Ito formula, Girsanov's theorem, martingale representation theorem, stochastic differential equation. Black-Scholes-Merton (BSM) model, pricing of European derivatives in BSM framework. Valuation of European options in BSM model, BSM formula, BSM partial differential equation, hedging, model completeness, fundamental theorems of asset pricing.	10 hrs

Internal Assessment:		
CIA 1	Unit I, Unit II	
CIA 2	Assignment submission and/or presentation	

Text Books:
1. A. O. Petters and X. Dong, An Introduction to Mathematical Finance with Applications (Springer, 2016)
2. M. J. Alhabeeb, Mathematical Finance, (Wiley, 2012)

Reference Books:
3. S. Ross, An Elementary Introduction to Mathematical Finance, Third Edition (Cambrige U. Press, Cambridge, 2011)
4. J Janssen, R. Manca, and E. V. di Prignano, Mathematical Finance: Deterministic and Stochastic Models (Wiley, 2009)

S. Roman, Introduction to the Mathematics of Finance (Springer, 2004)

PO-CO Compliance Matrix										
	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO 9	PO 10
CO1	3	3								
CO2	3	3								
CO3	3	3					2	2		2
CO4	3	3				3	2	2	2	2
CO5	3	3								
*1: Low, 2: Medium, 3: High										

Course Name: Behavioral Economics (6.5ECO23)		
TEACHING SCHEME	**EXAMINATION SCHEME**	**CREDITS ALLOTED**
Theory: 4 hrs per week	End Semester Examination: 60 marks Internal Assessment: 40 marks	Theory: 4
		Total: 4
Course Pre-requisites:		
1	Must possess knowledge of elementary microeconomics	
Course Objective:		

	This course will provide students with a clear introduction to the principles and methods of Behavioural Economics. Behavioural economics considers the ways that people are more social, more impulsive, less adept at using information, and more susceptible to psychological biases than the standard economic models assume.

Course Outcomes: The students will be able to	
1	Understand the flexibility and limitations of the economic approach to modelling behaviour.
2	Know how to use existing behavioural models to understand new economic phenomena.
3	Know to design experiments to evaluate a proposed behavioural model.
4	Know to evaluate research in Economics and disciplines related to behavioural research
5	Be able to pose a novel research question, design plan to investigate it and conjecture how to answer it.

Course Content:		
UNIT I	Introduction: What is behavioural economics? Introduction to the themes and methods of behavioural economics. Anticipation and information avoidance as introductory example. Making Choices Under Risk: Prospect Theory How do people really make choices when faced with uncertainty?	10 hrs
UNIT II	The role of reference-dependent preferences in both risky (loss-aversion) and risk-free (the endowment effect) choices.	10 hrs
UNIT III	Social Preferences I How do people care about those around them? Both distributional social preferences (altruism, inequality aversion)	10 hrs
UNIT IV	Social Preferences II Intentions-based social preferences (reciprocity, fairness). The possibility of self-deception.	10 hrs
UNIT V	Heuristics and Biases How do people make predictions about the world around them? The heuristics and biases displayed in judgment and decision-making.	10 hrs
UNIT VI	Nudges, Policy, and Happiness How and when should governments intervene if people are "behavioural"? The theory of nudges, and happiness as an outcome	10 hrs

Internal Assessment:		
CIA 1	Unit I, Unit II	
CIA 2	Assignment submission and/or presentation	

Text Books:
1. An Introduction to Behavioral Economics, N. Wilkinson and M. Klaes (2012), Palgrave Macmillan
2. Animal Spirits, G. Akerlof and R. Shiller (2009), Princeton University Press.

References:
3. Loewenstein (1987) "Anticipation and the Valuation of Delayed Consumption". Economic Journal, 97(387): 666— 684
4. Kahneman and Tversky (1979) "Prospect Theory: An Analysis of Decision Under Risk", Econometrica, 47(2): 263–291

PO-CO Compliance Matrix										
	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO 9	PO 10

CO1	3	3			1	3				
CO2	3	3			1	1				
CO3			2			2	2	2	2	2
CO4			2			2	1	2	2	2
CO5			2			2	2	2	2	2

*1: Low, 2: Medium, 3: High

Course Name: Advanced Econometrics (6.5ECO24)		
TEACHING SCHEME	**EXAMINATION SCHEME**	**CREDITS ALLOTED**
Theory: 4 hrs per week	End Semester Examination: 60 marks Internal Assessment: 40 marks	Theory: 4
		Total: 4

