

## M.Sc. Economics (*Five year Integrated Programme*)

### Course structure & Syllabus (2011-12)

*Students must secure minimum 192 credits for the award of the degree*

Students are free to choose any course offered by other departments as soft core during a particular semester and advised to seek the help of concerned faculty advisor to choose the soft core course.

#### SEMESTER I

Sl. No.	Course Code	Course	Hard/Soft Core	Credits
1	ECON 111	Towards Understanding Economics	Hard core	4
2	ECON 112	Statistical Methods I	Hard core	4
3	ECON 113	Mathematics for Economists I	Hard core	4
4		Functional English I	Hard core	4
5		Optional from other Departments	Soft core	3

#### SEMESTER II

Sl. No.	Course Code	Course	Hard/Soft Core	Credits
1	ECON 121	Microeconomics I	Hard core	4
2	ECON 122	Statistical Methods II	Hard core	4
3	ECON 123	Mathematics for Economists II	Hard core	4
4		Functional English II	Hard core	4
5		Optional from other Departments	Soft core	3

#### SEMESTER III

Sl. No.	Course Code	Course	Hard/Soft Core	Credits
1	ECON 211	Microeconomics II	Hard core	4
2	ECON 212	Macroeconomics I	Hard core	4
3	ECON 213	Economics of Social Sector and Environmental Issues	Soft core	3
4		Language I (other than English)	Hard core	4
5		Optional from other Departments	Soft core	3

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**SEMESTER IV**

<b>Sl. No.</b>	<b>Course Code</b>	<b>Course</b>	<b>Hard/Soft Core</b>	<b>Credits</b>
1	ECON 221	Monetary Economics	Hard core	4
2	ECON 222	Macroeconomics II	Hard core	4
3	ECON 223	Environmental Economics	Hard core	4
4		Language II (other than English)	Hard core	4
5		Optional from other Departments	Soft core	3

**SEMESTER V**

<b>Sl. No.</b>	<b>Course Code</b>	<b>Course</b>	<b>Hard/Soft Core</b>	<b>Credits</b>
1	ECON 311	International Economics I	Hard core	4
2	ECON 312	Public Finance I	Hard core	4
3	ECON 313	Elements of Econometrics	Hard core	4
4	ECON 314	Indian Economy I	Hard core	4
5	ECON 315	Development Economics	Soft core	3

**SEMESTER VI**

<b>Sl. No.</b>	<b>Course Code</b>	<b>Course</b>	<b>Hard/Soft Core</b>	<b>Credits</b>
1	ECON 321	International Economics II	Hard core	4
2	ECON 322	Public Finance II	Hard core	4
3	ECON 323	Indian Economy II	Hard core	4
4	ECON 324	History of Economic Thought	Hard core	4
5	ECON 325	Indian Financial Institutions and Markets	Soft core	3

**SEMESTER VII**

<b>Sl. No.</b>	<b>Course Code</b>	<b>Course</b>	<b>Hard/Soft Core</b>	<b>Credits</b>
1	ECON 411	Microeconomic Analysis I	Hard core	4
2	ECON 412	Macroeconomic Analysis I	Hard core	4
3	ECON 413	Mathematical Economics	Hard core	4
4	ECON 414	Econometric Theory	Hard core	4
5	ECON 415	Economics of Growth & Development	Hard core	4

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**SEMESTER VIII**

<b>Sl. No.</b>	<b>Course Code</b>	<b>Course</b>	<b>Hard/Soft Core</b>	<b>Credits</b>
1	ECON 421	Microeconomic Analysis II	Hard core	4
2	ECON 422	Macroeconomic Analysis II	Hard core	4
3	ECON 423	Statistical Methods in Economics	Hard core	4
4	ECON 424	Applied Econometrics	Hard core	4
5	ECON 425	Public Economics	Soft core	3

**SEMESTER IX**

<b>Sl. No.</b>	<b>Course Code</b>	<b>Course</b>	<b>Hard/Soft Core</b>	<b>Credits</b>
1	ECON 511	International Trade and Finance	Hard core	4
2	ECON 512	Computer Applications in Economic Analysis	Hard core	4
3	ECON 513	Research Methodology	Hard core	4
4	ECON 514	Indian Economy: Issues and Policies I	Hard core	4
5	ECON 515	Contribution of Nobel Laureates I	Soft core	3

**SEMESTER X**

<b>Sl. No.</b>	<b>Course Code</b>	<b>Course</b>	<b>Hard/Soft Core</b>	<b>Credits</b>
1	ECON 521	Indian Economy: Issues and Policies II	Hard core	4
2	ECON 522	Economics of Education	Hard core	4
3	ECON 523	Financial Economics	Hard core	4
4	ECON 524	Project/Viva	Hard core	4+2
5	ECON 525	Contribution of Nobel Laureates II	Soft core	3

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## Semester I

### ECON 111 – TOWARDS UNDERSTANDING ECONOMICS

#### **Module 1: Exploring the Subject Matter of Economics**

Why study economics? – scope of economics – the economic problem: scarcity and choice – the question of what to produce, how to produce and how to distribute output – science of economics – the basic competitive model – prices, property rights and profits: incentives and information, rationing – opportunity sets – economic systems.

#### **Module 2: Role of Markets, their Functioning and Welfare**

Markets and competition – determinants of individual demand/supply, demand/supply schedule and demand/supply curve, market versus individual demand/supply, shifts in the demand/supply curve – demand and supply together – how prices allocate resources – elasticity and its application – controls on prices – taxes and the costs of taxation – consumer, producers and the efficiency of the markets.

#### **Module 3: The Households**

The consumption decisions – budget constraints, consumption and income/price changes, demand for all other goods and price changes – description of preferences – the investment decision – investment alternatives for a household – desirable attributes of investments – labor supply and savings decision – choice between leisure and consumption – labour force participation – tax policy and labour supply -human capital and education – budget constraints and savings – savings and interest rate, other factors affecting savings.

#### **Module 4: The Firm and Perfect Market Structure**

Financing, controlling and managing firms – the firm's legal form, corporate finance – why corporations care about financial structure – takeover and the market for managers – making decisions – centralization and decentralization – the boundaries of the firm. behaviour of profit maximizing firms and the production process – short run costs and output decisions.

#### **Module 5: Introduction to Macroeconomics and National Income Accounting**

The roots of macroeconomics – concerns over macroeconomic – the role of government in the macro economy – the components of the macro economy – the methodology of macroeconomics – concepts of national income – approaches to calculating national income – nominal and real income – issues on measurement of national income, the concept of black and green income.

#### **Readings:**

1. Karl E. Case and Ray C. Fair (2002), Principles of Economics, 6th Edition, Pearson Education Asia Low Price Edition.
2. N. Gregory Mankiw, (2002), Principles of Economics, Thomson.
3. J.E. Stiglitz, and C.E. Walsh (2002), Principles of Economics, 3rd Edition, W.W. Norton & Company, New York.
4. R. Stone and G. Stone (1962), National Income and Expenditure, Bowes and Bowes London.
5. Paul Hayne (1998), Economic Way of Thinking, Prentice Hall.

**ECON 112 – STATISTICAL METHODS I**

**Module 1: Meaning, Classification and Tabulation of Data**

Primary data and secondary data: definition, sources and method of collection – quantitative data: time series data, cross section data and pooled data – qualitative data – presentation of data (table) – Simple table, complex table (manifold table) – discrete frequency distribution table – continuous or grouped frequency distribution table – relative frequency distribution – cumulative frequency distribution: less than and more than – presentation of data (diagram) : line diagram, bar diagram (simple and multiple), pie diagram – presentation of data (graph): graph of time series or line graph, logarithmic graph, graph of frequency distribution (histogram, frequency polygon, frequency curve, cumulative frequency curve / ogive).

**Module 2: Measures of Central Tendency and Partition Values**

Meaning of average – types of average: arithmetic mean (for raw data, ungrouped frequency distribution and grouped frequency distribution), median (for raw data, ungrouped frequency distribution and grouped frequency distribution), mode (for raw data, ungrouped frequency distribution and grouped frequency distribution), geometric mean, harmonic mean (along with formula for each type of average, respective merits, demerits, uses and properties) – quartiles (for individual series, discrete frequency distribution and frequency distribution with class interval) – deciles (for individual series, discrete frequency distribution and frequency distribution with class interval) – percentiles (for individual series, discrete frequency distribution and frequency distribution with class interval).

**Module 3: Measures of Dispersion**

Meaning of dispersion – types of dispersion: range, quartile deviation, mean deviation, standard deviation and variance (along with absolute measure, the relative measure or coefficient of each type of dispersion) – coefficient of variation – combined standard deviation – Lorenz curve (application in income distribution).

**Module 4: Skewness and Kurtosis**

Skewness – meaning of skewness and symmetry in a distribution – symmetrical distribution – asymmetrical or skewed distribution – negatively skewed and positively skewed, measures of skewness: absolute measure – Karl Pearson's coefficient of skewness – Bowley's coefficient of skewness – definition, types and measures of kurtosis – Karl Pearson's coefficient of kurtosis.

**Module 5: Moments**

Definition of central moments (both for individual series and frequency distribution) – properties of central moments – raw moments (both for individual series and frequency distribution) – moment generating function – purpose of moments.

**Readings:**

1. A.L. Nagar and R.K. Das (2006), Basic Statistics, Second Edition Oxford University Press, New Delhi.
2. S.P. Gupta (2000), Statistical Methods, Sultan Chand and Sons, New Delhi.

# M.Sc. Economics (*Five year Integrated Programme*)

## Semester I

### ECON 113 - MATHEMATICS FOR ECONOMISTS I

#### **Module 1: Preliminaries**

Elements of logic and proof – converse and contra positive, necessary and sufficient conditions – proof by contradiction – mathematical induction – sets and set operations – ordered pairs, Cartesian products of sets – relations functions, one to one and onto functions, composite functions, the inverse function – the real numbers, natural numbers, integers, rational and irrational numbers – absolute value and intervals – inequalities.

#### **Module 2: Elementary Linear Algebra**

Two, three and  $n$  – dimensional row and column vectors – vector addition and scalar multiplication – length of a vector, scalar products, orthogonality – geometric representation, lines and planes in  $R^2$  and  $R^3$  – linear and convex combinations of vectors – linear independence – convex sets.

#### **Module 3: Matrices and Matrix Operations**

Addition, scalar multiplication, matrix multiplication – the transpose – the inverse of a square matrix – rank, elementary row operations and computation of rank – invertibility and rank for square matrices, characteristic roots and eigen values, Cramer rule.

#### **Module 4: Determinants**

Determinants – definition, properties, minors and cofactors – the Laplace expansion – expansion by alien cofactors – singularity and invertibility – the adjoint matrix and formula for the inverse.

#### **Module 5: Elementary Topics in Calculus**

The derivative of a function – differentiability and continuity – techniques of differentiation – sums, products and quotients of functions – composite functions and the chain rule – inverse functions – implicit differentiation, second and higher order derivatives – concavity and convexity of functions.

#### **Readings**

1. Knut Sydsaeter and Peter J. Hammond (2002), Mathematics for Economic Analysis. Pearson Educational Asia: Delhi (reprint of 1st 1995 edition).
2. Alpha C. Chiang (1984), Fundamental Methods of Mathematical Economics. McGraw Hill (3rd edition).
3. Hadley, G. (1987), Linear Algebra, Addison-Wesley.
4. Metha B.C. and Madnani. GMK (2004), Mathematics for Economists, Sultan chand & Sons, New Delhi.

