Programme Structure & Syllabus

M.A. ECONOMICS
2022-23

Department of Economics
Central University of Rajasthan

MA Economics Programme 2022-2023

DEPARTMENT OF ECONOMICS M.A. ECONOMICS							
Semester	Type of Course	Course Code	Course Title	L	T	P	Credit
I	C	ECO 401	Microeconomics I	3	1	0	4
	C	ECO 402	Macroeconomics I	3	1	0	4
	AECC	ECO 403	Mathematical Methods in Economics	3	1	0	4
	AECC	ECO 404	Statistical Methods in Economics	3	1	0	4
	C	ECO 405	Issues in Indian Economy	3	1	0	4
	DE	Elective		3	1	0	4
Total Credits							**24**
II	C	ECO 411	Microeconomics II.	3	1	0	4
	C	ECO 412	Macroeconomics II.	3	1	0	4
	AECC	ECO 413	Econometrics.	3	1	0	4
	C	ECO 414	Trade Theory and Policy	3	1	0	4
	C	ECO415	Dissertation I				8
Total Credits							**24**
III	C	ECO 501	Development Economics	3	1	0	4
	C	ECO 502	Economic Growth Theories	3	1	0	4
	C	ECO 503	Public Economics	2	1	0	3
	AECC	ECO504	Computer Applications in Economics	2	1	0	4
	DE	Elective	Disc. Elective Course	3	1	0	4
	GE	Elective	Generic Elective Course	2	1	0	3
	SECC	ECO505	Discipline Specific Internship or Project Based Learning During Summer Vacation				2
Total Credits							**24**
IV	PC/C	ECO 511	Dissertation II				16
	DE	Elective					4

	GE	Elective					4
	AU	Audit Course	UHV				4*
	AU	Audit Course	Fitness				2*
	AU	Audit Course	Societal Interface				2*
Total Credits							**24**

Note –

***** The course on University Human Values (UHV), Fitness and Societal Interface are a compulsory course as an audit course which should be cleared by all the students; however, this will not affect the credits of the programme. 2 Credit Course for Fitness will be spread over all the 4 Semester of the Course. 2 Credit Course for Societal Interface will also be spread over all the 4 Semester of the Course. In Fitness, the students are expected to participate in any physical activity (e.g. Yoga, sports etc.) and in Societal Interface they need to engage in some social activity (e.g. NSS etc.) in the university, right from I Semester to the IV Semester. By participating in both these activities the student will be earning 2 credits for the Fitness and 2 Credits for Societal Interface. Fitness and Societal Interface will be proportionately spread over the four semesters. A faculty coordinator for each of these courses will be appointed at department/university level for better supervision and evaluation purpose.

Online/MOOC courses will be offered to students in lieu of any similar core or elective courses with the consensus and approval department faculties, Board of Studies and School Board.

Total Credit for M.A. Economics Porgramme is 96 Credits (excluding Audit courses) which are divided as follows:-

CC - Core Course	35 Credits
Master's Thesis/Dissertation	24 Credits
Total Core Course	**59 Credits**
DE- Departmental Specific Elective Courses offered by the Department	12 Credits
GE - Generic Elective Courses offered by any department of the University	07 Credits
Total Elective Course	**19 Credits**
AECC – Ability Enhancement Compulsory Course	16 Credits
SECC - Skill Enhancement Compulsory Course	02 Credits
Total Ability Enhancement Course	**18 Credits**
Total Credits	**96 Credits**
Fitness	02 Credits
Societal Interface	02 Credits
UHV – Audit Course	04 Credits

List of Open Elective Courses offered by the Department

Sr. No	Course Code	Course Name	Course Credit
1	ECO 445	Economics of Money Banking and Financial Development in India	4
2	ECO 551	Financial Economics	4

List of Departmental Specific Elective Courses offered by the Department

Sr. No	Course Code	Course Name	Course Credit
1	ECO421	Agricultural Economics	4
2	ECO422	Environmental Economics and Policy	4
3	ECO423	Political Economy	4
4	ECO424	Labor Economics	4
5	ECO425	History of Economic Thought	4
6	ECO521	Monetary Economics	4
7	ECO522	Economics of Mathematical Finance	4
8	ECO523	Behavioral Economics	4
9	ECO524	Advanced Econometrics	4
10	ECO525	Economics of Industrial Organization	4
11	ECO526	Game Theory	4
12	ECO527	Economics of Environmental Issues and Sustainable Development	4
13	ECO528	Health Economics	4
14	ECO529	Natural Resource Economics	4
15	ECO530	Introduction to Environmental Valuation	
16		Any Other MOOC/ Online Course as approved by Board of Studies & School Board	4

Learning Outcomes of the Programme

The M.A. Economics program offered by the Department of Economics under the school of Social Sciences enable the students to understand the principles, theories and applications of various discipline of economics, and develop multidisciplinary skills among the students to deal with policy related issues and also impart skills and knowledge to apply the mathematical methods and econometric tools to understand the interaction between the variables. A student of economics is expected to achieve the following learning outcomes and will be able to:

1. Develop the competency with the cost-benefit approach to decision-making
2. Develop the competency in transferring acquired knowledge and skills
3. Experience with a statistical software package and Identify patterns and associations in data