Course Pre-requisites:

1. Must possess knowledge of introductory econometrics and statistics.

Course Objective:

The purpose of this course is to teach and make student learn about the econometric estimations and their inferences at the advance level that can covers wide-range of economic issues. The course structure can be seen in broad heads, i.e. Time-series and Panel data analysis which further divided into four units. At the end of the course students are expected to learn how to apply the modern econometrics concepts and methods in analyzing and interpreting empirical research. The basic level of econometric understanding that has been taught in the previous semester is assumed.

Course Outcomes: The students will be able to

1. To conduct panel data analysis using pooled OLS, Fixed effects and Random Effects model.
2. To apply time series econometric techniques to empirical settings
3. To carry out empirical analyses using economic and financial time series data
4. Interpret the results of such analyses, in terms of the validity of the inferences that can be drawn, and to appreciate the interplay between data and theory in making such inferences

Course Content:

UNIT I	Review of cross section data analysis; Introduction to static panel data models: pooled OLS, Fixed effects and Random Effects. Choosing fixed effects vs random effects: The Hausman specification test,	10 hrs
UNIT II	Mundlak's approach, Chamerlain's approach. Robust estimations, Heteroskedasticity and autocorrelations in panel data.	10 hrs
UNIT III	Importance of lags in economic variables, Estimations of distributed lag model: Koyck Approach, adaptive expectations model, adaptive expectations and partial adjustment models; Autoregressive models. Almon Approach. Introduction to Univariate time-series econometrics: Stationary and non-stationary process; Tests for stationarity: unit root tests.	10 hrs
UNIT IV	Time series and forecasting: AR, MA, and ARIMA models. The vector auto regression (VAR), Granger causality, Granger non-causality tests: Toda and Yamamoto. Measuring volatility: the family of ARCH and GARCH models.	10 hrs
UNIT V	The concept of spurious regressions and co-integration. Engle —Granger approach, Multivariate co-integration tests: the Johansen's approach. ECM and VECM.ARDL models.	10 hrs
UNIT VI	Dynamic linear panel data models; Panel Unit root tests, GMM models, the system GMM models.	10 hrs

Internal Assessment:

CIA 1	Unit I, Unit II	
CIA 2	Assignment submission and/or presentation	

Text Books:									
1. Greene, William H. (2012). *Econometric Analysis,* Pearson Prentice Hall, 7th edition. Pesaran M. H (2015). *Time Series and Panel Data Econometrics,* Oxford University Press									

Reference Books:

2. Arellano M. (2003). *Panel Data Econometrics: Advanced texts in econometrics.* Oxford University Press
3. Badi H Baltagi (2005). *Econometric Analysis of Panel Data,* 3rd edition, John Wiley and Sons Ltd.
4. Wooldridge, Jeffrey (2010), *Econometric Analysis of Cross Section and Panel Data,* Cambridge: MITPress.
5. Hsiao, Cheng (2003). *Analysis of Panel Data,* Second Edition, Cambridge University Press

PO-CO Compliance Matrix

	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO 9	PO 10
CO1				3	2			3	2	2
CO2				3	2			3	2	2
CO3				3	2			3	2	2
CO4				2	2			2	3	3

*1: Low, 2: Medium, 3: High

Course Name: Economics of Industrial Organization (6.5ECO25)		
TEACHING SCHEME	**EXAMINATION SCHEME**	**CREDITS ALLOTED**
Theory: 4 hrs per week	End Semester Examination: 60 marks Internal Assessment: 40 marks	Theory: 4
		Total: 4

Course Pre-requisites:

1	Must possess knowledge of elementary microeconomics

Course Objective:

Industrial organization provides a foundation for the study of many other fields that rely on an understanding of interactions among firms in the economy, including business strategy, corporate finance, marketing, international trade, banking, and the economics of organizations. These other fields make use of the analytical framework of industrial organization, but differ in the types of problems that they address. A main focus of industrial organization is the effect of market structures on (consumer) welfare (for example, do oligopolistic market structures necessarily hurt consumers? or, what is the effect on mergers and acquisitions on welfare?). Business strategy concentrates with decisions to achieve competitive advantage, i.e. the effects on profitability; corporate finance with the capital structure of the firm and its effect on competitive interactions; marketing with issues of pricing, product differentiation and new product introduction; and, organization theory with optimal organizational structures. We will cover examples in some of these areas where industrial organization offers insights.

