

Syllabus for M A



**DEPARTMENT OF ECONOMICS
RAJIV GANDHI UNIVERSITY
Rono Hills-791112
2015**

RAJIV GANDHI UNIVERSITY
DEPARTMENT OF ECONOMICS
COURSE STRUCTURE OF MASTER OF ECONOMICS
(UNDER CREDIT BASED CHOICE SYSTEM)

BRIEF OUTLINE

The proposed Course (Syllabus) is as per the guidelines of UGC Regulation on Credit Based Choice System (CBCS). In the first and second semester all the papers are compulsory, while in the third semester four papers are compulsory and one paper is an open elective course. The students are to opt for one open elective paper which will be offered by other departments. In this syllabus ECO-O- 505 (Basics Issues of Indian Economy) will be offered to the students of other department as an open elective paper. In the fourth semester apart from two compulsory papers, students are to opt for three other elective papers out of the total seven elective papers offered. Each paper carries 100 marks – 20 marks for internal (continuous) evaluation during the semester and 80 marks for external evaluation through end semester examination. Each semester will have 20 credits, comprising five papers of four credits each.

FIRST SEMESTER

COURSE CODE	TITLE OF THE PAPER	CREDIT	CONTACT HOURS
ECOC-401	Micro Economic Theory -I	04	40
ECOC-402	Macro Economic Theory	04	40
ECOC-403	Public Economics	04	40
ECOC-404	Mathematics for Economics	04	40
ECOC-405	Growth and Development Economics	04	40

SECOND SEMESTER

ECOC-411	Micro Economics II	04	40
ECOC-412	Monetary Economics	04	40
ECOC-413	International Economics	04	40
ECOC-414	Statistics	04	40
ECOC-415	Indian Economy	04	40

THIRD SEMESTER

ECOC-501	Environmental Economics	04	40
ECOC-502	Econometrics - I	04	40
ECOC-503	Financial Economics	04	40

ECOC-504	Population Economics	04	40
ECOO-505	Basic Issues of Indian Economy	04	40

FOURTH SEMESTER

ECOC-511	Economy of North East India	04	40
ECOC-512	Agricultural Economics	04	40

Elective Paper (any three)

ECOE-513	Development Economics	04	40
ECOE-514	Econometrics-II	04	40
ECOE-515	Economics of Infrastructure	04	40
ECOE-516	Gender and Development Economics	04	40
ECOE-517	Computer Applications in Economics	04	40
ECOE-518	Regional Economics	04	40
ECOE-519	Dissertation Writing	04	40

ECO-C-401: MICRO ECONOMIC THEORY – I

Objectives: The present Syllabus has been modified to cater the Micro Economic Theory to an advanced level.

Module I: Consumer's Choice

Preference ordering and utility function – Utility maximization and Marshallian demand function – Indirect utility function and cost function – Hicksian demand function – Properties of demand function: Engel aggregation, Cournot aggregation, homogeneity - Linear expenditure system.

Module II: Theory of Production

Production function – Returns to scale and returns to a factor - Elasticity of factor substitution - Production function: Homogeneous, Cobb-Douglas, CES and their properties – Derivation of Cobb-Douglas and Leontief production functions from CES production function.

Module III: Theory of Firms and Market

Perfect competition and its critique; Duopoly (Cournot model) – Collusive oligopoly: Cartel and Price Leadership model; Chamberlain's monopolistic competition
The traditional theory of firm and its evaluation – Baumol's sales revenue maximization model – Limit pricing theory.

Module IV: Welfare Economics

Pareto Optimality: Its conditions - Consumption, production and exchange, critical evaluation of Pareto Optimality – Compensation tests: Kaldor, Hicks and Scitovsky and Little's criterion – Bergson's Social welfare function.

Recommended Readings:

1. Koutsoyiannis, A., *Modern Microeconomics*, Macmillan Press, London, 1979.
2. Varian, H., *Microeconomic Analysis*, W.W. Norton, New York, 2000.
3. Baumol, W. J., *Economic Theory and Operations Analysis*, Prentice Halls of India, New Delhi, 1982.
4. Henderson, J.M. and R.E. Quant, *Microeconomic Theory: A Mathematical Approach*, McGraw Hill, New Delhi, 1980.
5. Kreps, M.D., *A Course in Microeconomic Theory*, Prentice Hall of India, New Delhi, 1992.
6. Ray, N.C., *An Introduction to Microeconomic Theory*.
7. Mishan, E.J., *Welfare Economics: An Assessment*, North Holland, Amsterdam, 1969.
8. Sen, Anindya, *Microeconomics, Theory and Applications*, Oxford University Press, 1999.
9. Pindyck, R. S. Rubinfeld, D.L. & Mehta, P.L. *Microeconomics*, Pearson Education

ECO-C-402: MACRO ECONOMIC THEORY

Objectives: The old syllabus did not have some important macro economic topics which have been incorporated in the new syllabus

Module I: Classical and Keynesian Economics

Classical theory of income, employment, wage rate interest and price level, Classical dichotomy, Say's Law, Causes of unemployment – Evaluation of classical model.