4. Develop the Analytical problem solving: (i) use relevant concepts and information to address problems (ii) perform relevant mathematical operations (iii) appropriately interpret results from the operations
5. Explain the various microeconomic and macroeconomic issues (e.g., price movements in markets for specific products, interest-rate setting by the RBI) and using its applications related to environment, government, policy and trade related issues
6. Develop critical thinking in students (i) apply economic analyses to their everyday lives and see economics in real world situations. (ii) Apply the materials learned in our program to policy relevant issues and be able to understand current events and to assess the likely impact of specific policies put forth by various government entities. (iii) Evaluate the role played by assumptions in arguments made for and against economic and policy issues.
7. Develop Quantitative Reasoning in students (i) Use quantitative evidence along with the economic models to assess the validity of various economic and policy relevant arguments.(ii)Understand statistical methodology and interpret statistical evidence. (iii) Use data to construct quantitative economics arguments and understand the statistical problems associated with interpreting the results. (iv) Understand the role of sample selection/endogeneity in affecting results and how one might best correct for these issues.
8. Develop the understanding of Theory and Practices (i) Possess a working knowledge of information data bases and know how to use the web to assist in the gathering of reliable information. (ii) Know how to locate and use primary data sources (e.g., Current Population Surveys, Census). (iii) Use their knowledge to understand and evaluate current economic events and new economic ideas.
9. Understand the environment related issues and its theory and applications in real life and welfare of the society and attaining the goal of sustainable development

M.A. Economics

Detailed Syllabus

Core Courses

Course: Microeconomics I (ECO 401)		
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	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 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

Course Content:		
UNIT I	Theory of Consumer I: 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	10 hrs
UNIT II	Theory of Consumer II: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 III	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,	10 hrs
UNIT IV	Theory of Production and Costs II : Derivation of cost functions from production functions; Cobb-Douglas, CES, and Trans-log production functions and their properties;	10 hrs
UNIT V	Perfect competition — short run and long run equilibrium of the firm and industry, supply curve; Monopoly — short run and long run equilibrium, price discrimination, welfare aspects, monopoly control and regulation; Natural Monopoly	10 hrs
UNIT VI	Monopolistic competition — general and 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

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

PO-CO Compliance Matrix

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

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

Course: Macroeconomics I (ECO 402)

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	Must Have aptitude for macroeconomics
3	Must possess analytical thinking

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 while the second half will deal with the theories of consumption and investment along with measures to analyze unemployment and inflation including contrasting economic views on unemployment. Final part of the course will mainly focuses on integration of goods and money market and the use of fiscal and monetary police to achieve economic goals.

Course Outcomes: The students will be able to

1	Demonstrate the problem of macroeconomic aggregations using partial and general equilibrium analysis
2	Examine how the economy behaves at the aggregate level and how national income is measured and determined both in closed and open economy context
3	Demonstrate various theories explaining the major factors determine consumption expenditure on final goods and services.

4	Define money and describe the theories on money demand and money supply including the process of money creation by the banking system and the role of the central bank.
5	Apply macroeconomic measures to analyze unemployment and inflation including contrasting economic views on unemployment.
6	Explain the components of aggregate economic activity, fluctuations and effects for the national economy and how fiscal policy is used to achieve economic goals.

Course Content:

UNIT I	Introduction to Macroeconomics**:** Why and how to study macroeconomics; Scope of macroeconomics, Macroeconomic Variables- Stocks and Flows, Problem of Aggregation: Macroeconomic Equilibrium. National Income Accountings. Macroeconomic Debate (Introductory):	10 hrs
UNIT II	Classical Macroeconomics: The Economy in the long run; 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 economics.	10 hrs
UNIT III	Consumption Function and Investment Function: Keynes consumption theory, Kuznet's Puzzle, Life Cycle Hypothesis, Permanent Income Hypothesis, Random Walk Hypothesis, Keynesian Theory of Investment, Accelerator principles, Neo-Classical and New Classical Theories of Investment.	10 hrs
UNIT IV	Money and Inflation: Demand for Money- Friedman, Baumol, Tobin, Patinkin's Real Balance Effect, Issues regarding endogenous and exogenous supply of money,	10 hrs
UNIT V	R.B.I.'s Approach to Supply of Money Demand-Pull and Cost-Push Inflation, Phillips Curve Controversy, Natural Rate of Unemployment-Adaptive expectations and Rational expectations models of inflations. The quantity theory of money.	10 hrs
UNIT VI	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

Internal Assessment:

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

Text Books:

1. Dornbusch Rudi, Fischer, Stanley and Startz Richard. *Macroeconomics*, Tata McGraw-Hill Publishing Co. Ltd.

Reference Books:

2. Mankiw Gregory N. *Macroeconomics*, Worth publishers
3. Blanchard Olivier. *Macroeconomics*, Prentice Hall

PO-CO Compliance Matrix

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

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

Course Name: Issues in Indian Economy (ECO405)		
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	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	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 conditionalities.	10 hrs
UNIT II	Exchange rate and trade policy changes, Industrial policy and setting up of regulatory structures like SEBI, TRAI, IRDA, etc.	10 hrs
UNIT III	Infrastructure sectors. Investment requirements of roads, power, ports and other infrastructure sectors private-public partnership mode SMEs and Informal sector Labour market reforms - Exit policy and liberalization of labour markets.	10 hrs
UNIT IV	Rural Livelihood: Livelihoods and Employment: Structure of rural poverty, Food security and the Public Distribution System; Employment Security- MGNREGA	10 hrs
UNIT V	Economic development and institutions – Role of state, markets and civil society institutions.. Characteristics of Indian markets and need for state interventions. Growth of Indian economy since independence – Sectoral growth rates and changing structure. Poverty trends. Inequalities and regional imbalances.	10 hrs
UNIT VI	Growth of domestic savings and investment. 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