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## Semester II

### ECON 121 – MICROECONOMICS I

#### **Module 1: Introduction**

Nature and scope of micro economics – importance and limitations of micro economics – micro statics – micro dynamics – comparative statics – concept of equilibrium – static, dynamic and neutral equilibrium – Partial Vs General equilibrium – role and limitations of price mechanisms in a free market economy – frontiers & microeconomics.

#### **Module 2: Consumer Behavior**

Demand and law of demand – utility analysis and derivation of demand – ordinal approach – indifference curve – consumer equilibrium – price, income and substitution effect (Hicks and Slutsky) – derivation of demand curve analysis – comparison of cardinal and ordinal analysis – Giffin goods – compensated demand – elasticity of demand: price, income and cross – consumers surplus – Engel curve.

#### **Module 3: Theory of Supply and Production**

Supply and law of supply – elasticity of supply – production decision – factors of production – production function – law of variable proportion – returns to scale – economies of scale – Iso quant approach and producer's equilibrium – factor substitution – elasticity of factor substitution.

#### **Module 4: Theory of Cost**

What are costs? – Production and costs – various measures of cost – cost curves and their shapes – the relationship between short run and long run average total cost – elasticity of cost.

#### **Module 5: Theory of Revenue and Equilibrium**

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

#### **Readings:**

1. A .Koutsoyannis (1979), Modern Micro Economics, MacMillan Press, London
2. H.R.Varian (1993), Intermediate Microeconomics a Modern Approach, 3rd Edition, Affiliated East West Press.
3. N.G. Mankiw (2009), Economics : Principles and Application Cengage Learning, Printed in India

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### Semester II

#### ECON 122 – STATISTICAL METHODS II

##### **Module 1: Correlation**

Concept of correlation – types of correlation – bivariate distribution and covariance – simple correlation – Karl Pearson's product moment coefficient of correlation measure – partial correlation: definition and measure (ceteris paribus assumption) – multiple correlation: definition and measure (long run production function) – Spearman's rank correlation coefficient (when ranks are given, when ranks are not given and when equal ranks are given) – properties and uses of correlation.

##### **Module 2: Analysis of Time Series**

Definition and components of a time series – mathematical models – additive model and multiplicative model of a time series – seasonal variations – measuring through -a) simple average method- and ratio to trend method – cyclical variations – measuring through residual method – trend and its measurement through a) method of moving averages and method of least squares (annual production, sales, profit. etc.) – fitting a second degree trend (population growth) – growth curves, logistic curve and gompertz curve – interpolation and extrapolation.

##### **Module 3: Regression Analysis**

Meaning of regression – types of regression – simple and multiple linear and non-linear regressions – concept and method of least squares – line of best fit – regression coefficients – line of regression of x on y (aggregate consumption function) – line of regression on y on x (accelerator) – properties of regression coefficients – utility regression analysis in economic studies – coefficient of determination.

##### **Module 4: Index Numbers**

Definition of index number – types of index number – price index-quantity index – value index – simple index number – weighted index number – construction of index number – problems in construction – methods in construction – simple and weighted – Laspeyre's price index (CPI in India) – Paasche's price index – Fisher's ideal index – splicing of index number – deflating (finding real wages).

##### **Module 5: Statistical Quality Control (SQC)**

Definition – causes of variation in quality – types of quality control – process control and product control – SQC methods – control charts, mean charts, fraction defective charts.

##### **Readings:**

1. A.L. Nagar and R.K. Das (2006), Basic Statistics, Second Edition Oxford University Press, New Delhi.
2. S.P. Gupta (2000), Statistical Methods, Sultan Chand and Sons, New Delhi.



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### Semester II

#### ECON 123 – MATHEMATICS FOR ECONOMISTS II

##### **Module 1: Functions of One Real Variable**

Examples (linear functions, polynomials, etc.) and elementary curve types – Sets of points in the plane determined by equations or inequalities.

##### **Module 2: Limits**

Infinite sequence and series – the concepts of convergence and limits – algebraic properties of limits – present discounted values and elements of investment analysis – the limit of  $f(x)$  as  $x \rightarrow a$  – continuity – the intermediate – value theorem.

##### **Module 3: Advanced/Higher Calculus**

Jensen's inequality – the second derivative criterion – points of inflexion – differentials and linear approximation – Taylor's theorem and polynomial approximation – indeterminate forms and L'Hôpital's rule – exponential and logarithmic functions – logarithmic differentiation – geometric representation, level curves – partial differentiation – plane sections and geometrical interpretation – tangent planes to a surface – higher-order partial derivatives – Young's theorem – partial derivatives in economics – linear approximation and differentials – the chain rule – the implicit function theorem (statement only) – first and higher order derivatives of functions defined implicitly – geometric interpretation.

##### **Module 4: Problem of Optimization**

Homogeneous and homothetic functions – elasticity of substitution – concave and convex functions – Jensen's inequality and characterization in terms of the Hessian (statement only) – convex sets – quasiconcave and quasiconvex functions – maxima and minima – saddle points – unconstrained optimization – necessary and sufficient conditions for local optima – constrained optimization (equality constraints) – the method of Lagrange multipliers – interpretation of the necessary conditions and of the Lagrange multiplier – geometrical meaning – sufficient conditions – envelope results – economic examples.

##### **Module 5: Applications in Economics**

Examples of the use of the *exp* and *log* functions (proportional rates of change, elasticities, continuous compounding etc.) – the role of concavity and convexity – applications, profit maximization of firms, utility maximization and cost minimization using optimization – integration and its application in economics.

##### **Readings**

1. Knut Sydsaeter and Peter J. Hammond (2002), *Mathematics for Economic Analysis*. Pearson Educational Asia: Delhi (reprint of 1st 1995 edition).
2. Alpha C. Chiang (1984), *Fundamental Methods of Mathematical Economics*. McGraw Hill (3rd edition).
3. Weber Jean, E (1982), *Mathematical Analysis* HarperCollins college Div:4, Sub edition.

**ECON 211 – MICROECONOMICS II**

**Module 1: Market Structure and Equilibrium**

Market forms – perfect and imperfect forms – equilibrium of a firm under perfect competition, monopoly, monopolistic competition, duopoly and oligopoly – importance of time element in price theory – price discrimination and measure of monopoly power – control and regulation of monopoly – collusive price leadership – kinked demand curve-taxation and equilibrium of a firm-comparison of various markets.

**Module 2: Pricing Methods**

Mark up pricing – break even pricing – rate of return pricing – variable cost pricing – peak load pricing – going rate pricing – controlled or administered pricing – minimum support price.

**Module 3: Factor Pricing**

Market for the factors of production – marginal productivity theory of pricing of factor (distribution theory) – Euler’s theorem-linkages among the factors of production – theories of wages – determination – wages and collective bargaining – wage differentials – rent – Ricardian and modern theories of rent – scarcity rent – differential rent and quasi rent – interest – classical and Keynesian theories – profit – innovation, risk and uncertainty theories – the concept of normal profit – monopoly profit.

**Module 4: Investment Analysis**

Payback period – average annual rate of return, net present value, internal rate of return, price changes, risk and uncertainty – elements of social cost benefit analysis.

**Module 5: Welfare Economics**

What is welfare economics – economic and general welfare problems in measuring welfare – classical welfare economics – Pigovian welfare condition – Pareto’s criteria – value judgment – concept of a social welfare function-compensation principle –the Kaldor- Hicks criterion.

**Readings:**

1. A.Koutsoyannis,(1979), Microeconomics A Modern Approach, East West Press, New Delhi
2. H.R.Varian (1993), Intermediate Microeconomics, W.W. Norton, New York
3. J.I.Ryan(1962), Price Theory, MacMillan Press, London
4. N.C.Ray(1998), An Introduction to Microeconomics, MacMillan Press, London
5. N.G.Mankiw(2009), Economics : Principles and Applications, Cengage Learning, Printed in India

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### Semester III

#### ECON 212 – MACROECONOMICS I

##### **Module 1: Nature and Scope of Macroeconomics**

Nature and scope of macroeconomics – meaning and definition of key macroeconomic variables (output, unemployment, inflation etc.) – concepts of national income – methods of measuring national income – circular flow of income – issues in national income accounting.

##### **Module 2: Employment and output in a growing economy**

The goal of full employment – frictional and structural unemployment – unemployment and inadequate demand – the concept of potential output – factors affecting output – production and employment with economic growth – growth of actual and potential output

##### **Module 3: The Classical System**

The classical revolutions – say's law – quantity theory of money – wages, prices, employment, and production – rigid wages and monetary policy in the classical model.

##### **Module 4: The Keynesian Model**

The problem of unemployment – the components of aggregate demand – equilibrium income – determination of equilibrium income – changes in equilibrium income – the role of fiscal policy and multiplier – the concept of balanced budget multiplier – exports and imports in Keynesian model.

##### **Module 5: Money, Interest and Income:**

The money supply, money demand and interest rate – the relationship between bond prices and interest rates – the Keynesian theory of money demand and interest rate – the liquidity trap – the implications of increase in money supply.

##### **Readings**

1. R T Froyen (2008), *Macroeconomics, Theory and policies*, Prentice Hall.
2. N. Gregory Mankiw, (2002), *Principles of Economics*, Thomson.
3. Gardner Ackley (1978), *Macroeconomics, Theory and Policy*, Macmillan Library

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### Semester III

#### ECON 213: ECONOMICS OF SOCIAL SECTOR AND ENVIRONMENTAL ISSUES

##### **Module 1: Conceptual Issues**

Concept of Social Sector – Significance of Social Sector – Economic Development And Social Sector Development – Equity and Social Sector – Environment of Economics – Economy – Environment Interaction- The Material Balance Principle - Entropy Law - Market Failure , Property Rights , Open Access Resources- Collective Action .

##### **Module 2: Educational Economics**

Human Capital – Human Capital Vs. Physical Capital, Components of Human Capital: Determination of Demand for Education: Costs and Benefits of Education: Educational Planning and Economic Growth: Educational Financing: Education and Labor Market,: Economics of Education Planning In Developing Countries with special emphasis on India.

##### **Module 3: Health Economics**

Determination of Health - Economics of Health Care: Appraisal of Health Care Financing: The concept of Human Life Value: Benefit Cost and Cost Effectiveness Approaches: Inequalities in Health and Class and Gender Perspectives: Institutional Issues in Health Care Delivery.

##### **Module 4: Environmental issues**

Causes and effects Of Environmental Degradation – Degradation of land, Forest and Natural Resources- Pollution from Energy –effects on health, Land , water and air- valuation of Environmental Damages- direct and indirect methods- Pollution Prevention , control and abatement - direct and indirect Instruments of Pollution Control – concept and indicators of sustainable development.

##### **Module 5: Policy issues in India**

Programmes and Policies of Educational Development – health development- Strategies, Programmes and Policies- Evolution of Environmental Policy in India – Air and Water Acts- Fiscal Incentives- Enforcement and Implementation Issues- Policies and Programmes Relating to Water Supply and Sanitation.

##### **Readings:**

1. Council for Social Development (2006), India: Social Development Report.
2. Dreze, Jean and Sen, Amartya (1995), Indian Economic Development and Social Opportunity, Oxford University press .Delhi.
3. Field B.C. Environmental economics: an Introduction New York: McGraw Hill 1944
4. Freeman III, A.M (1998). The Economic Approach to Environmental Policy, Chelster law, U.K. Edward Elgar, 1998.
5. Krueger A and M.Lindhal (2001), Education for Growth: why and for whom , Journal of Economic Literature , 39(4): 1101 -1136.
6. Latchanna G and Hussein J.O. Economics of education, Discovery publishing House, New Delhi.
7. Planning Commission Eleventh Five Year Plan, (2007- 12) vol II. Social Sector Services.