Course Outcomes: The students will be able to

1	Develop analytical approach using game theoretic tools, about the principal issues concerning oligopolistic markets, competition,
2	Apply the tools and applications to the real world of industry. They would also be prepared to understand competition policy more naturally and foundationally.

Course Content:

UNIT I	Introduction to Industrial Organization. Review of Basic Microeconomic Theory: Technology and Costs, Competition versus	10 hrs

	Monopoly.	
UNIT II	Market Structure and Market Power: Concentration Measures and Evidence, Cost and Non-Cost Determinants of Market Structure.	10 hrs
UNIT III	Monopoly Pricing Schemes: Durable Goods,Third-degree price discrimination, First-degree price discrimination, Second-degree price discrimination, and Tie-in sales and bundling.	10 hrs
UNIT IV	Basic Oligopoly Models: Game Theory; Static Games, Static Competition: Homogeneous Goods, Differentiated Goods, Game Theory: Dynamic Games.	10 hrs
UNIT V	Anticompetitive Behaviour and Antitrust Policy: Entry Deterrence, Predatory Conduct, Price Fixing, Repeated Interaction, and Antitrust Policy.	10 hrs
UNIT VI	Mergers: Horizontal Mergers, Vertical and Conglomerate Mergers. Non-Price Competition: Advertising, Innovation (Research and Development).	10 hrs

Internal Assessment:		
CIA 1	Unit I, Unit II	
CIA 2	Assignment submission and/or presentation	

Text Books:

Pepall, Richards, and Norman: Industrial Organization: Contemporary Theory and Applications, 2014, Fifth Edition (PRN).

Reference Books:

3.M. Armstrong, R. Porter: Handbook of Industrial Organization, Vol. III, North-Holland (2007)

4.O. Shy: Industrial Organization: Theory and Applications, MIT Press (1996)

5.J. Tirole: The Theory of Industrial Organization, MIT Press (1988)

PO-CO Compliance Matrix

	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9
CO1	1	2		3	3	3	3	1	1
CO2	1	2		2	3	3	3		1

*1: Low, 2: Medium, 3: High

Course: Game Theory (6.5ECO26)		
TEACHING SCHEME	**EXAMINATION SCHEME**	**CREDITS ALLOTED**
Theory: 4 hrs per week	End Semester Examination: 60 marks Internal Assessment: 40 marks	Theory: 4
		Total: 4

Course Pre-requisites:	
1	Student must have completed the knowledge elementary microeconomics

Course Objective:
The objective of this course is to provide a foundation of game theory to help students apply game theory to problem solving in a rigorous way. It emphasizes the idea behind the theories rather than their mathematical expression typically taught in mathematics. The course would introduce some equilibrium concepts of game theory and their usage in economics along with various numerical examples and applications. The basic knowledge of game theory can dramatically improve the

	strategic instinct and the decision making skill of students.	

Course Outcomes: The students will be able to	
1	Understand the economic and social phenomena easily
2	Understand the actions of several economic agents (individuals, groups, firms etc. or any combination of these) in any market structure
3	The students can expect to be able to model real-world situations using game theory, analyze the situations using game theoretic concepts, and design correct and robust solutions (mechanisms, algorithms, protocols) that would work for rational and intelligent agents.
4	Elucidate the concept of equilibrium in any branch economics
5	T he students will have an opportunity to obtain an exposure to and a serious appreciation of the seminal contributions of celebrities such as von Neumann, John Nash, Lloyd Shapley, Robert Aumann, William Vickrey, Leonid Hurwicz, Eric Maskin, and Roger Myerson.

