

**REVISED SYLLABUS FOR  
UNDERGRADUATE DEGREE IN ECONOMICS  
UNDER CHOICE BASED CREDIT SYSTEM (CBCS) 2015  
B.A ECONOMICS  
Approved by 29<sup>th</sup> Academic Council held on 27/28<sup>th</sup>  
November, 2015**



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Semester	Course	Course No	Category	Credit	Marks		
					Continuous Assessments	End Semester	Total
I	English I	Course I	FC	5	25	75	100
	Microeconomics-I	Eco/1/CC/01	CC	6	25	75	100
	Elective I	Course I	CC	6	25	75	100
	Elective II	Course I	CC	6	25	75	100
	<b>Total</b>			<b>23</b>	<b>100</b>	<b>300</b>	<b>400</b>
II	English II	Course I	FC	5	25	75	100
	Microeconomics-II	Eco/2/CC/02	CC	6	25	75	100
	Elective 1	Course II	CC	6	25	75	100
	Elective 2	Course II	CC	6	25	75	100
	<b>Total</b>			<b>23</b>	<b>100</b>	<b>300</b>	<b>500</b>
III	MIL(Alt English/Mizo/Hindi)	Course I	FC	5	25	75	100
	Macroeconomics-I	Eco/3/CC/03	CC	6	25	75	100
	Elective 1	Course III	CC	6	25	75	100
	Elective 2	Course III	CC	6	25	75	100
	<b>Total</b>			<b>23</b>	<b>100</b>	<b>300</b>	<b>500</b>
IV	Environmental Studies	Course I	FC	5	25	75	100
	Macroeconomics-II	Eco/4/CC/04	CC	6	25	75	100
	Elective 1	Course IV	CC	6	25	75	100
	Elective 2	Course IV	CC	6	25	75	100
	<b>Total</b>			<b>23</b>	<b>100</b>	<b>300</b>	<b>400</b>
V	Indian Economy	Eco/5/CC/05	CC	6	25	75	100
	Public Finance	Eco/5/CC/06	CC	6	25	75	100
	Quantitative Techniques-I	Eco/5/CC/07	CC	6	25	75	100
	<b>Optionals (Any one)</b>			6	25	75	100
	Agricultural Economics	Eco/5/CC/08A	CC				
	Industrial Economics	Eco/5/CC/08B	CC				
	Economic Development & Planning	Eco/5/CC/08C	CC				
	Mathematical Economics-I	Eco/5/CC/08D	CC				
	<b>Total</b>			<b>24</b>	<b>100</b>	<b>300</b>	<b>400</b>
VI	Environmental Economics	Eco/6/CC/09	CC	6	25	75	100
	Quantitative Techniques-II	Eco/6/CC/10	CC	6	25	75	100
	Financial Institutions & Markets	Eco/6/CC/11	CC	6	25	75	100

	<b>Optionals (Any one)</b>			6	25	75	100
	History of Economic Thought	Eco/6/CC/12A	CC				
	International Trade	Eco/6/CC/12B	CC				
	Econometrics	Eco/6/CC/12C	CC				
	Mathematical Economics-II	Eco/6/CC/12D	CC				
	Demography	Eco/6/CC/12E	CC				
	Computer and Its Applications	Eco/6/CC/12F	CC				
	<b>Total</b>			<b>24</b>	<b>100</b>	<b>300</b>	<b>400</b>
	<b>Entire Programme</b>			<b>140</b>	<b>600</b>	<b>1800</b>	<b>2400</b>

<b>ECONOMICS (Core Courses)</b>							
<b>Semester</b>	<b>Course</b>	<b>Course No</b>	<b>Category</b>	<b>Credit</b>	<b>Marks/Grade</b>		
					<b>Continuous Assessments</b>	<b>End Semester</b>	<b>Total</b>
I	Microeconomics-I	Eco/1/CC/01	CC	6	25	75	100
II	Microeconomics-II	Eco/2/CC/02	CC	6	25	75	100
III	Macroeconomics-I	Eco/3/CC/03	CC	6	25	75	100
IV	Macroeconomics-II	Eco/4/CC/04	CC	6	25	75	100
V	Indian Economy	Eco/5/CC/05	CC	6	25	75	100
	Public Finance	Eco/5/CC/06	CC	6	25	75	100
	Quantitative Techniques-I	Eco/5/CC/07	CC	6	25	75	100
	<b>Optionals (Any one)</b>			6	25	75	100
	Agricultural Economics	Eco/5/CC/08A	CC				
	Industrial Economics	Eco/5/CC/08B	CC				
	Economic Development & Planning	Eco/5/CC/08C	CC				
	Mathematical Economics-I	Eco/5/CC/08D	CC				
VI	Environmental Economics	Eco/6/CC/09	CC	6			
	Quantitative Techniques-II	Eco/6/CC/10	CC	6			
	Financial Institutions & Markets	Eco/6/CC/11	CC	6			
	<b>Optionals (Any one)</b>			6	25	75	100
	History of Economic Thought	Eco/6/CC/12A	CC				
	International Trade	Eco/6/CC/12B	CC				
	Econometrics	Eco/6/CC/12C	CC				
	Mathematical Economics-II	Eco/6/CC/12D	CC				
	Demography	Eco/6/CC/12E	CC				
	Computer and Its Applications	Eco/6/CC/12F	CC				