Keynesian critique of classical model; Keynesian Theory of income, employment, consumption, interest and multiplier

Module II: Neo-Classical and Keynesian Synthesis

IS-LM model – Relative effectiveness of monetary and fiscal policies – Extension of IS-LM model to an open economy (Mundell-Fleming model).

Module III: Theories of Consumption

Extension of Keynesian consumption function to long run – Relative Income Hypothesis– Life Cycle Hypothesis– Permanent Income Hypothesis.

Module IV: Theories of Investment and Business Cycle

Investment demand: Payback period, Present Value criterion for investment, Internal Rate of Return, Marginal Efficiency of Capital and Investment.

Schumpeterian and Keynesian theories – Multiplier-accelerator interaction (Samuelson)

Recommended Readings:

1. Shapiro, Edward, *Macroeconomic Analysis*, Galgatia Publication, New Delhi, 1996.
2. Branson, W. H., *Macroeconomic Theory and Policy*, Universal Book Stall, New Delhi, 1979.
3. Kaldor, N., *Essays on Economic Stability and Growth*, Duckworth, London.
4. Jha, R., *Contemporary Macroeconomic Theory and Policy*, New Age International (P) Ltd., New Delhi, 1999.
5. Mueller, M.G. (ed.), *Readings in Macroeconomics*, Surjeet Publications, Delhi, 1978.
6. Gampinski, J. H., *Macroeconomic Theory*, McGraw Hill, New York, 1982.
7. Keynes, J. M., *General Theory of Employment, Interest and Money*, Macmillan, London, 1936.
8. Frayen R.T., *Macroeconomics: Theories and Policies*, 8th Edition, Pearson Education, 2009
9. Blanchard, O (2008): *Macroeconomics*, fourth edition, Pearson Education
10. Mankiw, N. G (1992): *Macroeconomics*, fourth edition, Worth Publishers
11. Gordon, R.J: *Macroeconomics*, twelfth edition, PHI/Eastern Economy edition
12. Parkin,M (1989): *Macroeconomics*, tenth edition, Addison-wesley Publishing Company, New York

ECO-C-403: PUBLIC ECONOMICS

Objectives: Some new topics of Public Economics have been included.

Module I: Rationale for Government Intervention and public Expenditure

Role of government in economic activity: Allocation, distribution and stabilization functions (Musgrave's) – Provision of public goods and merit goods – Externalities, market failure and government intervention. Wagner's law of increasing state activities –Lindhal's model - Samuelson's model –Paradox of voting.

Module II: Taxation

Principles of taxation: Benefit and ability to pay approaches and neutrality in taxation – Taxable capacity, absolute and relative and its determinants – Deadweight loss of tax and its estimation, elasticity and buoyancy of taxation.

Module III: Public Budget and Public Debt

Incremental budget & zero-base budgeting –deficits in budget: Revenue, Fiscal and Primary - Public debt: Sources, effects and burden – Ricardian equivalence - Domar's approach to burden of Public debt, management of public debt.

Module IV: Fiscal Policy and Fiscal Federalism.

Compensatory fiscal policy, balanced budget multiplier - Principles of division of financial resources in a federation – Horizontal and vertical imbalance – Finance Commission and Planning Commission in resources transfer from centre to the states in India – Fiscal reforms in India.

Recommended Readings:

1. Musgrave, R. A., *The Theory of Public Finance*, McGraw Hill, Kogakhusa, Tokyo, 1959.
2. Musgrave, R. A. and P. B. Musgrave, *Public Finance in Theory and Practice*, McGraw Hills, Kogakhusa, Tokyo.
3. Buchanan, J. M., *The Public Finances*, Richard D Irwin, Homewood, 1970.
4. Jha, R., *Modern Public Economics*, Routledge, London, 1998.
5. Atkinson, A. B. and J. E. Stiglitz, *Lectures on Public Economics*, Tata McGrawHill, NewYork, 1980.
6. Peacock, A. and C. K. Shaw, *The Economic Theory of Fiscal Policy*, George Allen and Unwin, London, 1978.
7. Buchanan, J. M., *Public Principles of Public Debt – A Defence and Restatement*, Richard Irwin, Homewood, 1958.
8. Musgrave, R. A. and C. Shoup (Eds.), *Readings in the Economics of Taxation*, George Allen and Unwin, London, 1970.
9. Chelliah, Raja J. et al, *Trends and Issues in India's Federal Finances*, National Institute of Public Finance and Policy, New Delhi, 1981.