Course Content:		
UNIT I	Introduction: rationality, intelligence, common knowledge, von Neumann - Morgenstern utilities;	10 hrs
UNIT II	Noncooperative Game Theory: strategic form games, dominant strategy equilibria, pure strategy nash equilibrium, mixed strategy Nash equilibrium, existence of Nash equilibrium, computation of Nash equilibrium, matrix games, minimax theorem, extensive form games, subgame perfect equilibrium, games with incomplete information, Bayesian games, Zero sum game	10 hrs
UNIT III	Nash Equilibrium: The concept of Nash Equilibrium; dominating and dominated strategies; zero-sum game	10 hrs
UNIT IV	Mixed Strategy Nash Equilibrium: concepts and examples; strategic game with randomization. Games with perfect information.	10 hrs
UNIT V	Games with imperfect information; Bayesian Games; Cournot's duopoly game with imperfect information; auction; other applications.	10 hrs
UNIT VI	Repeated games, Cooperative Game Theory: Correlated equilibrium, two person bargaining problem, coalitional games, The core, The Shapley value, other solution concepts in cooperative game theory.	10 Hrs

Internal Assessment:	
CIA 1	Unit I, Unit II
CIA 2	Assignment submission and/or presentation

Text Books:

  2. Osborne J Martin (2004), An Introduction to Game Theory, Oxford University Press

Reference Books:

  4. Fudenberg, D. and Tirole, J. (1991), Game Theory, MIT Press
  5. Gibbons, R. (1992), A Primer in Game Theory, Prentice-Hall
  6. Myerson, R. (1991): Game Theory: Analysis of Conflict, Harvard University Press

PO-CO Compliance Matrix										
	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO 9	PO 10
CO1	3	3								
CO2	3	3								
CO3	3	3								

CO4	3	3									
CO5	3	3									
*1: Low, 2: Medium, 3: High											

Course Name: Economics of Environmental Issues and Sustainable Development (6.5ECO27)		
TEACHING SCHEME	**EXAMINATION SCHEME**	**CREDITS ALLOTED**
Theory: 4 hrs per week	End Semester Examination: 60 marks Internal Assessment: 40 marks	Theory: 4
		Total: 4

Course Pre-requisites:

1	Must possess knowledge of elementary microeconomics and environmental economics

Course Objective:

	The course aims to discuss the various approaches of sustainable development, emergence of the concept of sustainable development and role of environment in sustainable development. It also deals with international and domestic environmental issues and the new economic framework of genuine well-being and happiness.

Course Outcomes: The students will be able to

1	Critically appreciate the relevance of environmental economics in linking the notions of sustainable development.
2	Understand the various approaches of sustainable development and how they are different from each other.
3	Understand various trans-national environmental issues.
4	Follow various issues related to energy, water, land, transport issues in association with the environmental concerns in India
5	Appreciate the emergence of genuine wealth and its relevance in the new economic framework of well-being
6	Comprehend the effects of globalization on environment.

Course Content:

UNIT I	The concept of Development and emergence of a new paradigm: Sustainable Development. Pursuits of Sustainable Development. Aspects of Sustainable Development : Economic, Ecological and Social, a Synthesis	10 hrs
UNIT II	Theory of Sustainable Development: Rules of sustainable development and Indicators: The Hartwick-Solow approach, Non-declining natural capital stock approaches, The SMS approach, Daly's operational principles, The Common-Perrings model of SD, 'Distance to goals' approach.	10 hrs
UNIT III	Trade and Environment: Trade, Foreign Investment and the Environment. Ecological dumping and standards	10 hrs
UNIT IV	Trans-national Pollution. Porter's hypothesis, race to bottom and pollution haven hypothesis. Globalization, Economic Reforms and the Environment	10 hrs
UNIT V	Environment and Economic Growth i) Indian Energy and Environment issues ii) Water, Land Transport and Urban development issues	10 hrs
UNIT VI	Genuine Wealth and Sustainable Development The Genuine Wealth Model : Defining genuine wealth , Old Economy of scarcity and new economy of well-being, Five Capital of Genuine wealth. Genuine wealth assessment life cycle. Genuine wealth models of communities and nations. Gross National Happiness: Case	10 hrs

	of Bhutan	

Internal Assessment:		
CIA 1	Unit I, Unit II	
CIA 2	Assignment submission and/or presentation	

Text Books:

1. Jonathan M. Harris (2000): "Basic Principles of Sustainable Development" G-DAE Working Paper No. 00-04.

Reference Books:

2. Bruno S. Frey , Economics Of Happiness, Springer International Publishing,2018

3. Kanchan Chopra and VikramDayal (Ed). Hand book of Environmental Economics,Oxford University Press 2009.

4. Sengupta, R.P, "Economics in India. Prospects and policies of low carbon Economic growth in India", NIPFP Publications 2010.