<b>Eco/1/CC/01</b>	<b>MICROECONOMICS – I</b>	<b>Credit 6</b>
<b>Objectives</b> :	The course introduces key concepts in Microeconomics.	
<b>Outcome</b> :	At the end of the course, the learners will be able to understand the basic principles underlying market mechanism-how the forces of demand and supply brings equilibrium in the market for goods and services.	
<b>Unit– 1</b> :	<b>Introduction</b> Definition, nature and scope of economics; Methodology in economics; Basic economic problems; Basic postulates; Demand and supply-concept and determinants; Laws of demand and supply; Market equilibrium; Role of price mechanism.	
<b>Unit – 2</b> :	<b>Consumer behavior</b> Utility – Cardinal and Ordinal approaches; Concept of consumer’s equilibrium. Law of Equi-Marginal Utility; Concept and measurement of Elasticity of Demand-Price, Income and Cross. Indifference Curves and Budget line; Decomposition of Price Effect (Hicks and Slutsky methods); Giffen’s Paradox. Engel’s curve. Consumer’s surplus.	
<b>Unit – 3</b> :	<b>Theory of Production and Costs</b> Concept of production function; Isoquants, Isocost Line - Producer’s Equilibrium; Law of variable proportion and Law of returns to scale - Economies of scale. Concept of Expansion path; Different concepts of cost and their interrelation.	
<b>Unit – 4</b> :	<b>Market structure-I</b> Meaning, features and equilibrium (short run and long run) under Perfect competition and monopoly; Monopoly and economic efficiency; Price-discrimination; Notion of controlled and administered prices.	
<b>Unit – 5</b> :	<b>Market structure-II</b> Meaning, features and equilibrium (short run and long run) under Monopolistic Competition and Oligopoly (kinked demand curve); Meaning and features of Duopoly; Monopsony-meaning.	
<b>Basic Reading List</b>		
1. Pindyck, R., Rubinfeld, S., Daniel, L., & Prem L. Mehta., Microeconomics, Pearson Education India		
2. Dwivedi., D.N., Microeconomics, Theory and Applications, Pearson Education India		
3. Koutsoyanis, A. (1990) Modern Microeconomics, Macmillan		
4. Ray, N.C (1975) An introduction to Micro economics, Macmillan India Ltd. Delhi		
5. Stonier A.W. and D.C. Haque (1972) A Textbook of Economic Theory, ELBS & Longman Group, London		
6. Varian, H.R (2000) Intermediate Microeconomics: A Modern Approach (5 <sup>th</sup> ed.) East-West Press New Delhi		
7. Bach. G.L (1977) Economics, Prentice Hall of India, New Delhi		
8. Gauld, J.P and Edward P.L (1996) Microeconomic theory, Richard Irwin, Homewood		
9. Healthfield and Wibe (1987). An Introduction to Cost and Production Functions, Macmillan, London		
10. Lipsey R.G and K.A Chrystal (1999) Principles of Economics (9 <sup>th</sup> edition) Oxford University Press, Oxford		

<b>Eco/2/CC/02</b>	<b>MICROECONOMICS – II</b>	<b>Credit 6</b>
<b>Objectives</b> :	The course introduces key concepts in Microeconomics	
<b>Outcome</b> :	The learners will understand how factor market works and the basic tools in welfare economics and trade theories.	
<b>Unit – 1</b> :	<b>Factor Pricing</b> Marginal Productivity theory of distribution; Theories of wage determination; Wages and collective bargaining; Wage differentials; Concept of rent – Scarcity, Differential and Quasi;	

Interest – Classical and Keynesian Theories; Profit – Innovation, risk and uncertainty theories.

**Unit – 2 : Factor Market**

Meaning of factor market; Firm's demand for single and several variable factors; Determinants of firm's demand for factor services; Bilateral monopoly and Monopsony in Factor market; Factor-market equilibrium.

**Unit e – 3 : Welfare Economics**

Concept of Welfare Economics; Classical welfare economics; Pareto's criteria; Value judgment; Concept of Social welfare function; Compensation principle–Kaldor- Hicks.

**Unit – 4 : Investment Analysis**

Payback Period; Net Present Value (NPV); Internal Rate of Return (IRR); Elements of Social cost benefit analysis

**Unit – 5 : International Trade Theories**

International Trade and Inter-regional trade; Theories of Absolute Advantage, Comparative Advantage and Opportunity Cost; Hecksher-Ohlin theory of trade – its features, assumptions and limitations; Concept of tariffs and quotas.

**Basic Reading List**

1. Pindyck, R., Rubinfeld, S., Daniel, L., & Prem L. Mehta., Microeconomics, Pearson Education India
2. Dwivedi., D.N., Microeconomics, Theory and Applications, Pearson Education India
3. Koutsoyanis, A. (1990) Modern Microeconomics, Macmillan
4. Ray, N.C (1975) An introduction to Micro economics, Macmillan India Ltd. Delhi
5. Stonier A.W. and D.C. Haque (1972) A Textbook of Economic Theory, ELBS & Longman Group, London
6. Varian, H.R (2000) Intermediate Microeconomics: A Modern Approach (5<sup>th</sup> ed.) East-West Press New Delhi
7. Bach. G.L (1977) Economics, Prentice Hall of India, New Delhi
8. Gauld, J.P and Edward P.L (1996) Microeconomic theory, Richard Irwin, Homewood
9. Healthfield and Wibe (1987). An Introduction to Cost and Production Functions, Macmillan, London
10. Lipsey R.G and K.A Chrystal (1999) Principles of Economics (9<sup>th</sup> edition) Oxford University Press, Oxford

**Eco/3/CC/03**

**MACROECONOMICS – I**

**Credit 6**

**Objectives :** Explain the process of calculating national income and its components, its fluctuations and the various theories behind consumption, investment and other business cycles

**Outcomes :** At the end of the course, the learner will be able to assess the workings of the economy and the role of investment and money.