ECO-C-404: MATHEMATICS FOR ECONOMICS

Objectives: The knowledge of mathematics is useful to the understanding of economics. The syllabus has been revised to make it more relevant.

Module I: Co-ordinate Geometry, Algebra and Matrices

Equation of a straight line and circle, concepts of parabola, hyperbola and ellipse.

Binomial expansion for a positive, negative or fractional exponent – Exponential and logarithmic series.

Scalar and vector - Length of a vector – Addition, subtraction and scalar products of vectors – Angle between two vectors – Concepts of Vector space, Linear combination and linear dependence.

Types of Matrices - Matrix operations – Determinants - Matrix inversion and solution of simultaneous equations - Cramer's rule – Rank of a matrix – Characteristic roots and vector.

Module II: Differentiation

Limit and continuity of functions - Basic rules of differentiation – Partial and total differentiation - Indeterminate form - L' Hospital Rules - Maxima and minima – Points of inflection – Constrained maximization and minimization – Lagrangean multiplier – Applications relating to elasticity of demand and supply, equilibrium of consumer and firm, Difference Equation: first and second order

Module III: Integration

Integral as anti-derivative – Basic rules of integration – Indefinite and definite integral – Beta and Gamma functions – Improper integral of the form $\int_0^{\infty} e^{-x^2} dx$ - Applications relating to derivation of total revenue and total cost from marginal revenue and marginal cost, estimation of consumer surplus and producer surplus – First order differential equation.

Module IV: Optimization and Linear Programming

Principles of optimization: functions of several variables - Elements of set theory: convexity and concavity - Concept, objectives and uses of linear programming in economics - Graphical method – Slack and surplus variables - Feasible region and basic solution, problem of degeneration - Simplex method – Solution of primal and dual models.

Recommended Readings:

1. Allen, R.G.D., *Mathematical Analysis for Economists*, Macmillan, 1976.
2. Chiang, A.C., *Fundamental Methods of Mathematical Economics*, McGraw Hill, Kogakusha, New Delhi, 1974.
3. Yamane, T., *Mathematics for Economists*, Prentice Halls, New Delhi, Indian Reprint, 1986.
4. Baumol, W.J., *Economic Theory and Operations Analysis*, Prentice Hall, Indian Reprint 1986.
5. Hadley, G, *Linear Algebra*, Addison-Weley Publishers Company, Tokyo.
6. Vatssa, B.S., *Theory of Matrices*, Wily Eastern Limited, New Delhi, Reprint, 1995.
7. Henderson, J.M. and R.E. Quandt, *Microeconomic Theory: A Mathematical Approach*, McGraw Hill, New Delhi, 1980.

ECO-C-405: GROWTH AND DEVELOPMENT ECONOMICS

Objective: In the old syllabus, planning was a part of Growth Economics. Because of this amalgamation, growth models could not be put into proper focus. In the new syllabus some new ideas on growth models are incorporated.

Module I: Models of Economic Growth

Recap of Classical growth theories, Harrod & Domar models and unstable growth, New Classical model of Solow, Cambridge models: Joan Robinson & Kaldor – Cambridge capita controversy.

Module II: Technical Change and Endogenous Growth

Hicksian and Harroddian versions of neutral technical progress – Labour and capital augmenting technical progress (Harrod and Solow versions only) – Disembodied and embodied technical progress – Exogenous and Endogenous growth models: Roemer's Endogenous growth model.

Module III: Theories of Underdevelopment

Economic growth and economic development – measurement of economic development- Problems in measures of development – Human Development Index (HDI) – Obstacles to economic development.

Vicious circles of poverty and its critique, Nelson's low level equilibrium trap, Myrdal's theory of cumulative causation.

Module IV: Approaches to Economic Development

Traditional approach to development: Balanced vs. Unbalanced growth – Rosenstein-Rodan's theory of big push – Nurkse's model – Hirschman's theory – Lewis model – Ranis-Fei model.