5. Peter Meier and Mohan Munasinghe,Sustainable Energy in Developing Countries: Policy Analysis and Case Studies,Cheltenham: Edward Elgar.

PO-CO Compliance Matrix									
	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO 9
CO1		2							3
CO2		2							3
CO3		2			2	2			3
CO4		2			2	2			3
CO5		2			2	2			3
CO6		2							3

*1: Low, 2: Medium, 3: High

Course Name: Health Economics (6.5ECO28)		
TEACHING SCHEME	**EXAMINATION SCHEME**	**CREDITS ALLOTED**
Theory: 4 hrs per week	End Semester Examination: 60 marks Internal Assessment: 40 marks	Theory: 4
		Total: 4

Course Pre-requisites:	
1	Must possess knowledge of elementary economics

Course Objective:	
	Health economics is the study of how scarce healthcare resources are allocated among competing interventions and among groups in society. This course introduces basic concepts and practical issues faced by decision makers at all levels in the health system in allocating scarce resources so that the choices they make maximize health benefits to the population.

Course Outcomes: The students will be able to	
1	The key analytical reasoning and tools of health economics and their normative foundations and ethical implications
2	Use economic models to understand behaviors of actors in the health care sector
3	Undertake economic evaluation in healthcare, with an emphasis on identifying, measuring, valuing and analysing health outcomes and costs

4	Understand approaches to identify and value costs and outcomes to include in economic evaluation
5	Make analyses of efficiency and quality of health care organizations
6	Develop competence to apply economic concepts and models to the fields of demand for health, demand for health services, demand for health insurance, provision of health insurance and provision of health care.
7	Develop competence to describe, analyze and critically address economic aspects of health care organizations
8	Understand fundamentals of markets and the price mechanism with a focus on the healthcare market

Course Content:		
UNIT I	Health Economics I: The state and scope of health economics, Human Capital and health, Health as a Social Indicator, Health dimensions of development: the health and development interdependency,	10 hrs
UNIT II	Health Economics II: the dual Relationship between Health and Economic Status, Determinants of health: Poverty, Malnutrition and Environmental quality, Components of economic appraisal of health programme.	10 hrs
UNIT III	Costs and Benefits of health services I :Private benefits and costs of providing health services, the failure of the market to provide essential health services, the provision of health services by the government ,	10 hrs
UNIT IV	Costs and Benefits of health services II : application of cost benefit analysis to public health and family planning projects, benefits and costs (both private and social) of training to professional manpower in health sector.	10 hrs
UNIT V	Valuing Health and health damage I :Human capital approach: measurement of mortality: value of statistical of life, years of life lost; morbidity valuation: cost of illness, Burden of disease: Meaning and significance,	10 hrs
UNIT VI	DALY: A measure of burden, The DALY framework: Components and postulates, DALY and QALY, the GBD assessment, BD and DALY: A critical appreciation. Health Accounting: National health accounts, from SNA to NHA, Health expenditure efforts.	10 hrs

Internal Assessment:		
CIA 1	Unit I, Unit II	
CIA 2	Assignment submission and/or presentation	

Text Books:

1. Anthony J. Cuyler and Joseph P. (ed.) (2000), Handbook of Health Economics,Newhouse North-Holland,Elsevier Science

Reference Books:

2. Clewar, Ann, and David Perkins. 1998. Economics of Health Care Management. London Prentice Hall.
3. Folland, Sherman, Allen Goodman, and MironStano, 2001. The Economics of Health and Health Care, New York: MacMillan, Third Edition.
4. Sherman Folland, Allen C.Gkoodman, and MironStano, (2004), The Economics of Health and Health Care, 4th Edition, Prentice Hall.

PO-CO Compliance Matrix										
	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10
CO1			2			2			3	3
CO2	2	2	2			2				
CO3	2	2	2			2			2	2
CO4	2	2	2			2				

CO5	2	2	2			2			2	2
CO6									3	3
CO7		2				2			3	3
CO8	2	2	2			2				

*1: Low, 2: Medium, 3: High

Course Name: Natural Resource Economics (6.5ECO29)		
TEACHING SCHEME	**EXAMINATION SCHEME**	**CREDITS ALLOTED**
Theory: 4 hrs per week	End Semester Examination: 60 marks Internal Assessment: 40 marks	Theory: 4
		Total: 4

	Course Pre-requisites:
1	Must possess knowledge of elementary microeconomics and environmental economics

Course Objective:
This course deals with the theoretical framework of the optimal use of renewable and non-renewable natural resources. It also aims to target the common property issues and role of institutions in handling it.