Reference Books:									
2. Ray, Debraj; Development Economics, Oxford University Press, 2002.									
3. To be supplemented by scholarly readings from Economic and Political Weekly, Indian Economic journal and Indian Economic Review									
PO-CO Compliance Matrix									
	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9
CO1		3		1	1	3		1	2
CO2		2				2			1
CO3	1	2	1	2	2	3	1	2	2
CO 4		2		1	2	3	1	2	
CO 5	1	2	1	2	3	3	1	1	1
*1: Low, 2: Medium, 3: High									

Course Name: Microeconomics II (ECO411)		
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 the knowledge of intermediate microeconomics
2	Must possess knowledge of elementary mathematics

Course Objective:	
	The Course will selectively cover recent developments in macroeconomics of fluctuations, open economy, policy, and micro-foundations. The focus will be on substantive issues and applications of basic principles. The workhorses of macroeconomic issues will be applied to analyse economy-wide topics of current interest. Familiarity with the material covered in texts as mention in Macroeconomics-I is assumed.

Course Outcomes: The students will be able to	
1	Develop the intellectual ability of explaining some core economic issues.
2	Demonstrate how the economy works at different situations both in short-run as well as long-run.
3	Apply the economic theories the contemporary economic and social issues
4	Develop skills of synthesising the argument found in academic research and also in media.
5	Develop skill of logical economic arguments.

Course Content:		
UNIT I	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;	10 hrs
UNIT II	Game Theory: Nash Equilibrium, Prisoners' Dilemma, Dominant Strategies, Repeated Games, Zero-Sum Game, Mixed Strategies	10 hrs
UNIT III	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;	10 hrs
UNIT III	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 IV	Welfare Economics : First and Second Fundamental Theorems of Welfare Economics. Pareto Criterion; Kaldor Criterion; Scitovsky Criterion; Social welfare function; Compensation	10 hrs

	principle; Theory of Second Best, Arrow's impossibility theorem; Rawl's theory of justice,	
UNIT VI	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, Hal R., Intermediate Microeconomics, 1990, 5th Edition, W.W. Norton and Company (Varian -5).
2. Varian, Hal R., Microeconomic Analysis, 1992, 3rd Edition, W.W. Norton and Company (Varian - 3).
3. Gravelle, H and Ray Rees (2004), *Microeconomics*, 3rd edition, Prentice Hall Longman London.

Reference Books:

1. Modern Microeconomics 2e,Koutsoyiannis 2nd Revised edition Edition 2nd Publisher: Macmillan,
2. Nicholson, W., Microeconomic Theory: Basic Principles and Extensions, eighth edition, South Western Thomson Learning, 2002
3. Mas-Collel, Whinston and Green, Micro-economic Theory, OUP, 1995
4. McKenna, C.J., 1986, The Economics of Uncertainty, Wheat Sheaf Book (Mckenna) Harry Townsend (ed.), 1965, Price Theory, Penguin Education (Townsend
5. Russell, R.R. and M. Wilkinson, 1979, Microeconomics: A Synthesis of Modern and Neo-Classical Theory, John Wiley, New York. (Russell)
6. Layard, P.R.G and Walters, A.A., 1978, Microeconomic Theory, McGraw Hill (Layard).
7. Henderson &Quandt, 1988, Microeconomic Theory - A Mathematical Approach, McGraw Hill. (Henderson).
8. Sen, A. (1999), *Microeconomics : Theory and Applications*, Oxford University Press, New
9. Microeconomic Theory: Basic Principles and Extensions (Upper Level Economics Titles) Cengage; 11 edition (2014)

PO-CO Compliance Matrix

	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9
CO1		2		2	3	1	1		1
CO2		2		2	2	2	1		1
CO3		2		3	3	3	1		3
CO 4		2		2	2	3	2		1
CO 5		2		3	3	3	2		1

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

Course Name: Macroeconomics II (ECO 412)

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 intermediate macroeconomics and pre-requisite applications of macroeconomics
2	Aptitude and skills in Quantitative and mathematical Analysis

Course Objective:

	The Course will selectively cover recent developments in macroeconomics of fluctuations, open economy, policy, and micro-foundations. The focus will be on substantive issues and applications of basic principles. The workhorses of macroeconomic issues will be applied to analyze economy-wide topics of current interest. Familiarity with the material covered in texts as mention in Macroeconomics-I is assumed.

Course Outcomes: The students will be able to

1	Demonstrate how the economy works at different situations both in short-run as well as long-run.
2	Apply the economic theories the contemporary economic and social issues.
3	Understand how the fiscal policy makers and the monetary policy makers interact and also they can able to analyze the policy decision.
4	Improve to make economic policy debate.