**ECON 221: MONETARY ECONOMICS**

**Module 1: Definition, Functions and Theories of Money**

Money and its function – the concepts and definitions of money – measurement of money – advantages of money – theories of demand for money: Classical approach, the transactions and cash balance approach, the Keynesian analysis, Post Keynesian developments, Monetarist approach.

**Module 2: Money Supply**

Financial intermediaries – nature and functions – theories of money supply – mechanistic model of money supply determination – high powered money and behavioral model of money supply determination – methods of monetary control – Interest rates in closed and open economies – theories of term structure.

**Module 3: Monetary Transmission Mechanism**

Meaning – interest rate channel, credit channel, bank lending channel, balance sheet channel, exchange rate channel, other asset price channels.

**Module 4: Monetary Policy**

Instruments, targets, indicators, lags in monetary policy and rules versus discretion debate.

**Module 5: Central Banking**

Functions of a central bank – quantitative and qualitative methods of credit control – bank rate policy, open market operations, cash reserve ratio, selective methods, role and functions of Reserve Bank of India – objectives and limitations of monetary policy with special reference to India.

**Readings**

1. Pierce, D G and P J Tysome (1985), *Monetary economics: theories, evidence and policy*, Butterworths, London.
2. Saving, R T (1967), “Monetary policy targets and indicators”, *Journal of Political economy*, 75: 446-465
3. Carl E Walsh (1998), *Monetary Theory and Policy*, MIT Press, Cambridge.
4. Bennett McCallum (1989), *Monetary Economics: Thoery and Policy*, Macmillan.
5. C Rangarajan (1999), *Indian Economy: Essays in Money and Finance*, UBSPD.
6. Narendra Jadhav (1994), *Monetary Economics for India*, Macmillan.

**ECON 222 – MACROECONOMICS II**

**Module 1: Microeconomic Foundations**

Consumption – absolute income hypothesis, relative income hypothesis, life cycle hypothesis, permanent income hypothesis – investment (business fixed investment, residential investment and inventory investment) – neo-classical theory of investment – accelerator theory of investment – the Tobin's q theory.

**Module 2: The Closed Economy in the Short Run**

The goods market and derivation of IS curve – real influences and Shift in IS schedule – the money market and derivation of LM curve – the shift in LM curve – determination of equilibrium income and interest rates – the relative efficacy of fiscal and monetary policy.

**Module 3: The Aggregate Demand and Supply**

The derivation of aggregate demand and supply curves – the Keynesian aggregate demand with vertical aggregate supply curve – sources of wage rigidity and unemployment – the flexible price with fixed money wage model – labour supply and money wage – the shift in aggregate supply – Keynes vs. Classics.

**Module 4: Output, Inflation and Unemployment**

Inflation: concepts and consequences- The Phillips curve – the natural rate of unemployment – factors affecting natural rate of unemployment – the adaptive expectation and long-run Phillips curve – the concept of rational expectations – policy ineffectiveness debate.

**Module 5: Open Economy Models**

The Mundell-Fleming model – determining equilibrium output in a small open economy – the monetary and fiscal policy under flexible and fixed exchange rates regimes – the Mundell-Fleming model with changing price level.

**Readings:**

1. R T Froyen (2008), Macroeconomics, Theory and policies, Prentice Hall
2. N. Gregory Mankiw (2002) Macroeconomics, 5th or later edition, Worth Publishers.
3. Rudiger Dornbusch, Stanley Fischer and Richard Startz,(2007) Macroeconomics, 7th or later edition, McGraw Hill.
4. Jones, Charles I. (1998), Introduction to Economic Growth, W.W. Norton & Company, Chapters 1, 2, 8.

**ECON 223 – ENVIRONMENTAL ECONOMICS**

**Module 1: Theory and Concept**

Nature and significance of environmental economics – definition and scope of environmental economics – basic theory – market system and the environment – welfare and environment – the economics of externalities.

**Module 2: Environment and Economics**

Environment – economy linkage – environment as a necessity and luxury – population and environment linkage – environmental use as an allocative problem – environment as a public good – valuation of environmental damages: land, water, air and forest.

**Module 3: Environmental Problems**

Economic development and environmental problems – air pollution – water pollution – sound pollution – energy use and environment problem – pollution and urbanization – global warming and green house effect – health, urbanization, transport and technology – environmental degradation.

**Module 4: Pollution Control**

Prevention, control and abatement of pollution – choice of policy instruments in developing countries – environmental law – sustainable development – indicators of sustainable development – environmental planning – environmental accounting.

**Module 5: Policy measures**

Basic approach – design of environmental policy – Indian environment policies and performance – pollution control boards and their function.

**Readings**

1. M. Karpagam (1993), Environmental Economics, Sterling Publishers, New Delhi.
2. S. Sankaran(1994) Environmental Economics, Margham , Madras
3. N.Rajalakshmi and Dhulasi Birundha (1994), Environomics, Economics of Enviroment, Allied, Ahmedabad.
4. S.Varadarajan and S. Elangovan(1992), Environmental economics, Speed, Chennai.
5. Singh G.N (Ed.) (1991) Environmental Economics, Mittal Publications, New Delhi.
6. Garge, M.R. (Ed.) (1996), Environmental Pollution and Protection, Deep and Deep Publications, New Delhi.
7. Lodha, S.L (Ed.) (1991), Economics of Environment, Publishers, New Delhi.
8. The Hindu survey of Environment: Annual Reports.

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### Semester V

#### ECON 311 – INTERNATIONAL ECONOMICS I

##### **Module 1: Introduction to International Economics**

Importance of international economics – international trade & economic growth – subject matter of international economics – purpose of international economic theories and policies – current international economic problems

##### **Module 2: Theories of International Trade**

Distinguishing features of internal and international trade – the pure theory of international trade-theories of absolute advantage, comparative advantage and opportunity cost – Heckscher-Ohlin theory of trade – factor price equalization theory – empirical relevance of the H-O theory

##### **Module 3: Alternative Trade Theories**

Vent for surplus approach – Kravis and Linders theory of trade – imitation gap and product cycle theory, role of dynamic factor in explaining the emergence of trade, trade under imperfect competition and increasing returns to scale – measurement of gains from trade and their distribution.

##### **Module 4: Economic Growth and International Trade**

Introduction – effect of growth on trade – production and consumption effects of growth, combined effect – effects of growth on terms of trade, immiserizing growth – technical progress and international growth – import substitution and export promotion strategy.

##### **Module 5: Gains from Trade**

Meaning – factors determining the gains from trade – gains from trade and income distribution – measurement of gains from trade and their distribution – the gains from trade in the case of large and small country – free trade vs no trade – restricted trade vs no trade

##### **Readings:**

1. Paul Krugman and Maurice Obstfeld (2002), International Economics: Theory and policy, latest edition
2. Salvatore D (1997), International Economics, PHI, New York
3. Dana ,M.S (2000), International Economics ,Routledge Publications ,London
4. Carbough ,R.J (1999), International Economics
5. Bhagwati.j(1981), International trade,Cambridge university Press.London



**ECON 312 – PUBLIC FINANCE I**

**Module 1: Role of Government**

Nature and scope of public finance - Rationale for government intervention – Musgrave’s three function of government – types of government intervention – production versus provision – regulation of markets – sources of public revenue – deficit financing.

**Module 2: Taxation**

Theories of taxation– ability and benefit principles of taxation (Lindhal) – Principle of maximum social advantage – taxable capacity – shifting and incidence – types of taxes – characteristics of good tax system.

**Module 3: Public Expenditure**

Theories of public expenditure – Wagner’s law – Peacock hypothesis – Samuelson theory of public goods– basics of cost benefit analysis.

**Module 4: Decentralization**

Rationale for decentralization – economic, administrative and political – assignment of taxes and expenditure between various tiers of a federal government – rationale and role of local governments.

**Module 5: Deficit Financing**

Deficit financing – monetarist versus Keynesian views – pattern of deficit financing – public debt management and implication for growth, inflation and interest rate.

**Readings:**

1. Goode, R. (1986), Government Finance in Developing Countries, TMH, New Delhi
2. Jha. R. (1998), Modern Public Economics, Routledge, London.
3. Musgrave, R.A. and P.B. Musgrave (1976), Public Finance in Theory and Practice, McGraw Hill, Kogakusha, Tokyo
4. Atkinson, A.B. and J.E. Stiglitz (1980), Lectures on Public Economics, TMH, New York.
5. Herber, B.P. (1967), Modern Public Finance, Richard D. Irwin, Homewood.

**ECON 313 – ELEMENTS OF ECONOMETRICS**

**Module 1: Nature and Scope of Econometrics**

Meaning of econometrics – relationship between statistics, mathematics and economics – economic and econometric models – the aims and methodology of econometrics – historical origin of the term regression and its modern interpretation – statistical vs deterministic relationship – regression vs causation – regression vs correlation – terminology and notation – the nature and sources of data for econometric analysis.

**Module 2: Two Variable and Multiple Regression Analysis**

The basic two variable regression models: estimation – statistical inference and prediction – extensions of two variable regression model – regression through origin – scaling and units of measurement – functional forms of regression model – Multiple Regression Analysis: The problem of estimation – notation and assumptions – meaning of partial regression coefficients the multiple coefficient of determination –  $R^2$  and the multiple coefficient of correlation  $R$  –  $R^2$  and adjusted  $R^2$  – partial correlation coefficients – interpretation of multiple regression equation.

**Module 3: The Problem of Inference**

The normality assumption – hypothesis testing about individual partial regression coefficients – testing the overall significance of the sample regression – testing the equality of two regression coefficients – restricted least squares – testing for structural stability of regression models – testing the functional form of regression.

**Module 4: Relaxing the Assumptions of the Classical Regression Model**

Multicollinearity – heteroscedasticity and autocorrelation: nature, consequences, detection and remedial measures.

**Module 5: Regression on Dummy Independent Variables**

The nature of dummy variables – regression on one quantitative variable and one qualitative variable – regression on one quantitative variable and one qualitative variable with more than two classes – regression on one quantitative variable and two qualitative variables – testing for structural stability regression models – interaction effects, piece wise linear regression, the use of dummy variables – time series analysis: some basic concepts – exposure to econometric packages.

**Readings**

1. Gujarathi, D (2003) Basic Econometrics, 4th Edition, New York: McGraw Hill
2. Maddala, G (1992) Introduction to Econometrics, 2nd ed., New York: MacMillan.

**ECON 314 – INDIAN ECONOMY I**

**Module 1: Indian Economy Prior to Independence**

Indian economy in the pre British period – structure and organization of villages – industries and handicrafts – Indian economy and the British conquest – rule of the East Indian Company (1758-1858) – rule of the British Government (1858-1947) – commercialization and agriculture – famines during British period – industrial transition – monetary and currency developments – taxation system during the British period – economic consequences of the British rule – colonial exploitation (forms and consequences) – the theory of drains – its pros and cons.

**Module 2: Indian Economy at the Time of Independence**

Backward economy – salient characteristics of India as a backward economy – obstacles to development in 1947 – planning exercises in India – National Planning Committee – people's plan – Gandhian plan - Planning Commission .