**Unit – 1 : National Income and Social Accounts**

Concepts and measurement of National Income; Circular flow of income with closed and open economy; National income identities with government and international trade; Concept of Green Accountings.

**Unit – 2 : Output and Employment**

Say's law of markets and the Classical theory of employment; Keynes' objection to the classical theory; Aggregate demand and aggregate supply functions; The principle of effective demand and income determination.

**Unit – 3 : Consumption Function**

Meaning of Consumption function; Average and Marginal propensity to consume; Factors influencing consumption spending; The relationship between consumption and

income, the income multiplier; Keynesian theory of absolute income; Dussenberry's relative income hypothesis.

**Unit – 4 : Investment and Saving**

Equilibrium between investment and saving; Investment Multiplier and its effectiveness in Less Developed Countries (LDC's) ; Autonomous and induced investment; Marginal Efficiency of Capital (MEC), Marginal Efficiency of Investment (MEI) ; Concept of present discounted value; Savings and Investment – ex-post and ex-ante equality and equilibrium.

**Unit – 5 : Interest**

Meaning of Interest; Concept of Gross and Net interest; Classical, Neo-classical and Keynesian theories of interest.

**Basic Reading List**

1. Ackley, G (1976), Macroeconomics, Theory and Policy, Macmillan Publishing Company NY.
2. Day A.C.L (1960) Outline of Monetary Economics; Oxford University Press, Oxford
3. Gupta, S.B (1994) Monetary Economics, S.Chand and Co. Delhi
4. Heijdra, B.J and F.V Ploeg (2001), Foundation of Modern Macroeconomics, Oxford University Press, Oxford
5. Lucas R. (1981) Studies in Business Cycle Theory, MIT Press, Cambridge
6. Shapiro E. (1996) Macro Economic Analysis, Galgotia Publications, New Delhi
7. Dwivedi D N ( Latest edition ) Macroeconomics, Tata McGraw Hill Publications.
8. Mithani D M ( 2014 ) Money, Banking, International Trade and Public Finance, Himalaya Publishing House

**Eco/4/CC/04**

**MACROECONOMICS – II**

**Credit 6**

**Objectives :** To explain the role of money and banking in the economy

**Outcomes :** At the end of the course, the learner will be able to understand fluctuations in the economy and models of economic growth

**Unit – 1 : Money**

Meaning and functions of money; High-powered money; Gresham's law; Monetary standards, metallic and paper systems; Quantity Theory of Money, Classical and Cambridge versions, Keynesian approach.

**Unit – 2 : Banking**

Meaning, types and functions of Commercial Banks; Process of credit creation by banks; Instruments of credit control by Central Bank.

**Unit – 3 : Trade Cycles**

Meaning, nature and characteristics of trade cycle; Hawtrey's monetary theory; Hayek's over-investment theory; Keyne's view on trade cycle- concept of accelerator; Control of trade cycles.

**Unit – 4 : Inflation**

Meaning of Inflation, Deflation, Reflation and Stagflation; Demand-pull inflation and Cost-push inflation; Causes and effects of inflation; Measures to control inflation; Philip's curve.

**Unit – 5 : Economic Growth**

Meaning of economic growth and economic development; Growth Models – Harrod-Domer; Instability of equilibrium; Neo-classical growth models – Solow's; Economic growth and technical progress.

**Basic Reading List**

1. Ackley, G (1976), Macroeconomics, Theory and Policy, Macmillan Publishing Company NY.



**Unit – 1 : Nature and Scope of Public Finance**

Meaning and scope of public finance; Distinction between private and public finance; Public goods vs. private goods; The principle of maximum social advantage; Market failure and Role of the government.

**Unit – 2 : Public Expenditure**

Meaning, classification and principle of public expenditure; Canons and effects of public expenditure; Trends in public expenditure and causes of growth of public expenditure in recent year

**Unit – 3 : Taxation**

Sources of public revenue; Taxation – Meaning, Canons and classification of taxes; Division of tax burden – The benefit and ability-to-pay approaches; Impact and incidence of taxes; Taxable capacity; Effects of taxation; characteristics of a good tax system; Major trends in tax revenue of the central and state governments in India

**Unit – 4 : Public Debt**

Sources of public borrowing; effects of public debt; methods of debt redemption; Growth of India's Public debt; Intergenerational transfer of public debt.

**Unit – 5 : Public Budget and Financial Administration**

The public budget – Kinds of budget, Zero-based Budgeting; Economic and functional classification of the budget; Preparation and passing of budget in India; Lack of flexibility in Central and State budgets; Role of Finance Commission in India.

**Basic Reading List**

1. Bhargava, R.N (1971) The theory and working of Union Finance in India, Chaitanya Publishing House, Allahabad
2. Browning E.K; J.M Bowning (2004) : Public Finance and the Price System : Pearson Publication (Singapore) Pvt. Ltd; Indian Branch, Potperganj Delhi
3. Houghton, E.W (Ed) (1988), Public finance, Penguin, Baltimore
4. Jha. R. (1998), Modern Public Economics, Routledge, London.
5. Mithani D.M (1998) Modern Public Finance, Himalaya Publishing House, Mumbai
6. Musgrave, R.A and P.B Musgrave (1976), Public finance in Theory and Practice, Mc Graw Hill, Kogakusha, Tokyo.
7. Musgrave R.A (1959) The Theory of Public Finance, Mc Graw Hill, Kogakusha, Tokyo
8. Prakash OM (2008) Public Economics (Theory and Practice), Vishal Publishing Co. Jalendhar
9. RBI, Report on Currency and Finance (Annual) Mumbai

**Eco/5/CC/07**

**QUANTITATIVE TECHNIQUES – I**

**Credit 6**

**Objectives :** To provide basic mathematical tools for economic analysis

**Outcomes :** Interpret and analyse economic data using mathematical tools.

**Unit – 1 : Basic Concepts**

Variables; Sets and basic set operations; Different types of functions, different types of equations (linear and non-linear equations) and their application in economics.