Course Content:

UNIT I	Macroeconomics in the Short Run: Fluctuations of Macroeconomic variables, The Stylized facts. Open Economy Issues: Open economy IS-LM and IS-MP, the Mundell-Flemming Model,	10 hrs
UNIT II	Macroeconomic Policy and Exchange Rate Regimes. Asset Price Volatility, Interest rate and Exchange rates, Crisis models and Strategic interactions.	10 hrs
UNIT III	Micro-foundations of Real and Nominal Rigidities: Determination of Aggregate supply curve, Wage-Price rigidities.	10 hrs
UNIT IV	Imperfect Information, Imperfect Competition and Asymmetric Information, Solving for Rational Expectation Equilibrium, Coordination Failure	10 hrs
UNIT V	Macroeconomics in the Medium Run: Ricardian Equivalence, the Open economy consumption smoothing, and foreign capital, the firm; Tobin‘s q theory of investment, Business Cycle Dynamics-nominal and real.	10 hrs
UNIT VI	Macro Policy: Coordination of Fiscal and Monetary Policy, Rules versus Discretion, Credibility, Commitment devices, Monetary Transmission Mechanism and Targeting, Policy debates.	10 hrs

Internal Assessment:

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

Text Books:

1. Romer D. *Advanced Macroeconomics*. McGraw Hill Book Company: London,
2. Blanchard Olivier & Fischer Stanley. *Lectures on Macroeconomics*. Cambridge: MIT Press,

Reference Books:

3. Blanchard Olivier. *Macroeconomics*, Prentice Hall
4. Heijdra B., van der Ploeg F. *Foundations of Modern Macroeconomics*, Oxford University Press

PO-CO Compliance Matrix

	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9
CO1				2	3	3	1	1	1
CO2	1	2	3	3	2	2	3	3	
CO3		2	1	3	3	3	1	1	

CO 4		2		3	3	3	2	1	
*1: Low, 2: Medium, 3: High									

Course Name: Trade Theory and Policies (ECO414)		
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 analyse 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	
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	PO9
CO1		2		2	3	3	1		
CO2		2		3	3	3	2		1
CO3		2		2	3	3	2		
CO 4		2		3	3	3	2		
CO5		2		2	2	2			1
CO6		2		2	2	2			
CO7	1	2		3	3	3	2		1
CO8	1	2		2	3	3	2		1
CO9	1	2	1	3	3	3	2		3
CO 10		2	1	2	3	3	2		2

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

Course Name: Dissertation I (ECO415)

TEACHING SCHEME	EXAMINATION SCHEME	CREDITS ALLOTED
Theory: 10 hrs per week	End Semester Examination: 60 marks Internal Assessment: 40 marks	10
		Total: 10

Course Pre-requisites:

1	Student must have completed the Graduation

Course Objective:

	The purpose of the Dissertation I is to encourage students to undertake independent economic research and to

	foster research-related skills, which should benefit future study and employment.

Course Outcomes: The students will be able to	
1	Demonstrate specialist knowledge in the area of the research
2	Demonstrate the ability to initiate research and to formulate viable research questions.
3	Demonstrate the capacity to design, conduct and report sustained and original research.
4	Demonstrate the ability to evaluate and synthesize research-based and scholarly literature.

Assessment:		
CIA 1	Presentation of Synopsis	20
CIA 2	Presentation of Progress of Research Work	20
ESE	The students are required to submit their dissertation 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 during the end of the Semester IV of the programme. Out of total 60 marks in the dissertation I, 30 marks are of Report, to be assessed by the Department (by constituting a panel of examiners including internal & external examiners) and rest 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
CO1		2			2	2			
CO2		2			2	2	2	2	
CO3		2			3	3	3	2	
CO 4		2			3	3	2	2	

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

Course Name: Development Economics (ECO501)		
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 (4^{th} Edition),OUP.
7. Meier and Rauch: Leading Issues in Economic Development (8^{th} Edition),OUP

PO-CO Compliance Matrix

	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9
CO1	1	2		1	2	3	2		1
CO2		2		1	2	2	1		2
CO3		2		1	3	3	2		3
CO 4		2		2	3	3	2	1	2
CO5		2		2	3	3	2		2
CO6		2		2	2	3	2		2
CO7		2		3	3	3	2		1

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

Course Name: Economic Growth Theories (ECO 502)

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	10 hrs
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	10 hrs
UNIT III	Neo-Classical Models of Growth: Growth model of R.M. Solow, Instability & Convergence debate,	10 hrs
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,	10 hrs
UNIT V	Growth Accounting. Money and Growth- James Tobin and H.G. Johnson;	10 hrs
UNIT VI	Endogenous Growth Models- AK Models, Lucas Model of Human Capital, Romer Model of Endogenous Innovation.	10 hrs

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,

Reference Books:

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

PO-CO Compliance Matrix

	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9
CO1	1	2		2	2	1			
CO2		2		2	2	3			1
CO3		2	2	2	2	3	2	1	
CO 4		2	1	2	3	3	3	2	
CO5		2		2	2				1
CO6		2		2	2	2			
CO7	1	2	1	3	3	3	2	1	1
CO8	1	2		2	3	3	2	1	1
CO9	1	2		3	3	3	2	1	

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

Course Name: Public Economics (ECO503)		
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, Private Provision of Public Goods, Nash-Cournot Solution, Preference Revelation, Samuelson and Lindahl Equilibrium, Club Goods Model. Externalities: Positive and Negative, Externalities and Social Costs. Pigouvian Tax, Coase Theorem.	10 hrs
UNIT II	Fiscal Policies and instruments: Taxation: Efficiency, Equity, Cost of Collection and Compliance; Tradeoff between Efficiency and equity; Effect of Taxes on labor supply and Savings-Income, commodity and wealth tax.	10 hrs
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 Non-Tax Instruments	10 hrs
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, Indian Budget Deficits: Union and States.	10 hrs
UNIT V	Public Expenditure**:** Theories of Public expenditure**.** Leviathan Hypothesis, Niskanen Model, Efficiency and Equity Trade off, Transfers and Subsidies, Financing of Social Programs.	10 hrs
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. Bagchi Amaresh. *Readings in Public Finance*, Oxford University Press