**Module 3: Structure and Resources of Indian Economy**

Structure of Indian economy – national income – sectoral contribution and economic transition in India – resources of india: natural, land, forest, fisheries, and mineral resources – economic development and resource depletion – infrastructure: a short review – human resources – theory of demographic transition – population size and growth rates – consequences – sex, age, and rural urban composition – density and quality of population – occupational distribution – population policy – social infrastructure – growth of education and health.

**Module 4: Planning in India**

Objectives of planning – overview of plans in India – approaches, outlays, targets and priorities, broad achievements and failures – new economic reforms – liberalization, privatization and globalization – rationale behind economic reforms – progress of privatization and globalization.

**Module 5: Indian Agriculture**

Nature and significance of agriculture – trends in agriculture production and productivity – factors determining productivity – progress of agriculture under the five year plans – new agriculture strategy and green revolution – land reforms – irrigation, rural credit, marketing and warehousing – agricultural labour.

**Readings:**

1. Romesh chander Dutt (2000), The Economic History Of India Under Early British Rule, Routledge (reprinted), London
2. Dadabhai Naoroji (1990), Poverty and British rule in India, Low Price Publications.
3. V.K.R.V. RAO (1983), India's national income, 1950-1980: an analysis of economic growth and change, Sage Publications.
4. Reserve Bank of India (2005), Hand book of statistics on the Indian Economy (2004-05)
5. Kirit S Parikh and R.Radhakrishnan (ed) (2002), India Development Report.
6. Centre for Science and Environment(1982), The state of Indian Environment
7. Government of India, Economic surveys, Different years
8. Census of India, various issues.
9. Ruddar Datt (1997), Economic Reforms in India – a Critique, S. chand and co, New Delhi.
10. Ruddar Datt and K.P.M Sundaram (2008), Indian Economy S.chand and co, New Delhi.

**ECON 315 – DEVELOPMENT ECONOMICS**

**Module 1: Nature and Scope of Development Economics**

Emergence of development economics – reasons, subject matter, nature and significance – role of values in development economics.

**Module 2: Economic Development (Meaning and Measurement)**

Meaning of economic development – distinction between growth and development – new view of economic development (Dudley Seers view) – three core values of development: sustenance, self esteem and freedom – growth and environmental degradation – economic development and human welfare – measurement of economic development – limitations of using percapita income as a measure – alternative measures: PQLI and Human Development Index.

**Module 3: Economic Growth**

Modern economic growth – Kuznets six characteristics – relevance of historical growth experience to the under developed countries – contemporary UD countries – diverse structure and common characteristics.

**Module 4: Theories of Under Development and Development**

Theories of under development: vicious circle of poverty, low level equilibrium trap, circular causation and backwash effect, dualism, dominance and dependence – theories of development, classical theories ( Smith, Ricardo, Malthus), Marxian theory of capitalist development, Schumpeterian analysis of capitalism.

**Module 5: Strategies for development**

Big push – balanced vs unbalanced growth – Mahalanobis strategies – balance between agriculture and industry – import substitution vs export orientation – neo-liberal vs interventionist policies.

**Readings**

1. Michael P. Todaro, (1998), Economic development Longman,
2. A.P. Thirwall (2005), Growth and Development: With Special Reference to Developing Economies, Palgrave Macmillan
3. Denis Gullet, (1971), The Cruel Choice: A New Choice in the Theory of Development, New York, antheneum.
4. Charles P. Kindleberger and Bruce Herrick (1983), Economic Development, McGraw-Hill Education
5. Adam Szirmai,(2005), The Dynamics of Economic Development: An Introduction Cambridge University Press .
6. Higgins (1968), Economic Development, WW Norton & Co.
7. G.M. Meier, (2003) Leading issues in economic development, Oxford University Press.
8. Gunnar Myrdal (1970) The Challenge of World Poverty: A World Anti-Poverty Program in Outline, Random House Trade Paperbacks.

**ECON 321 – INTERNATIONAL ECONOMICS II**

**Module 1: Terms of Trade, Tariff and Protection**

Concept of terms of trade – their uses and limitations – importance in the theory of trade – secular deterioration of terms of trade, its empirical relevance and policy implications for less developed countries – trade as a engine of growth – theories of terms of trade – views of British school, Rawl, and Singer and Prebisch– theory of intervention – economic effects of tariff on national income, terms of trade and income distribution – effects of quotas – effective rate of protection.

**Module 2: International Economic Integration**

Benefits of integration – types of integration – forms of economic cooperation – the theory of custom union – its features – partial and general equilibrium approach – Vanek model – welfare gains or losses from a custom union – Lipsey model – dynamic effects of custom union.

**Module 3: Balance of Payment**

Meaning structure and components of balance of payment – equilibrium and disequilibrium in the balance of payment – consequences of disequilibrium in the balance of payment – balance of payment and balance of trade – causes and methods of its correction (both monetary and non- monetary measures and their relative merits and demerits).

**Module4: Review of National Income and Balance of Payment Accounting**

National income accounts and Balance of Payments accounts: balance of trade, BoP on capital and current account, overall BOP, BOP accounting principles (credits & debits, double entry book keeping).

**Module 5: Balance of Payment and Policy**

Automatic adjustment mechanism under Gold Standard – Balance of Payment and national income – expenditure reducing and expenditure switching policies – direct control for adjustment – policies for achieving internal and external balance.

**Readings:**

1. Salvatore D (1997), International Economics, John Willey & sons.
2. Paul Krugman and Maurice Obstfeld (2002), International Economics: Theory and policy, latest edition, Pearson Education low-price edition, distributed in India by Addison-Wesley Longman.
3. Amitav K. Dutt (1995), "The Open Economy" in Prabhat Patnaik (ed.), Macroeconomics, OUP, Delhi.
4. T.N. Srinivasan (1998), Developing Countries and the Multilateral Trading System, OUP, Delhi, Chapters 5-8.
5. W.M. Corden (1974), Trade Policy and Welfare, Claredon Oxford, Chapters 1, 2 and 9.
6. Mannur, H.G (2000). International Economics

## **M.Sc. Economics (*Five year Integrated Programme*)**

### **Semester VI**

#### **ECON 322 – PUBLIC FINANCE II**

##### **Module 1: Trend and Pattern of Public Revenues**

India's public revenue – taxes of union, state and local Governments – trends in tax revenue – tax/GDP – tax and distributive justice – direct versus indirect taxes – tax reforms - rate and procedure rationalization – VAT in union and state taxes.

##### **Module 2: Trend and Pattern of Public Expenditure**

India's public expenditure – trend in union, state and local Government's public expenditure – public expenditure/GDP – change in the composition of public expenditure – developmental versus non developmental – plan versus non plan – revenue versus capital – economic and functional classification of public expenditure – implications.

##### **Module 3: Basics of Budgeting**

Constitutional basis for budgeting – process of passing finance and appropriation bills in the parliament/assembly – CAG and PAC – FRBM – deficit, public debt and monetary management.

##### **Module 4: Centre State Financial Relationships**

Role of Finance Commission in filling vertical and horizontal fiscal imbalance – plan transfers and discretionary transfers – latest finance commission report of the union and state governments.

##### **Module 5: Recent Fiscal Reforms**

Latest commentary on India's fiscal policy – tax reforms, expenditure pruning, constitutional constraints on deficit - fiscal and monetary policy nexus.

##### **Readings:**

1. Goode, R. (1986), Government Finance in Developing Countries, TMH, New Delhi
2. Jha. R. (1998), Modern Public Economics, Routledge, London.
3. Musgrave, R.A. and P.B. Musgrave (1976), Public Finance in Theory and Practice, McGraw Hill, Kogakusha, Tokyo
4. Atkinson, A.B. and J.E. Stiglitz (1980), Lectures on Public Economics, TMH, New York.
5. Herber, B.P. (1967), Modern Public Finance, Richard D. Irwin, Homewood.

**ECON 323 – INDIAN ECONOMY II**

**Module 1: Indian Industries**

Role of Indian industries – industrial development during the planning period – industrial policies – licensing policy – growth and problems of some large scale industries: iron and steel, cotton, jute, sugar and cement – growth and problems of small scale enterprises – role, growth and problems of public sector enterprises in India.

**Module 2: Indian Currency, Financial System and Public Finance**

Indian currency systems today – sources of broad money (M<sub>3</sub>) : factors affecting money supply in India – progress of banking in India since 1969 – role of reserve bank of India in Indian economic development – competition of India's capital and money markets – revenues and expenditure of central government – current central budget – revenue and expenditure of state government – financial relation between the centre and states.

**Module 3: Important Areas of Concern**

Poverty and inequality in India – Rising unemployment, rising prices, industrial Relations – regional disparities – Environmental degradation-parallel economy.

**Module 4: Puducherry Economy**

A short review of Puducherry economy as it emerged from the French rule- An overview of structure of Puducherry Economy - physical and Human resources- Growth of agriculture and its present problems – Measures taken by the Government to improve agriculture production and productivity- industrial growth and Industrial Issues –Industrial policies – Infrastructure development-Energy, Transport, Education ,Health, Housing and Banking.

**Module 5: Planning, Government Finance and Development Issues of Puducherry**

Overview of planning in Puducherry- Achievements and failures of planning in Puducherry- Government finance –Structure and Growth of government's Revenue-Growth and trends in Public expenditure –m Central Government assistance to Puducherry as Union Territory – Development issues of Puducherry –Urbanization and its problems – Environmental issues – poverty and unemployment – Inter regional disparities –Growing financial stresses of the UT Government –Demand for statehood to Puducherry and UT states to Karaikal.

**Readings:**

1. Aluwalia, I.J. and I.M.D. Little (Eds) (1999), India's Economic Reforms and Development, Oxford University Press, New Delhi.
2. Bardhan,P.K. (1999), The Political Economy of Development in India, Oxford University Press, New Delhi.
3. Bawa, R.S. and P.S. Raikhy, (1997), Structural Changes in Indian Economy, Gurunanak Dev University Press, Amritsar.
4. Chakravarty, S. (1987), Development Planning: The Indian Experience, Oxford University Press, New Delhi.
5. Datt.R. (2001), Second Generation Economic Reforms in India, Deep and Deep Publications, New Delhi.
6. Ramadass. M. (1987), Pondicherry Economy, Priser.
7. M.Y. Khan (2008), Indian Financial System, 5<sup>th</sup> Edition, T.M.H Publishing Company.
8. Ruddar Datt and K.P.M Sundharam (2008) Indian Economy S.Chand & Company Ltd.

## M.Sc. Economics (*Five year Integrated Programme*)

### Semester VI

#### ECON 324 – HISTORY OF ECONOMIC THOUGHT

##### **Module 1: Early Period**

Nature and importance of history of economic thought – ancient economic thought – Aristotle, Plato-Medieval economic thought – contribution of early Muslim scholars to economic thought: Abu Yusuf, Marwadi, Gazali, Ibn Themiah, Ibn Hazm and Ibn Khaldun, Mercantilism: Main characteristics – Physiocracy: main characteristics .

##### **Module 2: Classical Period**

Adam Smith – David Ricardo – Thomas R. Malthus – German romantics and socialists – Sismondi, Karl Marx – economic ideas of J.B.Say – J.S.Mill – Historical School: Senior, List.

##### **Module 3: Marginalists**

The precursors of marginalism – Cournot, Thunen, Gossen – the marginalist revolution – Jevons, Walras and Menger-Bohm-Bawerk, Wicksell and Fisher – the rate of interest – Wicksteed and Weiser – distribution-Marshall as a great synthesizer – Pigou:welfare economics – Schumpeter: role of entrepreneur and innovations.