**Unit - 2 : Differential Calculus**

Concept of differentiability of a function; Rules of differentiation; Higher order derivatives; Maxima and Minima; Partial derivatives; Economic applications of simple differentiation- Profit maximization, Cost minimisation, Elasticities, Inter-relationships among total, marginal and average costs and revenues.

**Unit - 3 : Integral Calculus**

Simple rules of integration; Definite integral and areas under curves; Application of integration - Consumer's and producer's surplus, total revenue and cost.

**Unit - 4 : Matrices and its Operations**

Types of matrices; Algebra of matrices; Determinants and its properties; Rank of a matrix; Solution of system of linear equations by matrix inversion method and Cramer's rule.

**Unit - 5 : Linear Programming**

Concept and formulations of linear programming problems; Solution of Linear programming problem by graphical method, Concept of Dual.

**Basic Reading List:**

1. Allen, R.G.D (1974): Mathematical Analysis for Economists, Mc Millan Press, London.
2. Chiang, A.C (1986): Fundamental Methods of Economics, Mc Graw Hill, New Delhi.
3. Hands, D.W. (1991): Introductory Mathematical Economics, D.C. Heath.
4. Mehta, B.C. & Madnani, G.M. (Latest edition): Mathematics for economists, Sultan Chand & Sons, New Delhi.
5. Renshaw, Geoff: Maths for Economics (2<sup>nd</sup> Edition), Oxford University Press.

**Eco/5/CC/08A AGRICULTURE ECONOMICS Credit 6**

**Objectives :** To explain the role and performance of agriculture in the development process

**Outcomes :** Be able to understand the role of agrarian relation, land reforms and technological change in agriculture development

**Unit – 1 : Rural Economy of India**

Composition of the Indian rural economy–farm sector and non-farm sector, Agriculture and allied activities (fisheries, horticulture, floriculture); Forestry in India, its growth and problems; Cattle wealth in India and dairying: Rural Industrialisation–Food processing industries and agro-based industries, development of rural infrastructure.

**Unit – 2 : Development of Agriculture**

Role and importance of agriculture in Economic Development: Linkage between the agricultural sector and the non-agricultural sector, changing nature of linkages; Agricultural resources in India: Land utilization and cropping pattern; irrigation; Trends in agricultural growth and agricultural productivity; Pattern of agricultural development: regional variation.

**Unit – 3 : Agrarian Relations and Land Reforms in India**

Agrarian relations: Historical evaluation and land reforms programme during 1950's and 1960's; Land reforms: Programme and performance during 1970's and after

**Unit – 4 : Technological Change in Agriculture**

Technology in agriculture; traditional techniques and practices, HYV seeds – fertilizers, water technology (green revolution); Sustainable agriculture; Emerging trends in agricultural technology; Dry land farming, use of bio technology techniques

**Unit – 5 : Indian Agriculture in post- WTO**

An overview of agricultural development; underemployment and unemployment in the rural economy; Globalization of Indian economy and its effects on Indian agriculture.

**Basic Reading List**

1. Bilgrami, S A R (2000) An Introduction to Agricultural Economics, (2<sup>nd</sup> Edition ) Himalaya Publishing House, Mumbai.
2. Sadhu, A.N and J. Singh (2000) Agricultural Problems in India (3<sup>rd</sup> edition) Himalaya Publishing House, Mumbai
3. Sundaram I.S (1999) Rural Development (3<sup>rd</sup> edition) Himalaya Publishing House, Mumbai
4. Sani R.N (2000) Leading Issues in Agricultural Economics, Arihant Press, Jalandar

**Eco/5/CC/08B                      INDUSTRIAL ECONOMICS                      Credit 6**

**Objectives :** To explain basic concepts and issues in industrial economics

**Outcome :** The learners will be able to understand the role in industrial sectors in the economy

**Unit – 1                      :                      Introduction**

Industry and economic development; Industry and sectoral linkages; Industrial classification and data information.

**Unit – 2                      :                      Industrial Organization and Ownership Structure**

Public, private, joint and cooperative sectors; Private corporate sector; MNC and their role; Industrial concentration and monopoly;

**Unit – 3                      :                      Location and Dispersion**

Locations of industries – Theories of location; Diversification; Integration and merger of industrial units; Dispersion and problem of regional imbalance.

**Unit – 4                      :                      Financing of Industry**

Mode of financing – equity and debt; Institutional Finance; Bank finance

**Unit – 5                      :                      Industrial Productivity**

Concept and measurement of productivity – productivity in Indian industries; industrial sickness; Under utilization of capacity – factors accounting for it and consequences

**Basic Reading List:**

1. Aluwalia, I.J (1995) Industrial Growth in India, Oxford University Press, New Delhi
2. Clarkson K.W. and R. Miller (1985) Industrial organization : Theory, Evidence and Public Policy, Mc Graw Hill, Kogakusha, Tokyo
3. Devine, P.J et al (1978) An introduction to Industrial Economics, (3<sup>rd</sup> edition) George Allen and Unwin London.
4. Government of India, Economic Survey (Annual) New Delhi
5. Mamoria and Mamoria (2000), Dynamics of Industrial Relation in India (13<sup>th</sup> edition) Himalaya Publishing House, Mumbai
6. Naidu K.M (1994). Industrialization and Regional Development in India, Reliance Publishing House, New Delhi
7. Reserve Bank of India, Report on Currency and Finance (Annual) Mumbai