	Course Outcomes: The students will be able to
1	Know the extension of general equilibrium to resources and environment.
2	Understand the concept of steady state harvests and the biological growth function of renewable resources.
3	Learn the process of arriving at bio-economic equilibrium outcome in an open access fishery and static private property fishery.
4	Construct the model for efficient and optimal use of non-renewable resources.
5	Understand the static and dynamic efficiency conditions of the resource optimization problem.
6	Comprehend about some of the ways in which people's participation can be made effective.

	Course Content:		
UNIT I	Economy wide Modeling: Environmental Input output Analysis, Computable General Equilibrium model for Resources and Environmental Pollution.		10 hrs
UNIT II	Economics of Renewable Resources I: Growth functions and growth rate Optimal Management of Renewable Resources – Cases of Water, Forest, and Fishery:		10 hrs
UNIT III	Economics of Renewable Resources II: Theories of Pricing, Depletion and Augmentation of Resources.		10 hrs
UNIT IV	Economics of Non-Renewable Resources I: Theories of Depletion and Investment for Exploration, Hotelling's rule,		10 hrs
UNIT V	Economics of Non-Renewable Resources II: Pricing and Market. Natural Resource Cartels: Cases of Energy and Non-fuel Minerals		10 hrs
UNIT VI	Economics of Common Property Resources and Institutions: Open Access: Economic Failure and consequences; Management of Open Access; Participatory Approach and Institutions		10 hrs

Internal Assessment:		
CIA 1	Unit I, Unit II	
CIA 2	Assignment submission and/or presentation	

Text Books:

1. Hanely, Nick, Jason F.Shorgen, and Ben White, Environmental Economics: In Theory and Practice 1999, MacMillian
2. Roger Permanet. al., Natural Resource and Environmental Economics, Third edition, Pearson(Module I).

Reference Books:

3. Clement A Tisdell, Economics of Environmental Conservation, Second Edition, Edward Elgar(Module IV).
4. Tom Tietenberg, Environmental and Natural Resource Economics, Seventh Edition, Pearson (Module III).
5. David Anderson, Environmental Economics and Natural Resource Management, Routledge.

PO-CO Compliance Matrix

	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO 9	PO 10
CO1	1	2							2	
CO2	2	2			2				2	
CO3		2							3	
CO4		2							3	
CO5		2							3	
CO6		3							3	

*1: Low, 2: Medium, 3: High

Course: Introduction to Environmental Valuation (6.5ECO30)		
TEACHING SCHEME	**EXAMINATION SCHEME**	**CREDITS ALLOTED**
Theory: 4 hrs per week	End Semester Examination: 60 marks Internal Assessment: 40 marks	Theory: 4 (3 L+ 1 T)
		Total: 4

Course Pre-requisites:

1	Student must have completed the knowledge of basic environmental economics
2	Must Have completed a basic course on Environmental Economics and Microeconomics

Course Objective:

	Course Objective: The course aims to disseminate the techniques of valuing the worth of non-market commodities especially environmental goods and service. Several case studies based on different valuation techniques would help the students appreciate the application of these techniques in determining the worth of environmental commodities.

Course Outcomes: The students will be able to

1	Discern valuation criterion in environmental economics, including its key principles and methods.
2	Use microeconomic principles in valuation of environmental good and services

3	Determine consumer preferences to infer demand for environmental quality.	
4	Apply approaches of non-market valuation of environmental goods and services, and of their strengths, weaknesses and methods of application	
5	Demonstrate theoretical and practical application of different valuation techniques.	
6	Apply cost benefit analysis to decide on a sustainable project.	