PO-CO Compliance Matrix

	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9
CO1	1	2			2				
CO2	1	2			2	2			3
CO3		2		1	3	3	2		3
CO 4	1	2			3	3	1		2
CO5	1	2			3	3	3		3
CO6	1	2		1	2	3	3		3
CO7		2		1	3	3	2		2
CO8		2	1	2	3	3	3	1	1
CO9		2	2	3	3	3	3	3	2

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

Course Name: Dissertation II (ECO511)

TEACHING SCHEME	EXAMINATION SCHEME	CREDITS ALLOTED
Theory: 14 hrs per week	End Semester Examination: 60 marks Internal Assessment: 40 marks	`14
		Total: 14

Course Pre-requisites:

1	Student must have completed the knowledge of Macroeconomics, Microeconomics, Econometrics and Dissertation I

Course Objective:

	The purpose of the Dissertation II 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 Progress of Research Work	20
CIA 2	Presentation of Data Analysis Work	20
ESE	The students are required to submit their dissertation report as per guidelines prescribed by the	60

	department at the end of the specified period. The students are also required to attend viva voce examination during the end of the Semester IV of the programme. Out of total 60 marks in this Master's thesis, 30 marks are of master thesis, to be assessed by the Department (by constituting a panel of examiners including internal & external examiners) and rest 30 marks are of viva voce to be awarded by internal & external examiners.

PO-CO Compliance Matrix

	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9
CO1			2	2	2	2	2	2	
CO2			2	2	2	2	2	2	1
CO3			3	3			3	3	
CO 4							2	2	
CO5			2			2			2

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

AECC/SECC Courses

Course Name: Mathematical Methods in Economics (ECO 403)		
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	PO9
CO1	1	2	2	3			3	3	
CO2	1	2		3			3	3	
CO3	2	2		3			3	2	
CO 4	2	2	2	2	1	1	2	1	
CO 5	1	2		2	1	1	2	2	

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

Course Name: Statistical Methods in Economics (ECO 404)		
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 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 data sets 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:		
UNIT I	Typical data sets arising in economics, Qualitative, Quantitative, Income, Expenditure, Time Series and Panel data. Major sources of data sets: 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
UNIT II	Probability theory I: Laws of addition and multiplication; Independence of events, Conditional probability and concept of independence; Bayes theorem with applications;	10 hrs
UNIT III	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
UNIT IV	Correlation: Pearson's product moment and Spearman's rank correlation-their properties; Partial and multiple correlations, linear and nonlinear regression.	10 hrs
UNIT V	Estimation: Concept of an estimator and its sampling distribution: Desirable properties of a good estimator; Point and Interval estimation.	10 hrs
UNIT VI	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 for means, variance, regression coefficients based on standard normal, t, Chi-square and F tests.	10 hrs

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

Text Books:

1. Lee, C. F., Lee, J. C. and Lee, A. C. Statistics for Business and Financial Economics. (2000), World Scientific, Singapore.
2. Newbold, P., Carlson, W. L. & Thorne B. M. Statistics for Business and Economics, Pearson

Reference Books:

1. Black, Ken. Business Statistics. (2004), John Wiley & 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	PO9
CO1		2	3	2			3	3	
CO2	1	2	3	3			3	3	
CO3		2	1	2			3	3	
CO 4		2	2	3			2	3	
CO 5	1	2	2	3			3	3	
CO 6	1	2	2	3			3	2	
CO 7		2	2	3			3	1	
CO 8		2	3	3			3	3	
CO 9	2	2	3	2			3	3	2
*1: Low, 2: Medium, 3: High									

Course Name: Econometrics (ECO 413)		
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 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 their MA dissertations

Course Content:		
UNIT I	Classical Linear Regression Model- two and three variables- assumptions, estimation, testing and forecasting, BLUE properties of OLS estimators (derivation and proof);	10 hrs
UNIT II	Variance of disturbance term; Introduction to multiple linear regression model and tests of linear restrictions; Simple regression coefficients versus partial regression coefficients.	10 hrs
UNIT III	Multicollinearity, Auto-correlation, and Heteroskedasticity: Nature, Causes, Consequences, Detection and Remedial measures.	10 hrs
UNIT IV	Dummy variables; Models for Binary Choice-Linear Probability Model; The logit and the Probit Model. Distributed lag models	10 hrs
UNIT V	Simultaneous Equation Models (Structural form and Reduced form) and Simultaneous Equation Bias;	10 hrs

UNIT VI	Identification (Under-identified, Exactly identified and Over-identified model); Various Methods of Simultaneous Equation Model Estimation.	10 hrs

Internal Assessment:

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

Text Books:

1. Damodar N. Gujarati, ***Basic Econometrics****;* 4th Edition, McGraw Hill, 2008.
2. Jaffery Wooldridge, **Introductory Econometrics: A Modern Approach, Cengage Learning**

Reference Books:

1. Koutsyannis, **Theory of Econometrics**, Palgrave
2. G. S. Madalla, **Introduction to Econometrics**, McMillan Publishing Company
3. DimitriosAsterious and Stephen G. Hall, **Applied Econometrics,** Palgrave
4. Christopher Daugherty: Introduction to Econometrics
5. Crish Brooks, Introductory Econometrics for Finance