**Eco/5/CC/08C                      ECONOMIC DEVELOPMENT & PLANNING                      Credit 6**

**Objectives :** To explain theories and approaches of economic development and role of planning;

**Outcome :** The learners will be able to understand the dynamic interplay of various forces in understanding the development process

**Unit – 1                      :                      Basic Concepts of Economic Development**

Economic growth and economic development; Indicators of economic growth and development – GNP per capita, PQLI and HDI; Features of Underdevelopment; Factors affecting economic growth (Capital, Labour and Technology); Measurements of Development Gap; Sustainable economic development. Kuznets's inverted U hypothesis

**Unit – 2                      :                      Theories of Economic Development**

Adam Smith; Karl Marx; Schumpeter; Rostow's stages of growth

**Unit - 3                      :                      Approaches to Economic Development**

Poverty - concepts of poverty line, absolute and relative poverty; Vicious Circle of Poverty, Lewis dual sector model, Lebenstein Critical Minimum Effort theory, Big Push theory; Dualism - Social, Technological and Financial; Balanced vs Unbalanced growth theories.

**Unit - 4                      :                      Development Models and Policies**

Endogenous versus exogenous growth models; The Harrod-Domar model; The Solow model; The Kaldor Model; Joan Robinson Model; Features of India's development policies – The

Nehruvian model (Controlled economy) and New Economic Policy 1991 (Liberalised economic policy).

**Unit - 5 : Development Planning**

Concept of Economic planning; Rationale for planning; Types of Planning - Centralised and Decentralised planning, Financial and Physical planning, Perspective and Annual planning; Cost-Benefit Analysis; Shadow Prices and its uses

**Basic Reading List:**

1. Todaro, Michael P. and Stephen C Smith (2004) Economic Development, Pearson Education,
2. Thirlwall, A. P.(2003), Growth and Development, Seventh edition, Palgrave Macmillan, New York.
2. Meier, Gerald M. and James E. Rauch (2000), Leading Issues in Economic Dvelopment, Oxford University Press, New York
3. Jhingan, ML - The Economics of Development and Planning, Vrinda Publication
4. Goel, R.L. Economics of Development and Planning
6. Subrata (2003) Indian Reprint 2007: Introduction to Development Economics, Rout ledge, London & New York
7. Ghosh, Arun (1996) Paradigms of Economic Development, IAS, Shimla.

**Eco/5/CC/08D**

**MATHEMATICAL ECONOMICS-I**

**Credit 6**

**Objectives :** To provide basic mathematical tools for economic analysis

**Outcomes :** Interpret and analyse economic data using mathematical tools.

**Unit- 1: Basic Quantitative Methods**

Concept of variable, constants and parameters. Functional relationship and graph. Elementary ideas of differential and integral calculus.

**Unit- 2: Matrices**

Matrix and determinants, matrix inversion by co-factor and Gauss elimination methods. Solution of a system of simultaneous equations by matrix inversion and Crammer's rule. Solution of quadratic equations.

**Unit- 3: Consumer Theory**

Utility function, budget line, constrained optimization, consumer's equilibrium, income effect, substitution effects, Slutsky equation, derivation of demand curve, elasticity of demand, consumer's surplus.

**Unit- 4: Market Structure/Pricing**

Concept of equilibrium, equilibrium of firms under perfect competition and monopoly. Price discrimination. Determination of equilibrium output and prices under Cournot and Stkelberg Model. The basic Cobweb model.

**Unit- 5: Theory of Production**

Properties of production function- homogeneous and non-homogeneous; Cobb-Douglas, CES, Returns to scale, Euler's theorem, choice of optimal combination of factors of production.

**Basic Reading List:**

1. Allen, R.G.D (1974), Mathematical Analysis for Economists, Mc Millan Press, London.
2. Barthwal, R.R (1992), Microeconomics Analysis, New Age International (P) Ltd, Publishers, New Delhi.
3. Chiang, A.C (1986), Fundamental Methods of Economics, Mc Graw Hill, New Delhi.
4. Hands, D.W. (1991) Introductory Mathematical Economics, D.C. Health.
5. Henderson, J. and R.E. Quandt (1980), Microeconomic Theory: A Mathematical Approach. Mc Graw Hill, New Delhi.
6. Handy, S.T. (1997), Operations Research Practice Hall of India, New Delhi.
7. Mehta, B.C. & Madnani, G.M. (Latest edition): Mathematics for economists, Sultan Chand & Sons, New Delhi.

8. Renshaw, Geoff: Maths for economics (2<sup>nd</sup> Edition), Oxford University Press.
9. Yamane, Taro (1999): Mathematics for Economists-An elementary Survey, Prentice Hall of India, New Delhi.