##### **Module 4: J M Keynes and his Contributions**

A Treatise on Money – The General Theory of Employment, Interest and Money.

##### **Module 5: Indian Economic Thought**

Early economic ideas: Kautilya, Valluvar – Modern economic ideas: Naoroji, Ranade, R.C.Dutt, Gokhale, J.K.Metha and M.N.Roy – Economic ideas of Gandhi: Village, swadesi, place of machine and labor, cottage industries, trusteeship – Early approaches to planning – cooperation as a strategy – Contributions of Vakil, Gadgil and VKRV Rao – Economic thought of Dr.Ambedkar.

##### **Readings:**

1. Bhatia H.L (1994), History of Economic Thought, Vikas Publishing House, New Delhi.
2. Ganguli,B.N(1977), Indian Economic Thought: A Nineteenth Century Perspective, TMH, New Delhi.
3. Roll,Eric, History of Economic Thought.
4. Seshari,G.B (1997), Economic Doctrines,B.R.Publishing Corporation, New Delhi.
5. Haney(1977), Economic Thought
6. Gide and Rist Economic Thought.
7. Shanmugasundaram.V(1981), Indian Economic Thought and Policy,S.Chand, New Delhi.
8. Ghosh,B.N and R.Ghosh(1988), Concise History of Economic Thought.
9. Readings in Islamic Economic Thought Edited by Abul Hassan M. Sadeq and Aidit Ghazali, Longman, Malaysia, 1992.



**ECON 325 – INDIAN FINANCIAL INSTITUTIONS AND MARKETS**

**Module 1: Introduction to Money**

Simple exposition to money demand and money supply – RBI and measures of money supply – commercial banks and credit creation – RBI control on money supply – time value of money and interest rates.

**Module 2: Introduction to Indian Financial System**

Overview of Indian Financial System – functions of financial system – players – structure and growth – regulatory bodies.

**Module 3: Money and Capital Markets**

Indian money market – instruments – institutions – functioning of Indian money market – changes in the regulatory framework – growth – stocks and bonds – primary and secondary markets – process of initial public offer – offer of Government bonds – stock market functioning – stock indices – evaluation of stocks and bonds – understanding stock market information.

**Module 4: Foreign Exchange Market**

Exchange rate – types – determination of exchange rate – nature of forex market – nature of forex inflow and outflow – examples of ECBs and NREs – RBI and exchange rate management.

**Module 5: Financial Derivatives**

Need for derivatives – types of derivatives – example of how stock index derivatives could be used to hedge risks in stock market investment – evaluation of financial derivatives.

**Readings:**

1. Bhole, L.M. (2002), Indian Financial Institutions and Markets, Tata McGraw Hill Ltd, New Delhi.
2. David S. Kidwell, David W. Blackwell, David A. Whidbee, Richard L. Peterson, (2005) Financial Institutions, Markets, and Money, 9th Edition, Wiley Publication, New York.
3. Khan M.F., (2006), Indian Financial Institutions, Tata McGraw Hill Ltd, New Delhi.
4. Pathak, Bharathi V., (2007), The Indian Financial System: Markets, Institutions and Services, 2/e, Pearson Education India, New Delhi.

ECON 411 – MICROECONOMIC ANALYSIS-I

**Module 1: Advances in Demand Theory**

Modern utility analysis of Choices involving risk or uncertainty- Bernouli, Neumann Morgenstern, Friedman savage and Markowitz Hypotheses-Revealed Preference Theory and derivation of demand and indifference curve-Revision of Demand theory by Hicks-Logical Ordering-Recent developments in demand theory-Pragmatic Approach ( The Constant Elasticity of Demand function, The Dynamic Demand function, The Empirical Demand Function) The Linear Expenditure systems, the Indirect utility function, the Expenditure function, Lancaster's Demand theory-Bandwagon effect-veblen effect – Cobweb theorem, Lagged Adjustment in interrelated markets.

**Module 2: Advances in Production Theory**

Relation between returns to scale and returns to a factor- multi product firm- production function: Cobb Douglas ,CES, VES and Translog production function- Production function Vs production process-Technical progress and production function

**Module 3: Advances in Theory of Costs and Optimisation**

Traditional and modern theories of Costs-Empirical evidence- Derivation of Long run total cost curve from production function-Economies of Scale and Long Run Average Cost Curves

**Module 4: Price and Output Determination**

Marginal analysis as an approach to price and output determination: Perfect competition-short run and long run equilibrium of the firm and industry-price and output determination short run and long run-supply curve of the industry under perfect competition – Joint Demand and joint Supply – Composite demand and composite supply, Monopoly –short run and long run equilibrium, price discrimination – Degree of monopoly power- welfare aspects-monopoly control and regulation; Resource allocation under monopoly-Monopsony and Bilateral monopoly; Monopolistic competition-General and chamberlain approaches to equilibrium, equilibrium of the firm and group with product differentiation and selling costs, excess capacity under monopolistic and imperfect competition; Oligopoly-non collusive ( cournot, Bertrand, Edgeworth, chamberlin, Kinked demand curve and Stackelberg's solution) and collusive (cartels and mergers, price leadership and basic point price system) models; workable competition – Structure, conduct and performance norms.

**Module 5: Alternative methods of Pricing and Optimisation**

Pricing principle – Average or full cost pricing- Mark up pricing- Limit pricing theory- Bains version- silos – Labini model of limit pricing- Public Utility Pricing- Game theory and price determination- Input output analysis – Linear Programming

**Readings:**

1. Koutsoyiannis, A. (2000) Modern Microeconomics, (2<sup>nd</sup> Edition), Macmillan press, London
2. Layard, P.R.G. and Walters, A.W. (1978), Microeconomic Theory, McGraw Hill, London.
3. Sen A. (1999), Microeconomics: Theory and Application, Oxford University Press, New Delhi
4. Stigler,G. (1996), Theory of Price, PHI, New Delhi
5. Varian, H.R. (2000), Microeconomic Analysis, W.W.Norton, NewYork
6. Mankiw, N.G. (2009), Economics: Principles and Applications, Cengage Learning, India edition

**ECON 412 – MACROECONOMICS I**

**Module 1: Measuring Key Macroeconomic Variables**

Various Concepts and Measurements of Aggregate Income – Income, Expenditure and the Circular Flow – Rules for Computing GDP – Real vs. Nominal GDP – Measuring the Cost of Living (consumer and whole sale price indices) – Measuring the Unemployment Rate – Unemployment, GDP and the Okun's Law.

**Module 2: Theories of Consumption**

The Classical Views on Consumption – The Psychological Law of Consumption – Kuznets's Consumption Puzzle – Fisher's Inter-temporal Choice Model – Permanent Income Hypothesis – Life Cycle Hypothesis – The Random Walk Hypothesis and consumption.

**Module 3: Theories of Investment**

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

**Module 4: Theories of Money Demand**

Inventory Theoretic Approach (William Baumol) – Liquidity Preference as Behavior Towards Risk (James Tobin) – A Restatement of Quantity Theory of Money (Milton Friedman) – The Buffer Stock Notion (David Laidler) – Partial Adjustment Mechanism – Empirical Issues in Money Demand Estimations.

**Module 5: Theories of Money Supply**

The Concept and Measurement of High Powered Money – Sources of Variation in High Powered Money – The Money Multiplier Model – Factors affecting Money Multiplier – Behavioural Model of Money Supply – The Portfolio Model of Money Supply.

**Module 6: The IS – LM Model**

The Neoclassical and Keynesian Macroeconomic Models – The Interaction of Real and Monetary Sector – The Neoclassical and Keynesian version of IS-LM Model – Fiscal and Monetary Policy Analysis in IS-LM Model – Fiscal Policy and Crowding out – Ricardian Equivalence – The Relative Efficacy of Fiscal and Monetary Policy – The Aggregate Supply in the Short and Long Run – Aggregate Demand and Price Determination – Pigou Effect and Real Balance Effect in the IS-LM Model – Aggregate Demand in the Open Economy – The Mundell-Flemming Model – The Fiscal and Monetary Policy Operation under Fixed and Floating Exchange Rate Regime – Trade Policy in IS-LM Models.

**Readings:**

1. Rosalind Levacic and Alexander Rebmann (1982), *Macroeconomics: An Introduction to Keynesian – Neoclassical Controversies*, Macmillan.
2. Errol D'Souza (2008), *Macroeconomics*, Pearson.
3. David Romer (1996), *Advanced Macroeconomics*, McGraw-Hill.
4. David, G Pierce and Peter J Tysome (1985), *Monetary Economics: theories, evidence and policy*, Butter worths.
5. Laidler, D.E.W. (1984), *The Buffer Stock Notion in Monetary Economics*, *Economic Journal* 94, 17-34.

**ECON 413 – MATHEMATICAL ECONOMICS**

**Module 1: Basic Calculus**

Concept of function and types of functions – limit, continuity and derivative – Rules of differentiation – Rules of partial differentiation and interpretation of partial derivatives – Problems of maxima and minima in single and multivariable functions – Unconstrained and constrained optimization – Applications of differentiation in economics – Concept of integration – Simple rules of integration and its application to consumer's surplus and producer's surplus – Growth rates and simple properties of time path of continuous variables.

**Module 2: Linear Algebra**

Determinants and their basic properties – Solution of simultaneous equations through Cramer's rule – Concept of matrix – their types, simple operations on matrices, matrix inversion and rank of a matrix – Concept of vector – its properties – Matrices and vectors – Concept of quadratic forms – Eigen roots and Eigen vectors – Introduction to input-output analysis.

**Module 3: Differential equations**

Exponential growth – Separable equations – linear differential equations and integrating factors – Second-order differential equations – Coupled equations, including the use of matrix diagonalisation – Economic applications of differential equations.

**Module 3: Difference equations**

Solving first-order difference equations – Application of first-order difference equations to financial problems – The cobweb model – Second-order difference equations – Coupled first – order difference equations, including the use of matrix diagonalisation – Economic applications of second – order difference equations – Applications in trade cycle models – Growth models and lagged market equilibrium models.

**Module 5: Linear programming**

Basic concept, formulation of a linear programming problem Its structure and variables – Nature of feasible, basic and optimal solution – Solution of linear programming through graphical and simplex method – Statement of basic theorems of linear programming – Formulation of the dual of a programme and its interpretation – Shadow prices and their uses – Concept of duality and statement of duality theorems – Concept of a game – Strategies – simple and mixed – Value of a game – Saddle point solution – Simple applications.

**Readings:**

- 1 Sydsaeter, Knut and Peter Hammond (2006), Essential Mathematics for Economic Analysis, 2nd Ed. Financial Times, Prentice Hall: Harlow, England.
- 2 Yamane, Taro (1975), Mathematics for Economists, PHI, New Delhi.
- 3 Allen, R.G.D. (1974), Mathematical Analysis for Economists, Macmillan Press, New Delhi.
- 4 Gupta, S.C. (1993), Fundamentals of Applied Statistics., S.Chand, NewDelhi.
- 5 Chiang, A.C. (1986), Fundamental Methods of Mathematical Economics, McGraw Hill, New York.
- 6 Handry, A.T. (1999), Operations Research, PHI, New Delhi.