PO-CO Compliance Matrix

	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9
CO1		2	3	2			3	2	
CO2		2	3	2	1	3	3	2	
CO3		2	3	2	1	2	3	2	
CO 4		2	3	2	1	2	3	2	
CO 5		2	3	3	2	3	3	3	1

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

Course Name: Computer Applications in Economics (ECO 504)

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 econometrics, and statistics

Course Objective:

	This course has aim to introduce the 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	Learn to estimate and interpret the problems of econometrics and statistics through computer applications
2	Use statistical software i.e. STATA, E-Views, and SPSS
3	Apply econometric and statistical applications in economic research and practice
4	Identify and analyze the cross-sectional, time series and panel data with suitable econometric and computer application

Course Content:

UNIT I	An overview of Computers: Introduction to computer and Computer technologies. Overview of computer – Basic operating instructions. Overview of databases. Introduction to software – MS Office, Excel, STATA, SPSS, E-views. Loading the data to Excel, STATA, SPSS, E-views – Differences in the use of different software packages	10 hrs
UNIT II	Exploratory Data and Simple Statistical Analysis: Tabular and Graphical Representation of	10 hrs

	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 – Skweness and Kurtosis – Five number summary – Covariance – Correlation (zero order, rank and partial correlation).	
UNIT III	Simple Parametric and Non-parametric tests, t-test procedures, F-test, Mann Whitney procedures – Principal Components , Factor and Cluster Analysis	10 hrs
UNIT IV	Linear Regression-Interpretation using applications :Two Variable Regression Model, Multiple Regression including dummy variable, Growth rate calculation, Trend Analysis, Functional Forms,	10 hrs
UNIT V	Testing for Multicollinearity, Heteroskedasticity, and Autocorrelation and remedial measures, Specification error, Simultaneous Equation Model- 2SLS, Qualitative Response Model- Probit, Logit and Tobit	10 hrs
UNIT VI	Handling 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. HGL - R. Carter Hill, William E. Griffiths and Guay C. Lim (2007) Principles of Econometrics, 3rd Edition, November; (ISBN 978-0-471-72360-8) John Wiley & Sons Inc.
2. GM - Darren George and Paul Mallery (2010) SPSS for Windows Step by Step: A Simple Study Guide and Reference, 17.0 Update, 10th Edition; (ISBN: 9788131762257) Pearson Education.
3. GHL - William E. Griffiths, R. Carter Hill and Guay C. Lim (2008) Using EViews for Principles of Econometrics, 3rd Edition, February; (ISBN: 978-0-471-78711-2) John Wiley & Sons Inc.
4. DP - Glyn Davis and Branko Pecar (2010) Business Statistics Using Excel, Paperback Ed., January, (ISBN: 978-0-19-955689-2) Oxford University Press.

Reference Books:

1. AH - Lee C. Adkins and R. Carter Hill (2007) Using Stata for Principles of Econometrics, 3rd Edition, December; (ISBN: 978-0-470-18546-9) John Wiley & Sons Inc.
2. HM - Timothy C. Haab and Kenneth E. McConnell (2003) Valuing Environmental and Natural Resources: The Econometrics of Non-Market Valuation (New Horizons in Environmental Economics) , Paperback Ed., March; (ISBN: 1843763885) Edward Elgar Pub HMS –
3. CT - A. Colin Cameron and Pravin K. Trivedi (2009) Microeconometrics Using Stata, (ISBN: 1-59718-048-3) A Stata Press Publication.
4. A. K. Enamul Haque, M. N. Murty, Priya Shyamsundar (2011) Environmental Valuation in South Asia, (ISBN: 1107007143) Cambridge University Press.
5. Ham - Lawrence C. Hamilton (2006) Statistics with STATA, (ISBN: 0-495-10972-X), Thomson Brooks/Cole.

PO-CO Compliance Matrix

	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9
CO1	1	2	3	3	1	2	3	3	2
CO2		2	3	3			3	3	
CO3		2	3	3			3	3	
CO 4	1	2	3	3	1	2	3	3	2

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

Course Name: Discipline Specific Internship or Project Based Learning During Summer Vacation (ECO505)

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 of Macroeconomics, and Microeconomics

Course Objective:

	This project provide practical exposure to the students of the programme to different industries and application of various concepts learned under different functional areas of Management

Course Outcomes: The students will be able to

1	Understand and analyze the practical aspects of different functional area of Economics
2	Develop skills of problem solving of economic issues in real life
3	Develop the analytical ability
4	Apply the theory in practice

Course Content

The students are required to undertake summer internship In any organization/ company for 4 weeks during their summer break after semester II and before commencement of semester III of the programme . They have to work in any of the functional area of economics to explore the practical aspects of that functional area.