<b>Eco/6/CC/09</b>	<b>ENVIRONMENTAL ECONOMICS</b>	<b>Credit 6</b>
<b>Objective</b>	: The course aims to provide fundamental concepts in environmental economics	
<b>Outcome</b>	: At the end of the course, the learners will be able to understand economy-environmental linkages	
<b>Unit-1</b>	: <b>Introduction to Environmental Economics</b> Economy and environment inter-linkages; Economic Efficiency and Market Failures: Market solutions and efficiency; Problem of externalities; Public Goods –Environment as a public good; Public goods and public bads; Tragedy of Commons; Common property resources.	
<b>Unit - 2</b>	: <b>Development and Environment</b> Environment and Development; Environmental Kuznets's Curve; Theory of Demographic Transition; Population, Poverty and Environment; Degradation of Environment	
<b>Unit - 3</b>	: <b>Sustainable Development and Valuation of Environment.</b> Meaning, Objectives and Indicators of Sustainable Development; Economics of Sustainable development; Environmental Impact Assessment; Valuation of Environmental damages and benefits - direct and indirect methods; UN Millennium Development Goals	
<b>Unit – 4</b>	: <b>Pollution Control</b> Types of pollution: Air, water and noise; Optimal level of pollution; Prevention and Control of Pollution in India; Soil degradation - causes, effects and controlling measures; Main features of Water (Prevention and Control of Pollution) Act 1974 and Forest Conservation Act, 1980; Central Pollution Control Board and State Pollution Control Board.	
<b>Unit – V</b>	: <b>Global Environmental Issues</b> Climate Change – Implications and Mitigation; International attempts to protect the environment - Movements, Laws, Agreements; Rio Declaration and Kyoto Protocol; World Bank and the environment - Polluter pays principle; Energy Security-concept.	

**Basic Reading List:**

1. Singh, Katar and Shishodia, Anil (2007): Environmental Economics -Theory and Practice, Sage Publications, New Delhi.
2. Jhingan, M. L. & Sharma, C. K. (2009): Environmental Economics: Theory, Management and Policy
3. Bhattacharya, R.N. (Ed) (2001), Environmental Economics: An Indian Perspective, Oxford University Press, New Delhi.
4. Hanley, Shogren & White (2004), Environmental Economics in Theory and Practice, Macmillan India limited, Delhi.

<b>Eco/6/CC/10</b>	<b>QUANTITATIVE TECHNIQUES – II</b>	<b>Credit 6</b>
<b>Objective</b>	: Introduce quatitative methods in economics analysis	
<b>Outcome</b>	: Define and understand applications of quantitative methods	
<b>Unit – 1</b>	: <b>Introduction</b> Meaning, uses and importance of statistics; Concept of descriptive and inferential statistics; Methods of data collection- Sampling vrs Census; Data classification-primary data and secondary data; Data presentation-Diagrammatic and graphical presentations.	

**Unit - 2 : Central Tendency and Dispersion**

Measures of central tendency: mean, median, mode, geometric mean and harmonic mean.

Measures of dispersion: range, mean deviation, standard deviation, coefficient of variation, quartile deviation, skewness and kurtosis.

**Unit - 3 : Probability and distribution**

Concept of probability- Classical, Empirical and Modern; Basic theorems of probability-addition and multiplication. Theoretical distribution - binomial, poisson and normal distribution.

**Unit - 4 : Correlation and Regression**

Correlations: Karl Pearson and Rank Correlation. Concept of partial and multiple correlation.

Regression analysis: estimation of simple regression line by OLS, interpretation of regression coefficients, concept of coefficient of determination.

**Unit - 5 : Time series and Index Number**

Time series analysis-Concept and components, determination of trend, seasonal and cyclical indices; Index numbers - Concept, price-relative, quantitative relative, Laspeyres', Paasche's and Fisher Indices. Problems in the construction and limitations of index numbers. Tests for ideal index number.

**Basic Reading List**

1. Gupta SC & Kapoor VK (Latest edition): Fundamentals of Mathematical Statistics, S Chand & Sons, New Delhi.
2. Gupta, SP (Latest edition): Statistical Methods, S Chand & Sons, New Delhi.
3. Goon, Gupta, Dasgupta (Latest edition): Fundamentals of Statistics-I, The World Press Private Ltd, Kolkata.
4. Hands, D.W. (1991) Introductory Mathematical Economics, D.C. Heath.
5. Nagar, A.L. and Das R.K.,(latest edition), Basic Statistics, Oxford University Press

**Eco/6/CC/11 FINANCIAL INSTITUTIONS AND MARKETS Credit 6**

**Objectives :** To introduce basic concepts relating to financial institutions and markets.

**Outcome :** Be able to understand working and performance of various segments of financial sectors

**Unit- 1 : Central Bank - RBI**

Functions and objectives of RBI; Instruments of Credit control – quantitative and qualitative methods – Bank rate policy, open market operations, VRR and selective methods; Development and regulatory role of RBI; Objectives and limitations of monetary policy; Measures used by the RBI to control inflation.

**Unit- 2 : Money and Commercial Banking**

Functions and kinds of money; components of money supply; Functions, types and objectives of commercial banks; Liabilities and assets of banks; Process of credit creation by commercial banks, purpose and limitation.

**Unit - 3 : Non-banking Financial Institutions**

Structure of cooperative institutions and development banks in India – Their objectives, role and limitations; Definition and types of NBFI's namely LIC, Investment Companies, Mutual funds, Venture Capital and its growth and importance; Recent measures taken by the RBI to regulate their working.

**Unit- 4 : Financial Markets**

Meaning and structure of Financial Markets – money market and capital market; Concept and functions of stock market and market for gilt-edged securities; Types of regulated and unregulated credit markets; Recent Financial Sector Reforms in India; SEBI – functions and its impact on the working of Capital Markets in India.

**Unit- 5 : Foreign Exchange Markets**

Foreign exchange; Foreign exchange market; Foreign exchange rate–concept of spot exchange rates and forward exchange rates; Determination of exchange rates under

fixed and flexible exchange rate regimes; Concept of hedging in the determination of exchange rates; Eurodollar market – its role and significance.