ECON 414 – ECONOMETRIC THEORY

**Module 1: Regression Analysis**

Nature and Scope of Econometrics-The basic two Variable Regression model: Estimation, Statistical Inference and Prediction. Extensions of two variable regression model – regression through origin, Scaling and units of measurement, Functional forms of regression model- Multiple Regression: The problem of Estimation- Notation and assumptions, meaning of partial regression coefficients the multiple coefficient of determination  $R^2$  and the multiple coefficient of correlation  $R$ ,  $R^2$  and adjusted  $R^2$ , partial correlation coefficients, Interpretation of Multiple Regression Equation. Properties of MLE and Estimation.

**Module 2: The Problem of Inference**

The normality assumption, Hypothesis testing about Individual Partial Regression coefficients, testing the overall significance of the sample regression, testing the equality of two regression coefficients, restricted least squares, testing for structural stability of regression models, testing the functional form of regression.

**Module 3: Relaxing the assumptions of the Classical Linear Regression Model**

Multicollinearity, Heteroscedasticity and Autocorrelation- Nature, Consequences, Detection and Remedial Measures. Model selection criteria, types of specification errors, tests of specification errors, Errors of measurement.

**Module 4: Regression on Dummy Variables**

The nature of Dummy variables, regression on one quantitative variable and one qualitative variable, regression on one quantitative variable and one qualitative variable with more than two classes, regression on one quantitative variable and two qualitative variables, testing for structural stability regression models, Interaction effects, piece wise linear regression, the use of dummy variables- Binary choice model – LPM, problems in LPM, Probit and Logit Model

**Module 5: Dynamic Econometric Models:**

Autoregressive and Distributed Lag models: role of lag in economics, estimation of distributed lag models-Koyck, Rationalisation of the Koyck Model and Almon approach to distributed lag models. Nature and Preliminary analysis of economic time series, Integration, Tests of Stationarity, unit root test, Non-stationarity and the problem of spurious regression.

**Readings:**

1. Gujarathi, D (2003) Basic Econometrics, 4<sup>th</sup> Edition, New York: McGraw Hill
2. Greene, W. (2003), 'Econometric Analysis', 5<sup>th</sup> edition, Prentice Hall
3. Johnston, J. (1984) Econometric methods, 3<sup>rd</sup> edition, New York: McGraw Hill.
4. Maddala, G (1992) Introduction to Econometrics, 2nd ed., New York: MacMillan.

## M.Sc. Economics (*Five year Integrated Programme*)

### Semester VII

#### ECON 415 – ECONOMICS OF GROWTH AND DEVELOPMENT

##### **Module 1:**

Modern economic growth –basic features, trends and patterns- relevance of historical experience to contemporary UD countries- limited relevance- factors for – differing initial conditions- role of international migration and international trade.

##### **Module 2:**

Growth and development- conceptual issues. Issues in measurement- national income and per capita income – International comparison of per capita incomes – measurement of purchasing power parity. GNP- a biased index of development and welfare- construction of poverty weighted index of social welfare. Alternative measures of development – human development index- gender based development index, gender empowerment measure- international poverty index, global hunger index- social sector and development- Education and health.

##### **Module 3:**

Approach to the study of economic development – linear stage theory, structural change models, Neo Marxian dependency approach, false paradigm model, dualistic approach, neo-liberal free market approach, endogenous growth theory.

##### **Module 4:**

Growth models; Harrod Domar-knife edge equilibrium problem, Cambridge models- Joan Robinson, Kaldor, Neoclassical growth models- Solow swan Meade – criticism of neoclassical theory-emergence of endogenous growth models. Technological progress-embodied and disembodied – Hicks and Harrod version, production function approach to growth, total factor productivity and growth accounting.

##### **Module 5:**

Development and environment: Market based approach to environmental analysis, Harvesting of renewable nonrenewable resources, Measuring environmental values, economic growth and environment – sustainable development- policy measures. Ill effects- rain forest destruction, green house gases, global warming, climate change- policy- policy options in developing and underdeveloped countries.

##### **Readings:**

1. Debraj Ray, (1998), Development Economics Oxford University Press.
2. Simon Kuznets, (1966), Economic Growth, Rate structure and Spread, Yale University Press.
3. Michael P. Tadar,(1998), Economic Development Longman,
4. Adam Szirmai, (2005), Dynamics of socio economic development-An introduction, Cambridge University Press.
5. Amartya Kumar Sen, Growth Economics, Penguin Harmondsworth
6. Gerald Meir, (2003), Leading Issues in Economic Development, Oxford University Press.
7. A.P. Thirwall, (1994), Growth and Development ELBS.

## M.Sc. Economics (*Five year Integrated Programme*)

### Semester VIII

#### ECON 421 – MICROECONOMIC ANALYSIS: II

##### **Module 1: Alternative Theories of the firm**

Critical evaluation of marginal analysis; Baumol's sales revenue maximization model; Williamson's model of managerial discretion; Marris model of managerial enterprise; Behavioural model of Cyert and March

##### **Module 2: Advances in Distribution Theory**

Macro theories of distribution-Ricardian, Marxian, Kalecki and Kaldor's -Staffa model-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; Determination of rent, wages, interest and profit;

##### **Module 3: Welfare Economics**

Pigovian welfare economics; Pareto optimal conditions; value judgement; social welfare Function; Compensation principle; Inability to obtain optimum welfare – Imperfections, market failure, decreasing costs, uncertainty and non-existent and incomplete markets; Theory of Second Best- Arrow's impossibility theorem; Rawl's theory of justice, equity-efficiency trade off

##### **Module 4: General Equilibrium Theories**

Partial and general equilibrium; Walrasian excess demand and input-output approaches to general equilibrium existence- stability and uniqueness of equilibrium – general equilibrium, coalitions and monopolies; production without consumption- One sector model, homogeneous functions, income distribution; production without consumption-Two sector model, relationship between relative commodity and factor prices (Stoplier Samuelson theorem), relationship between output mix and real factor prices, effect of changes in factor supply in closed economy ( Rybczynski theorem), production and consumption.

##### **Module5: Economics of Uncertainty**

Individual behaviour towards risk, expected utility and certainty equivalence approaches, risk and risk aversion- sensitivity analysis, gambling and insurance, the economics of insurance, cost and risk, risk pooling and risk spreading , mean-variance analysis and portfolio selection, optimal consumption under uncertainty, competitive firm under uncertainty, factor demand under price uncertainty. The economics of search- different models, the efficient market hypothesis, stochastic models of inventory demand; market with incomplete information, search and transaction cost. The economics of information

##### **Readings:**

1. Koutsoyiannis, A. (2005) - Modern Microeconomics, Macmillan press, London
2. Layard, P.R.G. and Walters, A.W. (2001) - Microeconomic Theory, McGraw Hill, London.
3. Sen A(2005). - Microeconomics: Theory and Application, Oxford University Press, New Delhi
4. Stigler,G (2008). - Theory of Price, PHI, New Delhi
5. Varian, H.R.(2005) - Microeconomic Analysis, W.W.Norton, NewYork
6. Baumol,W.J (1998). - Economic Theory and Operations Analysis, Prentice Hall, New York
7. Pindyck and D. Rubinfeld (2005) - Microeconomics, East West Press, London
8. Nicholson Walter (2007)- Microeconomic Theory, The Drydon Press, London
9. E.K. Browning and J.M. Browning (2003) - Microeconomics; Theory and Applications, Kalyani Publisher, New Delhi.

**ECON 422 – MACROECONOMIC ANALYSIS II**

**Module 1: The Labour Market**

Profit Maximization and Labour Demand – Utility and Labour Supply – Aggregate Supply with/without Money Illusion – Neoclassical Labour Market Equilibrium – Introducing Unemployment – Principles of Effective Demand - The Keynesian Underemployment Equilibrium.

**Module 2: Inflation and Unemployment**

The Phillip’s Relationship – Theoretical Underpinnings of Phillip’s Curve –Natural Rate Hypothesis – Theory of Adaptive Expectation – Expectation Augmented Phillip’s Curve – The Rational Expectation and Luca’s Supply function – Policy Ineffective Theorem – The Lucas Critique – Rational Expectation and Implications of Monetary Policy.

**Module 3: Theories of Business Cycles**

Multiplier-Accelerator Interaction Model – Monetarists Interpretation of Business Cycles – Real Business Cycle Theory – Political Business Cycle Model.

**Module 4: The Post Keynesian Macroeconomics**

Walrasian and Keynesian Adjustment mechanism – Reinterpretation of Keynes – Dual Decision Hypothesis – Neo-Keynesian Quantity Constraint Models – Micro Theoretic foundations for Wage and Price Rigidity – Small Menu Cost – Efficient Wage Theory – Staggered Wage Setting – Insider-Outsider Model – Models of Coordination Failure.

**Module 5: Recent Advancements in Macroeconomic Policies**

The Debate over Rules vs. Discretion – Taylor’s Rule and Monetary Policy – Inflation Targeting – Issues Relating to Inflation Targeting – Country Experiences with Inflation Targeting.

**Readings:**

1. Rosalind Levacic and Alexander Rebmann (1982), *Macroeconomics: An Introduction to Keynesian – Neoclassical Controversies*, Macmillan.
2. Errol D’Souza (2008), *Macroeconomics*, Pearson.
3. David Romer (1996), *Advanced Macroeconomics*, McGraw-Hill.
4. David, G Pierce and Peter J Tysome (1985), *Monetary Economics: theories, evidence and policy*, Butter worths.
5. Laidler, D.E.W. (1984), *The Buffer Stock Notion in Monetary Economics*, *Economic Journal* 94, 17-34.



**ECON 423 – STATISTICAL METHODS IN ECONOMICS**

**Module 1: Sampling Theory**

Population and sample- Parameter and statistic-(Census method and sampling method of Data collection); Objects of Sampling- Methods of Sampling- Random and Non- Random; Techniques of sampling under each method- Sampling error and Non-Sampling error- Sampling distribution of a Statistic-Law of Statistical Regularity-Law of Inertia of Large Numbers-Central limit theorem

**Module 2: Mathematical Expectation**

Random variable-Discrete and continuous- Probability function of discrete Random Variable (Probability Mass Function)- Probability function of Continuous Random Variable (Probability Density Function)- Cumulative Distribution function; Mathematical Expectation-Theorems on Mathematical Expectation-Variance- Theorems on Variance

**Module 3: Theory of Estimation**

Meaning and concept of an Estimation-Concept of Estimator-Types of Estimation-Point and Interval Estimation- Desirable properties of an Estimator-Standard error of Estimator-Confidence limits for a population parameter

**Module 4: Theoretical Distribution**

Definition-types of theoretical distribution-Discrete theoretical distribution-Binomial Distribution-Poisson distribution; Continuous theoretical Distribution-Normal Distribution-Standard Normal Variate -Z distribution; Other Theoretical Distribution-Students “t” Distribution-Chi-Square ( $\chi^2$ ) Distribution- F-Distribution

**Module 5: Statistical Inference**

Formulation of Statistical Hypothesis; Testing of Hypothesis-Null Hypothesis and Alternative Hypothesis-Stages in Hypothesis testing-Types of Error in Hypothesis testing-Type I error and Type II error-Level of Significance and confidence coefficient-Critical region or rejection region; Two tailed test and one-Tailed Test; Computation of Test statistic and significance Test-small sample test-‘t’ Test-  $\chi^2$  test- F test; Large sample test- Z test; Test of Significance concerning correlation coefficient; Power of Test; Analysis of Variance

**Readings:**

1. Speigal.M. R. (1992), Theory and problems of Statistics, McGraw Hill, London.
2. Monga,G.S. (1972), Mathematics and Statistics for Economists, Vikas Publications, New Delhi.
3. Gupta.S.C. (1993) Fundamentals of Applied Statistics, S.Chand, New Delhi.