Recommended Readings:

1. Sen, A. (Ed), *Growth Economics*, Penguin, Harmondsworth, 1990.
2. Adelman, J., *Theories of Economic Growth and Development*, Stanford University Press, 1961.
3. Domar, E.D., *Essays in Theory of Economic Growth*, Oxford University Press, New York.
4. Kaldor, N., *Essays on Economic Stability and Growth*, Duckworth, London, 1980.
5. Solow, R. M., *Growth Theory: An Exposition*, Oxford University Press, 2000. .
6. Thirlwall, A.P., *Growth and Development*, Macmillan, London, 1999.
7. Meier, G, *Leading Issues in Economic Development*, Oxford University Press, New Delhi, 1990.
8. Higgins, B., *Economic Development*, W.W. Norton, New York, 1959.
9. Todaro, M.P., *Economic Development*, Longman, London, 1996.
10. Myrdal, G., *Economic Theory and Underdeveloped Regions*, Duckworth, London, 1957.
11. Ray, D., *Development Economics*, Oxford University Press.
12. UNDP, *Human Development Reports*, Oxford University Press.

ECO-C-411: MICRO ECONOMIC THEORY – II

Objective: The main objective of the paper is to acquaint the students with advanced concepts of Micro Economic Theory.

Module I: Choice under Uncertainty and Risk

Choice under uncertainty and risk - Neumann-Morgenstern utility index, classes of measures – Axioms, expected pay off and expected utility - Prediction from Neumann-Morgenstern utility index – Relationship between the shape of the utility function and behaviour towards risk - Elasticity of marginal utility and risk aversion, absolute and relative risk aversion.

Module II: Game Theory and Imperfect Information

Concept – Two-person zero-sum and constraint-sum game – Pure strategy, maximin and minimax – Concept of equilibrium: Saddle point, mixed strategy and minimax theorem – Two-person co-operative game, non-co-operative game – Dominated strategy – Nash equilibrium – Prisoner's dilemma and its repetition – Nash equilibrium in oligopoly. Asymmetric information, adverse selection, moral hazard and Signalling – Applications to insurance and lemons markets.

Module III: Theory of Cost and Factor Pricing

Derivation of cost function from production function - Technical progress (Hicksian and Harroddian version) and factor shares – Theories of distribution: Marginal productivity theory and Euler's theorem, Ricardo, Kalecki and Kaldor.

Module IV: Theory of General Equilibrium

Brouwar's fixed point theorem - Principles of general equilibrium, existence, uniqueness and stability (Walrasian and Marshallian conditions of stability) – Walrasian general equilibrium system – Non-Walrasian equilibrium.

Recommended Readings:

1. Maddala, G.S. and Ellen Miller, *Microeconomics---Theory and Applications*, Tata McGraw-Hill Publishing Company Limited, New Delhi, 2004.
2. Koutsoyiannis, A., *Modern Microeconomics*, Macmillan Press, London, 1979.
3. Varian, H., *Microeconomic Analysis*, W.W. Norton, New York, 2000.
4. Baumol, W. J., *Economic Theory and Operations Analysis*, Prentice Halls of India, New Delhi, 1982.
5. Henderson, J.M. and R.E. Quandt. *Microeconomic Theory: A Mathematical Approach*, McGraw Hill, New Delhi, 1980.
6. Kreps, M.D., *A Course in Microeconomic Theory*, Prentice Hall of India, New Delhi, 1992.
7. Ray, N.C., *An Introduction to Microeconomic Theory*.
8. Borch, K.H., *The Economics of Uncertainty*, Princeton University Press, Princeton, 1968.
9. Diamond and Rothschild (Eds.), *Uncertainty in Economics*, Academic Press, New York, 1978.
10. Ryan and Pearce, *Price Theory*, Macmillan.

ECO-C-412: MONETARY ECONOMICS

Objective: In view of growing importance of Money market a paper on monetary economics has been introduced.

Module I: Concept of Money

Theoretical and empirical definition of money-simple sum vs. weighted monetary aggregates-Barnet's approach to monetary aggregation-Divisia monetary aggregates. RBI's approach to monetary aggregates.

Module II: Demand and Supply of Money

The demand for money – Tobin's portfolio selection and Baumol's transaction demand for money - Friedman's restatement of quantity theory of money – Laidler's buffer stock approach-Supply of money – Inside and outside money, Gurley-Shaw's approach – Behavioural approach of money supply - Concept of exogenous money supply, Friedman's theory – Endogenous money supply, Kaldor's theory.