**Basic Reading List:**

1. Bhole, LM & Mahakud, J. (Latest Edition) Financial Institutions and Market. Tata Mc Graw Hill
2. Gupta, S.B (1995) Monetary Economics, Institutions, Theory and Policy. S.Chand & Co. New Delhi
3. Grapple J.O (1992). International Financial Markets – Elsevire, New York
4. Mithani, DM (Latest Edition) - Money, Banking, International Trade and Public Finance. Himalaya Publishing House.
5. Pathak, Bharati V. (Latest Edition). The Indian Financial System: Markets, Institutions and Services. Pearson Education.
6. Rangarajan, C (1999) Indian Economics; Essays on Money and Finance; UBS Publishers, New Delhi
7. RBI (2000), Report of the Committee on Financial Companies.

**Eco/6/CC/12A**

**HISTORY OF ECONOMIC THOUGHT**

**Credit 6**

**Objective** : Provide the learners an overview of the history of economic thought

**Outcome** : The learner will appreciate the historical background of various economic thoughts

**Unit – 1** : **Early Period**

Economic thought of Plato and Aristotle – Doctrines of just cost and just price – Mercantilism: main characteristics; Thomas Mum – Physiocracy: natural order, primacy of agriculture, social classes, Tableau Economique, taxation, Turgot – Economic ideas of Petty, Locke and Hume

**Unit – 2** : **Classical Period**

Adam Smith – Division of labour, theory of value, capital accumulation, distribution, views on trade, economic progress; David Ricardo – value, theory of rent, distribution, ideas on economic development and international trade; Thomas R.Malthus – theory of population, theory of gluts.

**Unit – 3** : **Marginalists**

The precursors of marginalism – Cournot, Thunen, Gossen – The marginalist revolution; Jevons, Walras and Menger – boh-m-Bawark, Wicksell and fisher: the rate of interest – Wicksteed and Weiser; Distribution – Marshall as a great synthesizer; role of time in price determination, economic methods, ideas on consumer's surplus, elasticities, prime and supplementary costs, representative firm, external and internal economies, quasi-rent, organization as factor of production, nature of profits.

**Unit – 4** : **Keynesian Ideas**

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 behavior of the economy, uncertainty and role of expectations, impetus to economic modeling

**Unit – 5** : **Indian Economic Thought**

Early economic ideas: Kautilya, Valluvar; Modern economic ideas: Naoroji, Ranade, R.C Dutt and MN.Roy; Economic ideas of Gandhi: Village, Swadeshi, place of machine and labour, cottage industries, trusteeship; Early approaches to planning (The national planning committee); Gadgil co-operation as a way of life and strategy of development; J.K Mehta: Wantlessness.

**Basic Reading List**

1. Blackhouse, R. (1955): A History of Modern Economic analysis, Basil



**Eco/6/CC/12C**                      **ECONOMETRICS**    **Credit 6**  
**Objective**                      :            To give a broad overview of basic concepts in econometrics analysis  
**Outcome**                      :            Demonstrate an understanding of key econometric concepts and theories

**Unit – 1**                      :                      **Introduction to Econometrics**

Definition and scope of econometrics. The methodology of econometric research: specification and estimation of an econometric model. Basic concept of estimation: desirable properties of estimators- unbiasedness, efficiency, consistency, sufficiency.

**Unit – 2**                      :                      **Theoretical Distribution and Testing of Hypothesis**

Theoretical frequency distribution and application of binomial, poisson and normal distribution. Testing of hypothesis: Type-I and Type-II errors, Standard Errors, Level of Significance. Hypothesis testing based on Z, t and Chi-square statistics.

**Unit – 3**                      :                      **Simple Regression Analysis**

Classical assumptions of regression analysis. Estimation of simple regression coefficients by OLS, properties of OLS estimators, Coefficient of Determination, Adjusted  $R^2$ , decomposition of sum of squares in regression and ANOVA in simple regression equation. Statistical Inference in regression: testing of the significance of regression coefficients.

**Unit – 4**                      :                      **Estimation**

Concept of estimate and estimator, desirable properties of estimators- unbiasedness, efficiency, consistency and sufficiency, BLUE, MLE.

**Unit – 5**                      :                      **Problems in OLS estimation**

Problems of multicollineary and auto-correlation- their consequences, tests and remedies.

**Basic Reading List:**

1. Greene, W. (1997), Econometric Analysis, Prentice Hall, New York
2. Gujarati, D. (1995), Basic Econometrics, Mc Grow Hill, New Delhi
3. Johnston J. and J.D Nardo (1997) Econometric Methods, Mc Grow Hill New York
4. Knenta, J (1977), Theory of Econometrics, Michigan Press, New York
5. Koutsoyanis, A (1977), Theory of Econometrics, (2<sup>nd</sup> edition), The Macmillan Press Ltd.
6. Madalla, G.S (1993) Econometrics – An Introduction, Mc Grow Hill, New York

**Eco/6/CC/12D**                      **MATHEMATICAL ECONOMICS-II**    **Credit 6**

**Objectives**                      :            To provide basic mathematical tools for economic analysis  
**Outcomes**                      :            Interpret and analyse economic data using mathematical tools

**Unit- 1**                      :                      **Cost and Revenue Analysis**

Derivation cost curves; relations between total, average, elasticity of demand and revenue; producer's surplus, production possibility curve, Adding up theorem.

**Unit- 2**                      :                      **Input-Output Analysis**

Input-output analysis: assumptions, technological coefficient matrix, closed and open model. Hawkins-Simon conditions. Determination of equilibrium output and prices. Dynamic Input-Output model.

**Unit- 3**                      :                      **Linear Programming**

Concept and formulation of Linear Programming Problems, graphical and simplex methods of solving LP problems. Theorem of duality- concept of primal and dual, transformation of primal into dual.

**Unit- 4**                      :                      **Introductory Game Theory**

Introduction and concepts: two-person-zero-sum game, pure and mixed strategies, saddle point solution, dominance.