Course Content:		
UNIT I	Economic Valuation of Environmental Damage or Benefits I Economic Theory and Measurement of Environmental Benefits. Demand for Environmental Service – Willingness to Pay and Willingness to Accept.	10 Hrs
UNIT II	Economic Valuation of Environmental Damage or Benefits II Concepts of Consumer's Surplus. Compensating and Equivalent Surplus in the context of rationed goods and the Environment.	10 Hrs
UNIT III	Alternative Approaches and Methods of Environmental Valuation – I i. Revealed Preference and Stated Preference Method – Hedonic Pricing, Household Production Function, Travel Cost Method, Defensive cost and Contingent Valuation Method. ii. Case studies to be discussed.	10 Hrs
UNIT IV	Alternative Approaches and Methods of Environmental Valuation –II i. Valuation of Health and Human Life iii. Case studies to be discussed	10 Hrs
UNIT V	Alternative Approaches and Methods of Environmental Valuation –III i. Valuing Environment as Input in Production ii. Case studies to be discussed	10 Hrs
UNIT VI	Environmental Accounting and Measuring Green GDP i. Sustainable Macroeconomic Accounting of National Income and Wealth. ii. Green Accounting. iii. Environmental Cost-Benefit Analysis for Sustainable Development. iv. Rationale of Discounting the Future in the context of Sustainability v. Theory of Krutilla-Fisher Equation for Preservation or Development	10 Hrs

Internal Assessment:		
CIA 1	Unit I, Unit II	
CIA 2	Assignment submission and/or presentation/Written Test	

Text Books:
8. Kolstad C.D., Environmental Economics, Oxford University Press, 2000.

Reference Books:
3. Johansson Per-Olov: The Economic Theory and Measurement of Environmental Benefits, Cambridge University Press, Cambridge, 1987.
4. Bhattacharya R.N. (ed.), Environmental Economics: An Indian Perspective, Oxford University Press, 2001.
5. M.N. Murthy Environment, Sustainable Development, and Well-being Valuation, Taxes, and Incentives, OUP May 2009

PO-CO Compliance Matrix										
	PO1	PO2	PO3	PO4	PO5	PO6	PO 7	PO 8	PO 9	PO 10
CO1	3	3								
CO2	3	3								

CO3	3	3								
CO 4				2	2	3	2	1	1	1
CO 5	2	2								
CO 6				2	3	2	2	3	2
*1: Low, 2: Medium, 3: High										

Course Name: Data Analytics for Economics (6.5ECO32)		
TEACHING SCHEME	**EXAMINATION SCHEME**	**CREDITS ALLOTED**
Theory: 4 hrs per week	End Semester Examination: 60 marks Internal Assessment: 40 marks	Theory: 4
		Total: 4

Course Pre-requisites:

1	Must possess basic knowledge of data analysis software like STATA, R Studio, SPSS, Eviews etc.

Course Objective:

This paper aims to equip learners with the skills to manage large-scale complex databases for in-depth analysis, utilizing the latest statistical software such as STATA/SPSS/Eviews. The focus is on practical applications, covering fundamental aspects of data, including collection, tabulation, and analysis. The module explores various real-life data sets, both quantitative and qualitative, essential for research. Topics include understanding unit-level data, data collection prerequisites, descriptive and inferential statistics, software-based data analysis, examination of qualitative variables, and handling longitudinal (panel) data.

Course Outcomes: The students will be able to

1	Understand basic statistical concepts and methods for summarizing and interpreting data.
2	Understand how to work with databases.
3	Apply data analysis techniques to real-world problems and datasets to develop practical skills.

Course Content:

UNIT I	**Familiarization with Unit Level Data**: Introduction to Unit Level Data, Understanding NSO, IHDS, NFHS data. Review of Sample Techniques, Sample Size, Sample Size Determination.	10 hrs
UNIT II	**Getting Started With STATA/SPSS/Eviews:** Introduction, Exploring Data, Managing Data	10 hrs
UNIT III	**Prerequisites of Unit level Data:** Questionnaire Design, Tabulation, and Creation of New Variables , Variable and Value labels.	10 hrs
UNIT IV	**Hand Holding of Unit Level Data:** Extraction, Combining Datasets, Review of Commands.	10 hrs
UNIT V	**Analysis of Unit Level Data:** Factor Analysis , Linear Regression Analysis . **Analysis of Qualitative Variables:** Introduction to Qualitative Variables, Binary Choice Models.	10 hrs
UNIT VI	**Analysis of Unit Level Longitudinal Data:** Introduction of Panel Data, Panel Data Models, Pooled Cross-Sectional Data, Construction of Panel Data, Analysis of Panel Data .	10 hrs

Internal Assessment:

CIA 1	Unit I, Unit II	
CIA 2	Assignment submission and/or presentation	

Text Books:

Adesoji, F & Babatunde, Musibau. (2018), BASIC STATISTICAL TECHNIQUES IN RESEARCH
Lyon, A. (2014), Why are normal distributions normal? The British Journal for the philosophy of science
William H Greene: Econometric Analysis, Pearson 8th Edn.
Cameron & Trivedi: Microeconometrics using STATA, Revised Edn.
3. STATA User's Guide.