ECON 424 – APPLIED ECONOMETRICS

**Module 1: Applied Consumption Demand Analysis**

Engel curves, complete demand models; general and particular restrictions on demand functions, specification, estimation and applications of complete demand systems; Measures of economic inequality.

**Module 2: Production Analysis**

Relationship among production, cost and profit functions, specification, estimation and applications; frontier production functions, measurement of multifactor productivity.

**Module 3: Dynamic Economic Models**

Role of lags in economics – Estimation of Distributed Lag models – Adaptive Expectation models – Partial adjustment model – Method of instrumental Variable – Autoregressive model – Durbin h test – Almon approach to Distributed lag models – Casualty in Economics. Difference and trend stationary processes; unit roots; co integration; Granger causality; macro econometric models and critical review of existing Indian macro econometric models after 1990.

**Module 4: Applications of Qualitative and Limited Dependent Variable Models**

The nature of Qualitative response model - Logit and Probit models, Tobit model, Multinomial Logit, Nested Multinomial Logit Model

**Module 5: Panel Data Models**

Introduction – Estimation of panel data models – Fixed effects model – random effect model.

**Readings:**

1. D. N Gujarati (2003), Basic Econometric Methods, McGraw Hill, New York, 2004
2. Greene, W. (2003), 'Econometric Analysis', 5<sup>th</sup> edition, Prentice Hall
3. Nachane D.M (2006), Econometrics: Theoretical Foundation and Empirical Perspective

## M.Sc. Economics (*Five year Integrated Programme*)

### Semester VIII

#### ECON 425 – PUBLIC ECONOMICS

##### **Module 1: Public Choice**

Problems of preference revelation and aggregation of preferences; Voting systems; Arrow impossibility theorem; An economic theory of democracy; Politico-eco-bureaucracy; Rent seeking and directly unproductive profit seeking (DUP) activities.

##### **Module 2: Rationale for Public Policy**

Demand revealing schemes for public goods — Contributions of Clarks, Groves and Leyard, Tiebout model, theory of club goods; Stabilization Policy — Keynesian case for stabilization policy; Uncertainty and expectations; Failure of inter-temporal markets; Liquidity preference; Social goals; Poverty alleviation; Provision of infrastructural facilities, removing distributional inequalities and regional imbalances.

##### **Module 3: Taxation and Public Debt**

Trade off between equity and efficiency in Taxation ; Theory of measurement of dead weight losses; The problem of double taxation. Classical view of public debt; Compensatory aspect of debt policy; Burden of public debt; Sources of public debt;

##### **Module 4: Fiscal Policy**

Objectives of fiscal policy — full employment, anti-inflation, economic growth, redistribution of income and wealth; Interdependence of fiscal and monetary policies; Budgetary deficits and its implications; Fiscal policy for stabilization — automatic vs. discretionary stabilization; Alternative measures of resource mobilization and their impact on growth, distribution and prices; Balanced budget multiplier.

##### **Module 5: Indian Public Finances**

Lack of flexibility in Central and State budgets, shrinking size of development finance through budgets; Trends in public expenditure and public debt; Fiscal crisis and fiscal sector reforms in India; Reports of Finance Commissions in India.

##### **Readings:**

1. Goode, R. (1986), Government Finance in Developing Countries, TMH, New Delhi
2. Jha. R. (1998), Modern Public Economics, Routledge, London.
3. Musgrave, R.A. and P.B. Musgrave (1976), Public Finance in Theory and Practice, McGraw Hill, Kogakusha, Tokyo
4. Atkinson, A.B. and J.E. Stiglitz (1980), Lectures on Public Economics, TMH, New York.
5. Herber, B.P. (1967), Modern Public Finance, Richard D. Irwin, Homewood.
6. Stiglitz, J.E (2000), Economics of the Public Sector.

**ECON 511 – INTERNATIONAL TRADE AND FINANCE**

**Module 1: Foreign Exchange Rate**

Foreign Exchange; Foreign Exchange Rate; Foreign Exchange market and exchange rate determination ; functions of foreign exchange markets, uses of the foreign exchange Market; Theories of Foreign Exchange rate-the Mint parity theory ;the Purchasing power parity Theory; The Balance of payment Theory; Monetary approach to the purchasing parity Theory

**Module 2: Foreign Exchange market**

Introduction; Structure and Functions of foreign Exchange market; Methods of Foreign payments; Concepts of Spot and Forward exchange Rate; Determinants of Exchange Rate under Fixed and Flexible Exchange Rate; Regime and Role of hedging in the determination of exchange rate; Theory of Interest Rate parity

**Module 3: Open Economy Macro-Economics**

Determination of output, interest rates and exchange rates in the long and short runs; Macro-economic policy in an open economy and international policy coordination: fixed and Flexible exchange rates.

**Module 4: International Monetary Institutions and Issues**

Rise and Fall of Gold Standard; Bretten woods system, International Liquidity; Need, Objectives of IMF, The Subsequent Reforms of IMF; Currency crises, stabilization and other contemporary issues.

**Module 5: Trade Situations in India**

Trade problems and trade policies in India during the last five decades; Recent changes in the Direction and Composition of Trade and their Implications; Rationale and Impact of Trade reforms since 1991 on BOP; Employment and growth; Trade policy and Welfare with special reference to Developing countries; Instruments of Export Promotion and Recent Import and Export policies and Agenda for Future.

**Readings:**

1. Paul Krugman and Maurice Obstfeld (2006), International Economics: Theory and policy, latest edition
2. Salvatore D (1997), International Economics, PHI, New York
3. Dana ,M.S (2000), International Economics ,Routledge Publications ,London
4. Carbough ,R.J (1999), International Economics
5. Bhagwati.j (1981), International Trade, Cambridge University Press, London

**Module 1: Overview of Computer & Dealing with data**

Basic operating instructions – Describing the data to RATS and E-views software packages – SPSS – Reading the data – Computing statistics – Displaying the data – Data transformations and creating new series – Graphing the data – Using SRC file in the RATS package - The tools – Where are your data now? Missing data – RATS format – Error messages – Familiarity with different data base such as: PROWESS, Capital online, HBS, National Sample Survey Organization reports, Census data – National Health and Family Welfare reports - Displaying graphs on the screen – Saving and operating graphs – Printing graphs – Labeling graphs – Overlay (two scale) graphs – Multiple graphs on a page.

**Module 2: Scalars, Matrices and Functions**

Working with scalars – Getting information from RATS – The RATS Data types – Basic Data types – The Aggregate Data types – Matrix calculations.

**Module 3: Linear Regression & Hypothesis Testing**

Annotated regression output – Extensions to linear regression; A framework – Heteroscedasticity – Serial correlation – Example 5.1 – Instrumental variables – Example 5.2. Polynomial distributed lags – Example 5.3. Choosing lag length information criteria – Example 5.4. Grunfeld's investment equations; Use of SUR - Example 6.1. - Testing for Heteroscedasticity – Serial correlation – Granger – Sims causality/Exogeneity tests – Chow or structural stability tests.

**Module 4: Non Linear Estimation**

General principles and problems – Newton-Raphson and related methods – Setting up your model; Non-linear least squares/Two stage least squares; Example 7.1. Generalized instrumental variables.

**Module 5: Introduction to Forecasting**

Introduction – Forecast performance – Univariate forecasting – Box-Jenkins models – ARIMA procedures.

**Readings:**

1. Applied Econometric Time Series (1995), John Wiley & Sons, New York.
2. Box, G.E.R. and Jenkins, G.M. (1976), Time Series Analysis, Forecasting and Control, Holden Day, San Francisco.
3. Hamilton. J. (1994), Time Series Analysis, Princeton University, Princeton.

**ECON 513 – RESEARCH METHODOLOGY**

**Module 1:**

Meaning of research- objectives of research - Approach to research- Significance of research - Types of research- Research in social science - Facts, theories and concepts in social science research - Research Design - features of a good research design.

**Module 2:**

Research problem – Identifying the research problem – formulation of research problem, concept of hypothesis- role and formulation of hypothesis- scientific methods of research- nature of scientific research- stages of scientific methods.

**Module 3:**

Logic and Scientific method- deductive and inductive methods- the case study methods- merits and demerits of case study methods- survey methods- merits and demerits of survey methods- type of survey- selecting the survey method – sample survey different types – merits and demerits.

**Module 4:**

Schedule and questionnaire – principle underlying the construction of questionnaire- measurement and scaling techniques- processing and analysis of data

**Module 5:**

Interpretation and report writing- steps- bibliography quality of a good research report.

**Readings:**

1. C.R. Kothari (1985),- Research Methodology, Wiley Eastern Ltd., New Delhi.
2. W. G. Cochran (1977)- Sampling Technique, John wiley, New York.
3. W.J. Goode and P.K. Hatt (1952) - Methods in Social Research, McGraw Hill, New York.
4. T.S. Wilkinson and P.L. Bhandarkar (1994) Methodology and Techniques of social Research, Himalaya Publishing
5. Earl Babies (2006), The practice of Social research, Wadsworth Publishing

## M.Sc. Economics (*Five year Integrated Programme*)

### Semester IX

#### ECON 514– INDIAN ECONOMY: ISSUES AND POLICIES – I

##### **Module I: Resource Development in India**

Resource profile of India-policies relating to the development of land, forest, water, fisheries and mineral resources of India- Economic development and Environmental degradation- Land degradation and soil erosion- Deforestation – Faulty utilization of water resources – Mining effects- Atmospheric pollution – Measures taken -Global climate change and India-various Global summits and their implications to India

##### **Module II: Profile of Human Resources of India**

Characteristics of Indian Population - qualitative and quantitative aspects – Population as a factor of development- Population policy –National population Policy (2000), Demographic dividend- Human Development during the plan period- Appraisal of Government measures – Human Development Index of States and India – India’s Human Development record in global perspective.

##### **Module III: Infrastructure Development in India**

Infrastructure and Economic development -Economic Infrastructure –Energy, Power, Transport, communication, science and technology-policies pertaining to Economic Infrastructure Development –Financing of infrastructure development –PPP model-Financing institutions-international collaborations -Social Infrastructure-Education, Health – Achievements and failures of Education and Health systems of India –outlook for future development of social Infrastructure

##### **Module IV: Planning Economic Development**

Alternative development strategies- goal of self reliance based on import substitution and the post 1991 globalization strategies based on stabilization and structural adjustment packages – Indicative planning – Decentralized planning – District planning- Local planning- Panchayat Experience -73<sup>rd</sup> and 74<sup>th</sup> constitutional Amendments- critical Evaluation of Plan performance in India.

##### **Module V: Agriculture and Rural Development**

Current issues in Indian Agriculture-New thrust Areas in agriculture and future prospects of Green Revolution- Commercialization and diversification -Food security issues-Pricing of agricultural inputs and outputs-subsides in Agriculture-Economic Reforms and Agriculture-Impact of WTO on Indian Agriculture – Food processing- Agricultural policies- Public Distribution System- Agricultural finance -, Agriculture inputs - marketing and warehousing – policies for sustainable Agriculture- Impact of public Expenditure on Agricultural Growth – Rural Development programmes including poverty alleviation programmes- Bharat Nirman, Mahatma Gandhi National Rural Employment Guarantee programme – Water Supply, Sanitation, Public Health Programmes.