Assessment:

	Presentation of Summer Internship Report	50 Marks
	Viva-Voce	50 Marks

PO-CO Compliance Matrix

	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9
CO1		2	2	2	2	2	2	1	
CO2		2	3	2	2	2	2	2	
CO3		2	3	3	3	3	3	2	
CO 4		2	3	3	3	3	3	3	

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

Open Elective Courses

Course Name: Economics of Money Banking and Financial Development in India (ECO 445)		
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;	10 hrs

	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.	
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:

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: Financial Economics (ECO 551)

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. Capital Structure Theories: Modigliani-Miller Irrelevance hypothesis; Signalling Hypothesis; Trade-off theory and Pecking Order theory.	10 hrs

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	PO9
CO1		2			3	3	3		
CO2	1	2		1	3	2	2		
CO3	1	2		1	3	2			
CO4	1	2		1	3	2	2		

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

Discipline Specific Elective Courses

Course Name: Agricultural Economics (ECO 421)		
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:	
	The aim of this course to provide students with an in-depth understanding of the issues relating to Indian agriculture and farmers' welfare. 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 Economics - Definition of Agriculture Economics, Scope, Nature and Characteristics of Indian Agriculture, Differences & Linkages between Agriculture and Industry, Development in Agriculture Colonial & After Independence,	10 hrs
UNIT II	Farm Organisation, Availability of Inputs, Agricultural Infrastructure, Cropping Pattern, Size of Land Holdings, Land Reforms, Risk and Instability in Agriculture	10 hrs
UNIT III	Economics Laws in Agriculture - Production, Cost, Supply Response, Introduction to Market Price Determination and Input Demand, Concept of Elasticity,	10 hrs
UNIT IV	Agriculture Price Policy in India, Agriculture Marketing, Importance of Agriculture for National Economy, Production Pattern regional variation recourse use efficiency	10 hrs
UNIT V	Green Revolution - Production, Productivity, HYV, Irrigation Fertilizer Mechanisation, MSP Debate on Economic System for Agricultural Marketing, Agricultural Credit, Government Financial Support	10 hrs
UNIT VI	Foreign Trade in Agriculture - India's Competitiveness in International Market, Storage Facility, Issues in Indian Agriculture& WTO Rules	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

GOI: **Economic Survey 2019-20**									
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 (ECO 422)		
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	1	2							3
CO2	1	2							3
CO3		2			1	1			3
CO4		2			1	1			3
CO5		2	3						3
CO6		2		1		3	2		3
CO7		2	3	1	2	3	3	2	3

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

Course Name: Political Economy (ECO 423)

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 explores the relationship between political institutions and economic development, covering key theoretical issues as well as recent empirical evidences. 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: Why study political economy and development? Motivation and course overview; Different traditions in political economy – classical political economy, marxist political economy, new political economy	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	10 hrs

	social/human development	
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 Glasgowedition.
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 (ECO 424)

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	PO9
CO1	2	2							2
CO2	2	2			2	3			3
*1: Low, 2: Medium, 3: High									

Course Name: History of Modern Economic Analysis(ECO 425)			
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 is an introduction to the history of economic theory. While the major phases in the development of economics will be studied, the aim will be to treat them against the background of their historical environment, including political and social thought and current economic problems. The course will include, but not be confined to, the work of Smith, Ricardo, Marshall and Keynes.		
Course Outcomes: The students will be able to			
1	To comprehend the development of the theory of economics in historical perspective.		

2	To comprehend emerging paradigms and aberrations with its reasons		
3	To debate similarities and differences among different economy schools.		
Course Content:			
UNIT I	MARGINALIST THOUGHT Marginalist revolutions--W.JevonsWalras, De-homogenizing marginalism, Marshallian synthesis	10 hrs	
UNIT II	NEO-CLASSICAL THOUGHT Welfare economics of A.C. Pigou. Schumpeter; role of Entrepreneur and innovations.	10 hrs	
UNIT III	CLASSICAL POLITICAL ECONOMY I Adam Smith and his economic theory, Ricardo's contribution to classical economic thought, Ricardo-Malthus glut controversy, Classical Stationary State with special reference to Mill's views, A general Overview of Classical Economic Thought,	10 hrs	
UNIT IV	CLASSICAL POLITICAL ECONOMY II Karl Marx - Organic Composition of Capital. Break Down of Capitalism, Marxian Theories of Value, Surplus Value, Profit and Crisis of Capitalism. Essential Differences between Classical Economics and Marxian Economics.	10 hrs	
UNIT V	KEYNESIAN's THOUGHT The aggregate economy, Liquidity Preference Theory and Liquidity trap, Marginal Efficiency of Capital and Marginal Efficiency of Investment, wage rigidities, underemployment equilibrium, role of fiscal policy, deficit spending and public works, multiplier principle, cyclical behaviour of the economy, uncertainty and role of expectations.	10 hrs	
UNIT VI	INDIAN ECONOMIC THOUGHT Main themes of Kautilya'sArthasashtra; Economic Ideas; Dada Bhai Naoroji, Ranade, Gokhale; M.K. Gandhi, Bhimrao Ambedkar, DeendayalUpadhyay and J K Mehta. A synthesis of economic thought, Comparison of Indian economic thought with western economic thought.	10 hrs	
Internal Assessment:			
CIA 1	Unit I, Unit II		
CIA 2	Assignment submission and/or presentation		

Text Books:

Blackhouse, R. (1985), A History of Modern Economic Analysis, Basil Blackwell, Oxford.

Ganguli, B.N. (1977), Indian Economic Thought: A 19th Century Perspective, Tata McGraw Hill, New Delhi.

Reference Books:

Grey, A. and A.E. Thomson (1980), The Development of Economic Doctrine, (2nd Edition), Longman Group, London.

Kautilya (1992), The Arthashastra, Edited, Rearranged, Translated and Introduced by L.N. Rangaranjan, Penguin Books, New Delhi.

Schumpeter, J.A. (1954), History of Economic Analysis, Oxford University Press, New York

Seshadri, G.B. (1997), Economic Doctrines, B.R. Publishing Corporation, Delhi.