Reference Books:									
Wooldridge: Econometric Analysis of Cross-section and Panel Data, MIT Press									
PO-CO Compliance Matrix									
	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9
CO1	1	2		3	3	3	3	1	1
CO2	1	2		2	3	3	3		1

*1: Low, 2: Medium, 3: High

Course Name: Financial Economics (6.5ECO31)		
TEACHING SCHEME	**EXAMINATION SCHEME**	**CREDITS ALLOTED**
Theory: 4 hrs per week	End Semester Examination: 60 marks Internal Assessment: 40 marks	Theory: 4
		Total: 4

Course Pre-requisites:

1	Must possess knowledge of elementary macroeconomics

Course Objective:

This course deals with the interrelationship between finance and economics and aims to be taught in master level. It focuses on the important theories of finance and their practical application. It also covers the financial market volatility and its relationship with real economic activity.

Course Outcomes: The students will be able to

1	Apply the fundamental tools of finance and understand the financial market behaviour.
2	Understand the pricing methods in capital market and its application
3	Learn the market volatility and its impact on the economy.
4	learn the capital structure decisions of firms

Course Content:

UNIT I	Introduction to Financial Institutions and Markets: Aims and objectives of Finance functions: Investment Decision, Financing decisions, Dividend Decisions and Capital Budgeting Decisions. Profit maximisation vs Shareholder's wealth Maximization, The Agency Theory.	10 hrs
UNIT II	Financial markets and institutions: Money Market and Capital Market; Primary market/ new issue Market; Consumption and investment with and without capital market.	
UNIT III	Risk and Uncertainty: Types of Risks: Systematic and Unsystematic Risks. Risk Return Trade-off. Financial Decision Making Under uncertainty; the expected Utility Theorem. Measurement of Risks and Return of securities; Market beta. Diversification of Risk.	10 hrs
UNIT IV	Pricing of Securities and Portfolio Theory: Efficient market hypothesis (EMH); random walk theory.EMH vs Fundamental and Technical Analysis. Asset allocation and portfolio choice. The Markowitz theory of portfolio selection. Asset pricing: Capital market line and Security market line; CAPM; Pricing of Securities with CAPM. The Arbitrage Pricing Theory (APT).	10 hrs
UNIT V	Financial Markets and Real Economic Activities: Stock Market behaviour: Market Volatility. Interaction between stock market and real economy: stock market behaviour under different economic policies.	10 hrs
UNIT VI	Introduction to capital Structure Theories: Financing Mix: Choice between equity vs debt.	10 hrs

	Capital Structure Theories: Modigliani-Miller Irrelevance hypothesis; Signalling Hypothesis; Trade-off theory and Pecking Order theory.	

	Internal Assessment:	
CIA 1	Unit I, Unit II	
CIA 2	Assignment submission and/or presentation	

Text Books:

1. Stephen F. Leroy and Jan Werner, Principle of Financial Economics, Cambridge University Press, 2001.

2. Stephen A. Ross, Randolph W. Westerfield and Bradford D. Jordan, *Fundamentals of Corporate Finance*. McGraw-Hill.

Reference Books:

1. Elton, E.J and M.J. Gruber, Modern Portfolio Theory & Investment Analysis, (fourth edition) John Wiley & Sons 1991.

2. Richard A. Brealey and Stewart C. Myers, *Principles of Corporate Finance*, McGraw-Hill.

3. Thomas E Copeland, J. Fred Weston and Kuldeep Shastri, Fiancial Theory and Corporate Policy, Prentice Hall, 4th edition, 2003.

PO-CO Compliance Matrix										
	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO 9	PO 10
CO1									3	3
CO2	2	2	2			2				
CO3	2	2	2			2				
CO4	2	2				2				
*1: Low, 2: Medium, 3: High										