##### **Readings:**

1. Ahluwalia. I.J. and I.M.D Little (Eds) (1999), India’s Economic Reforms and Development, Oxford University Press (OUP), New Delhi.
2. Bardhan, P.K. (1999), The Political Economy of Development in India, OUP, New Delhi.
3. Bawa,R.S. and P.S. Raikhy,(1997), Structural Changes in Indian Economy, Gurunanak Dev University press, Amritsar.
4. Chakravarty, S. (1987), Development planning: The Indian Experience, OUP, New Delhi.
5. Datt.R. (2001), Second Generation Economic Reforms in India, Deep & Deep Publications.
6. Ruddar Datt and K.P.M. Sundaram. (2008), Indian Economy, Sultan Chand and Co, New Delhi

## M.Sc. Economics (*Five year Integrated Programme*)

### Semester IX

#### ECON 515 – CONTRIBUTIONS BY NOBLE LAUREATES I

##### **Module 1: Welfare Economics**

John Hicks; Kenneth Arrow; James Buchanan; Amartya K Sen; Leonid Kantorovich; Tjalling Koopmans

##### **Module 2: Open Economy Macroeconomics, Theory of General Equilibrium and Development of National Accounts**

Bertin Ohlin; James Meade; Robert Mundell; Paul Krugman; Gerard Debreu; Richard Stone

##### **Module 3: Theory of Money, Economic Fluctuations and Policy**

Gunnar Myrdal; Friedrich Hayek; Milton Friedman; Lawrence Klein; Robert Lucas; Finn E Kydland; Edward C Prescott; Edmund Phelps

##### **Module 4: Economic Organizations, Game Theory and Decision Making**

Herbert Simon; John Harsanyi; John Forbes Nash; Reinhard Selten; Robert Aumann; Thomas Shelling

##### **Module 5: Tools in Economics and Mechanism Design Theory**

Ragnar Frisch; John Tinbergen; Paul Samuelson; Wassily Leontief; Trygve Haavelmo; James Heckman; Robert Engle; Clive Granger; Leonid Hurwicz; Eric Maskin; Roger Myerson

##### **Readings:**

1. Lindbeck, Assar (ed.) (1992), Nobel lectures in economic sciences 1969-1980, World Scientific, London.
2. Maler, Karl-Göran (ed.) (1992), Nobel lectures in economic sciences 1981-1990, World Scientific, London.
3. Puttaswamaiah (1995), Nobel Economists, Vol.2 1975-85, Indus Publishing Company, New Delhi.



## M.Sc. Economics (*Five year Integrated Programme*)

### Semester X

#### ECON 521 – INDIAN ECONOMY: ISSUES AND POLICIES - II

##### **Module 1: Industrial Development**

Critique of industrial policies-industrial reforms-Sources of Industrial finances- Banks, share market, Insurance companies, Pension funds, Non banking sources and Foreign Direct Investment (FDI) – Role of Foreign Capital for direct investment and portfolio investment-Multinationals – reform of public sector enterprises-privatization and disinvestment debate-globalization and its impact on industrial development- regional disparities in industrial and structural growth -issues facing small scale sector-unorganized sector- Reservation policy relating to small scale Industries- Industrial relations and Labour welfare-National commission on labour- issues in labour market reforms.

##### **Module 2: India's External Sector**

Foreign Trade: Salient features of India's Foreign trade- composition, direction and Organisation of Trade – New Economic policy and trade: Intellectual Property Rights, Implications of TRIPS, TRIMS, GATS and New EXIM policy- Impact of WTO on various aspects of Indian Economy- Balance of Payments, tariff policy- New Exchange Rate Regime: Partial and full convertibility, Capital Account convertibility, Exchange rate and WTO requirements

##### **Module 3: Indian Public Finance**

Finances of central and state governments-an overview of central budgets-trends-public debt of India-deficit financing in India-fiscal reforms – Fiscal Responsibility Act-recommendations of tax and expenditure commissions-centre-state financial relations- Constitutional provisions relating to fiscal and financial powers of the states – financial aspects of Sarkaria Commission –The Finance commission awards-thirteenth finance commission award-centre-state conflict on finances

##### **Module 4: Financial System in India**

Money and capital markets- Changing role of RBI -financial sector reforms-monetary policy of RBI and interest rate policies- issues of commercial banks-stock exchange-working of SEBI and capital market reforms- Development finance Institutions, foreign banks and non banking financial institutions-Analysis of price behavior in India-policies of price control

##### **Module 5: Current Indian Economic Issues**

Adverse impact of Economic Reforms (privatization, liberalization and globalization)- impact of global financial crisis on the Indian economy-response of India to global crisis-Decelerating agricultural growth- Causes of environmental degradation-jobless growth and unemployment –inequality and economic power- poverty and deprivation-parallel economy-Growing regional inequalities- Rural urban disparities- problems of urbanization and migration- Balance of payments crisis -Growing fiscal deficit

##### **Readings:**

1. Ahluwalia. I.J. and I.M.D Little (Eds) (1999), India's Economic Reforms and Development, Oxford University Press (OUP), New Delhi.
2. Bardhan, P.K. (1999), The Political Economy of Development in India, OUP, New Delhi.
3. Bawa,R.S. and P.S. Raikhy,(1997), Structural Changes in Indian Economy, Gurunanak Dev University press, Amritsar.
4. Chakravarty, S. (1987), Development planning: The Indian Experience, OUP, New Delhi.
5. Datt.R. (2001), Second Generation Economic Reforms in India, Deep & Deep Publications.
6. Ruddar Datt and K.P.M. Sundaram. (2008), Indian Economy, Sultan Chand & Co, New Delhi

ECON 522 - ECONOMICS OF EDUCATION

**Module 1: Theory of Human Capital Formation**

Concept of human capital forms of human capital – human capital and economics growth – measures of human capital – limitations of human capital approach

**Module 2: Education and Human Capital Formation**

Education as an economic good. consumption and investment aspects of education- private and social benefit of education – contribution of education to economic development – the methods of schults and education and human values.

**Module 3: Demand For Education**

Education and productivity – private and social demand for education- investment in education – rate of return analysis – private and social rates of return – limitations of rate of return approach – rate of return and earnings distribution – equity aspects.

**Module 4: Supply of Educational Facilities**

Components of educational supply – private and public facilities – pattern of organization and operation of education industry – organization and operation of different limitations of production function analysis.

**Module 5: Financing of Education**

Private resources in education and their limitations – rationale behind public involvement in education – forms of public financing subsidization, secondary, and post – secondary education in india – trends and issues – The New Education Policy.

**Module 6: Education and Manpower Planning**

Importance of educational and manpower planning in development and less – development countries – the operation of markets for unskilled and skilled labour – approaches to educational and manpower planning cost benefit approach – O.E.C,D. approach – M.R.P. approach – educational planning in E.D.C's – educational planning in India.

**Module 7: Migration and On-the-Job Training**

Migration and human capital formation – labour market and migration in India – on-the-job training and skill formation.

**Readings**

1. Mark Blaug,(2000) Economics of Education
2. K.Venkatasubramanian,(1998) Education and Economic Development of Tn.
3. G.S.Parnes, Planning Education for Economic Social Development.
4. Cohn,(2005) Economics of Education.
5. Tilak( 2006), Economics of Inequality in Education
6. Sudha V.Rao (2003), Education and Rural Development
7. Theodore W. Schultz (1999) , Investment in Human Capital
8. Nalla Gounden A.M.(1998), Education And Economic Development

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### Semester X

#### ECON 523 – FINANCIAL ECONOMICS

##### **Module 1: Expected Utility Theory and Choice under Uncertainty**

The Economic properties of utility functions – concept & measures to model attitudes towards risk – Expected utility maximization – Risk aversion – Motivation – First order stochastic dominance – Second order stochastic dominance - stochastic dominance Vs dominance – risk: Risk versus return: Mean – variance analysis.

##### **Module 2: Risk , Asset Pricing Models and term Structure of Interest Rate**

Trade- off between risk and return (the Markowitz model) – Efficient frontier of risky assets – Value at risk of a portfolio – computing VAR – Definition of VAR - Security market line – standard and Zero Beta CAPM – Empirical evidence on CAPM – Deriving APT- Measuring performance using APT - Drawing the term structure – Methods of computing the yield to maturity – Market expectations theory of the term structure – yield curve analysis – Liquidity preference theory of the term structure – Market segmentations theory of the term structure – Estimating the expected return of a bond for portfolio analysis.

##### **Module 3: Models of Securities Prices in Financial Markets**

Single period models – Asset dynamics – Portfolio and Wealth process – Multi-period models – General model specifications – Cox-Ross Rubinstein Binomial model – Continuous time models – Simple facts about the Merton Black-Scholes model – Brownian Motion process – Diffusion process – Stochastic Integrals – it's rule.

##### **Module 4: Efficiency & Volatility in Financial Markets**

Three forms of EMH and their implications for financial markets – Random walk – Martingales - Causes of Volatility – volatility testing.

##### **Module 5: Option: Features and Price Bounds**

Basic taxonomy of option analysis – Payoff structure of an option – Price Bounds for Options (depending on their type, the time left to expiry and their strike price) – put – call parity relationship - Risk Neutral pricing – basic notions of Binomial – Multinomial – Black-Scholes Pricing – What the hedge ratio ('Delta') – Gamma – Vega Theta – Rho means.

##### **Readings:**

1. D.G. Luenberger (1998), *Investment Science*, Oxford University Press, New York.
2. J. Cvitanic and Zapatero F (2004), *Introduction to Economics and Mathematics of Financial Markets*, MIT Press, Cambridge, London.
3. E. J. Elton and M.J. Gruber (2005), *Morden Portfolio Theory and Investment Analysis*, Wiley,
4. Z. Bodie, A. Kane and A.J. Marcus (2004), *Investments*, Irwin McGraw – Hill, London.
5. R. A. Haugen (2001), *Morden Investment Theory*, Fifth Edition, Prentice Hall,
6. J. C. Hull (2004), *Futures and Option Markets*, Prentice- Hall, New Jersey

**M.Sc. Economics (*Five year Integrated Programme*)**

**Semester X**

**ECON 525 – CONTRIBUTIONS BY NOBEL LAUREATES II**

**Module 1: Institutional Change, Development and Growth**

Simon Kuznets; Theodore Schultz; Arthur Lewis; Robert Solow; Robert Fogel; Douglass North

**Module 2: Markets with Asymmetric Information; Markets and Efficient Utilization of Resources**

George Akerlof; Michael Spence; Joseph E Stiglitz; James Mirrlees; William Vickrey; Maurice Allais

**Module 3: Financial Markets and Instruments**

James Tobin; Franco Modigliani; Harry Markowitz; Merton Miller; William Forsyth Sharpe; Robert C Merton; Myron Scholes

**Module IV: Behavioural Economics**

Daniel Kahneman; Gary Becker; Daniel Mc Fadden; Vernon L Smith

**Module V: Economics of Governance; Common Property Rights and Public Regulations**

Elinor Ostrom; Oliver Williamson; George Stigler; Ronald Coase

**Readings:**

1. Lindbeck, Assar (ed.) (1992), Nobel lectures in economic sciences 1969-1980, World Scientific, London.
2. Maler, Karl-Göran (ed.) (1992), Nobel lectures in economic sciences 1981-1990, World Scientific, London.
3. Puttaswamaiah (1995), Nobel Economists, Vol. 2 1975-85, Indus Publishing Company, New Delhi.