Blaug, M. (1997), Economic Theory in Retrospect: A History of Economic Thought from Adam Smith to J.M. Keynes, (5th Edition), Cambridge University Press, Cambridge.

Dasgupta, A.K. (1985), Epochs of Economic Theory, Oxford University Press, New Delhi.

Hunt E.K. and Mark, Lautzenheiher (2011): History of Economic Thought, PHI Learning.

PO-CO Compliance Matrix

	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	
CO1		1				2				
CO2		3			2					
CO3					3			1	1	

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

Course Name: Monetary Economics (ECO 521)		
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 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	Assess and evaluate the conduct of monetary policy by the central bank with respect to an open economy management
8	Understand the analysis of market for reserves and federal funds rate with special reference to changes in monetary policy tools
9	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: Meaning, functions, assets and liabilities-Balancing liquidity with profitability, process of credit creation by commercial banks. reforms.	10 hrs
UNIT III	General principles of banking management, Indian banking system: Changing role and structure; banking sector	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: 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	Problem of asymmetric information – adverse selection and moral hazard and its impact on financial structure. Role of financial markets and institutions in Economic development.	10 hrs

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. Frederic S. Mishkin., The Economics of Money, Banking and Financial Markets, Pearson, Addison, Wesley. Newyork, 7th Edition (2004)
3. Peter Howells and Keith Bain., the Economics of Money and Banking, Pearson, Education Limit. 3rdEdtion (2005).

Reference Books:

4. SurajB.Gupta., Monetary Planning for India, University Press, New Delhi.
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	PO9
CO1	1	2			2				
CO2	2	2			3				
CO3	2	2			3				
CO4	1	2			2				
CO5		2		1	2				
CO6		2			2				
CO7		2				3	3		
CO8		2		2	2	3	3		
CO9		2		2	2	3	3		

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

Course Name: Economics of Mathematical Finance (ECO 522)

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 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: 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	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),	10 hrs
UNIT V	Portfolio Theory II: 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 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. 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	PO9
CO1	1	2	1	3	2	2	3	3	
CO2	2	2	1	3	3	1	2	2	1
CO3	1	2		3					
CO4	2	1	1			1	2	2	1
CO5	2	3	1		1	2	1	3	

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

Course Name: Behavioral Economics (ECO 523)		
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	PO9
CO1		2			1	3			
CO2		3		2		1			
CO3			2			2	1	1	
CO4			2			2	1	2	
CO5			2			2	2	2	

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

Course Name: Advanced Econometrics (ECO 524)		
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	PO9
CO1			3	3		2	3		
CO2			3	3		2	3		
CO3			3	3		2	3		
CO4			3	3		2	3		

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

Course Name: Economics of Industrial Organization (ECO 525)

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 provides a foundation for the study of theoretical models of industrial organization. This field of study is primarily concerned with the various strategic objectives and interactions in elite markets, employing the techniques taught in the compulsory course on game theory. It also provides a theoretical framework for analyzing antitrust/competition policy, as well as other policies related to regulation, innovation, intellectual property rights and strategic business policy, which are also covered by 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	Static oligopoly models with homogenous and differentiated products. Strategic substitutes and strategic complements.	10 hrs
UNIT II	Dynamic models: Stackelberg and free entry.	10 hrs
UNIT III	Spatial models of horizontal and vertical product differentiation.	10 hrs
UNIT IV	Game Theory, Repeated game oligopoly: Stability and sustainability of cartels.	10 hrs
UNIT V	Entry and entry deterrence strategies : Entry Barriers, Entry, Accommodation, and Exit, "Information and Strategic Behavior, "Market Structure	10 hrs
UNIT VI	Vertically related markets and vertical contracts between firms. Research and Development, 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)

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: Game Theory (ECO 526)

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:

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	10 hrs

	imperfect information; auction; other applications.	
UNIT VI	Repeated and Cooperative Games	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	PO9
CO1	1	2	1		3	2	3		1
CO2	2	2		2	3	1			
CO3	1	2		2	3	2	1	3	
CO4	2	2	3		3				
CO5	1	3		1	2	1	3	2	

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

Course Name: Economics of Environmental Issues and Sustainable Development (ECO 527)

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,	10 hrs

	Ecological and Social, a Synthesis	
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 of Bhutan	10 hrs

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	PO9
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 (ECO 528)

TEACHING SCHEME	EXAMINATION SCHEME	CREDITS ALLOTED
Theory: 4 hrs per week	End Semester Examination: 60 marks	Theory: 4

	Internal Assessment: 40 marks	
		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
CO1		2			1				2
CO2		2							3
CO3		2							3
CO4	3	2							3
CO5		2		1	1	3	3		3
CO6		2		1	1	3	3		3
CO7		2		1	1	3	3		2
CO8	2	2							3
*1: Low, 2: Medium, 3: High									

Course Name: Natural Resource Economics (ECO 529)		
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	PO9
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 (ECO530)

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 Bachelor's Degree
2	Must Have completed a basic course on Environmental Economics

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	10 Hrs

	Concepts of Consumer's Surplus. Compensating and Equivalent Surplus in the context of rationed goods and the Environment.	
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:

6. 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	PO8	PO 9
CO1	3	3			3				
CO2	3	3			3				3
CO3	2	2			2				3
CO 4				2		2		3	
CO 5					3	3		3	
CO 6					3	2		3	2

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