**Unit- 5**                      :                      **Dynamic Economic models**

Difference and differential equations- concepts, solution of first order equations. Growth models- Solow and Harrod. Derivation of time path under Cobweb model.

**Basic Reading List:**

1. Allen, R.G.D (1974) *Mathematical Analysis for Economists*, Mc Millan Press, London.
2. Barthwal, R.R (1992): *Microeconomics Analysis*, New Age International (P) Ltd, Publishers, New Delhi.
3. Chiang, A.C (1986), *Fundamental Methods of Economics*, Mc Graw Hill, New Delhi.
4. Colell, A. Mas et, al. (1991), *Microeconomics Theory*, Harvard University Press, Cambridge, Mass.
5. Hands, D.W. (1991) *Introductory Mathematical Economics*, D.C. Heath.
6. Henderson, J. and R.E. Quandt (1980), *Microeconomic Theory: A Mathematical Approach*. Mc Graw Hill, New Delhi.
7. Handy, S.T. (1997), *Operations Research Practice Hall of India*, New Delhi.
8. Mehta, B.C. & Madnani, G.M. (Latest edition): *Mathematics for economists*, Sultan Chand & Sons, New Delhi.
9. Renshaw, Geoff: *Maths for economics* (2<sup>nd</sup> Edition), Oxford University Press.
10. Yamane, Taro (1999): *Mathematics for Economists-An elementary Survey*, Prentice Hall of India, New Delhi.

**Eco/6/CC/12E****DEMOGRAPHY****Credit 6****Objectives** : Introduce key concepts/theories and provide basic techniques of analysis in demography**Outcome** : Understand vital demographic statistics**Unit – 1 : Introduction**

Population study and demography: Its relation with other disciplines; Theories of Population Malthus, Optimum theory of population, and theory of demographic transition.

**Unit – 2 : Sources of Demographic Data in India**

Sources of Demographic data in India: Census-Civil registration system and demographic surveys; National Family Health Survey 1 and 2 – their relative merits and demerits.

**Unit – 3 : Techniques of Analysis**

Crude birth and death rates, age specific birth and death rates, standardized birth and death rates – Study of Fertility: Total fertility rate, gross reproduction rate, and net reproduction rate.

**Unit – 4 : Population Projection**

Techniques of population projection – concept of stationary, stable and quasi-stationary population – aging of population in India – Changes in family structure and old age security.

**Unit – 5 : Population Policy**

Salient features of Population Censuses since independence, Evolution of population policy in India, Shift in policy focus from population control to family welfare and to women empowerment

**Basic Reading List:**

1. Agarwala S.N (1985), *India's Population Problem*, Tata McGraw Hill, Bombay.
2. Agarwal U.D (1999) *Population Projection and Their Accuracy*, B.R. Publishing Corporation N.D.
3. Blende, A.A ;and T.R. Kanitkar (1982) *Principles of Population Studies*, Himalaya Publishing House, Mumbai.
4. Bogul, D.J. (1971) *Principles of Demography*; John Wiley, New York.
5. Bose, A. (1996) *India's Basic Demographic Statistics*, B.R. Publishing Corporation, New Delhi.
6. Choubey, R.K. (2000) *Population Policy in India*, Kanishka Publications, New Delhi.

7. Srinivasan, K. (1998), Basic Demographic Techniques and Applications, Sage Publications , New Delhi.

**Eco/6/CC/12F                    COMPUTER AND SOFTWARE APPLICATIONS IN                    Credit 6**  
**ECONOMICS**

**Objectives :** To give a broad overview of basic concepts in mathematical economics

**Outcome :** Familiarize with key mathematical economics concepts

**Unit – 1                    :                    Basic of Computers**

Computer fundamentals; Organization and components of a computer; computer hardware CPU; Memory; Disk drives; Input and output devices; Keyboard; Mouse and VDU, Computer peripherals like printer, scanner, digitizer, etc. Computer software – Operating system, application software and packages.

**Unit – 2                    :                    Use of Computer for Office Automation**

Text editors and word processor software packages; Operative familiarization with any one package like MS-Word; Concept and use of spread sheet; Operation and use of MS-Excel; Basics of Database; Table; records and fields; Data entry and query processing; Operative principles of MS-Access; Document formation and presentation through MS-Power point.

**Unit – 3                    :                    Data Analysis and Trend Forecasting**

Basics of statistical functions and analysis – Mean, median, mode, standard deviation; Distribution function and density function; Statistical package handling and command description for SPSS: Regression and auto-regression; Correlation and auto-correlation; Covariance and Auto covariance

**Unit – 4                    :                    Applications**

Text and mail communication using computers; E-mail; Chat; Coice mail; Document transfer and delivery; Internet; World Wide Web (WWW) and use for business and commercial activities like e-business and e-commerce; Electronic stock market and exchanges; B2B and B2C Concepts.

**Unit – 5                    :                    IT Application to finance**

On line banking; ATM's Electronic Stock Exchange; Electronic trading; Data shearing and decimation; Electronic transaction; Document delivery; Authentication and validation transaction processing.

**Basic Reading List:**

1. Kerns (1993), Essentials of Microsoft Windows Word and Excell; Prentice Hall of India, New Delhi.
2. Rajaraman, V. (1996) Fundamentals of Computers, Prentice Hall (India) New Delhi.
3. Schied, F. (1983), Theory and Problems of Computers and Programming, Schaum's Outline Series, McGraw- Hill, New Delhi.
4. Intrilligator, M.D. (1978), Econometric Models Techniques and Application, Prentice Hall, Englewood Cliffs, N.J.