Module III: Monetarism and New-Classical Macroeconomics

Phillips Curve – Monetarism: Basic elements of monetarism – Monetarists proposition. Rational expectations: New-classical tenets-instant adjustment of market-real business cycle theory-Rational expectation and Macroeconomic model-Lucas critique.

Module IV: Inflation and Monetary Policy

Various theories of inflation-Monetarist view on inflation-Concept of core inflation-measures of inflation (CPI, WPI, Core, Headline, GDP deflator). Monetary targeting-Inflation, targeting-Interest rate targeting-p-star model.

Rule vs. discretion in the conduct of monetary policy-monetary policy measures and central bank-measures of monetary control.

Recommended Readings:

1. Chandler, L. V. and S. M. Goldfeld, *The Economics of Money and Banking*, Harper & Row, New York, 1977.
2. Bhole, L. M., *Financial Institutions and Markets*, Tata McGraw Hill Company Ltd., New Delhi, 1999.
3. Gupta, S B, *Monetary Economics Institutions and policy*, S.Chand & Co., New Delhi, 1995.
4. Branson, W H, *Macroeconomic Theory and Policy*, Universal Book Stall, New Delhi, 1979.
5. Patinkin, *Money, Interest and Prices*, Harper and Row, New York
6. Khan M. Y., *Indian Financial System*, Tata McGraw Hill, New Delhi, 1996.
7. Coghlan, R., *The Theory of Money and Finance*, Macmillan, London, 1980
8. Frisch, H., *Theories of Inflation*, Cambridge University Press, 1983.
9. Sheffrin, S.M., *Rational Expectation*, Cambridge University Press, 1996.

ECO-C-413: INTERNATIONAL ECONOMICS

Objective: In the age of globalization, International Economics is very important. The contents of the earlier paper have been expanded.

Module I: Theory of International Trade

Review of theory of comparative advantage – Modified Ricardian model: Haberler's opportunity cost theory – Trade under increasing, decreasing and constant cost conditions - Heckscher-Ohlin theory – Factor price equalization theorem – Leontief Paradox and its critical evaluation (Mead's view) – Trade under imperfect competition: Trade based on product differentiation, Intra-industry trade, Technological Gap and Product Cycle, Transportation cost, Environment cost standard and international trade, Location Theory

Module II: Terms of Trade and Tariff

Offer curves, elasticity and terms of trade - Impact of tariff: Partial and general equilibrium analysis – Game theoretic approach to tariff - Tariff and income distribution: Stolper-Samuelson theorem – Hypothesis of secular deterioration in terms of trade and its empirical testing – Terms of trade and economic growth.

Module III: Trade and Technological Change

Increase in factor endowments and international trade, the Rybczynski theorem – Bhagwati's views on immiserizing growth - Technical change and international trade: Neutral, capital saving and labour saving technical progress and their impact on terms of trade.

Module IV: Balance of Payments and Foreign Exchange Market

Components of balance of payments – Relative importance of current account and capital account – Balance of payments adjustment: Absorption and monetary approaches (Harry Johnson) – Foreign trade multiplier.

Foreign exchange market - Exchange rate determination: Purchasing power parity theory – Interest rate parity theorem, Dornbusch's theory of Overshooting, Rodriguez-Calvo currency substitution model, Mundell-Flemming model - International debt repayment problem.

Recommended Readings:

1. Mannur, H.G, *International Economics*, Vikash Publishing House, 1983.
2. Kindleberger, C.P. *International Economics*, R.D. Irwin, Homewood, 1991.
3. Soderston, Bo, *International Economics*, The Macmillan Press Ltd., London, 1991
4. Salvator, D, *International Economics*, Prentice Hall, Upper Saddle River, N.J. NewYork, 1997.
5. Bhagwati, J. (Ed.), *International Trade: Selected Readings*, Cambridge University Press, Massachusetts, 1981
6. Viner, Jacob, *Studies in the Theory of International Trade*, Harper and Row, New York
7. Grable, J.O., *International Financial Markets*, Prentice Hall, New York, 1996.
8. Meade, J.E, *Theory of International Economic Policy*, Oxford University Press, London, 1968.
9. Meier, G.M., *The International Economics of Development*, Harper and Row, New York, 1968.
10. Cherunilam, Francis, *International Economics*, Tata McGraw-Hill Publishing Company Limited, New Delhi, 1999.

ECO-C-414: STATISTICS

Objective: The old syllabus has been revised to include a few new topics in Statistics and exclude one unit on Econometrics since a new paper on Basic Econometrics is included in the Third Semester.

Module I: Probability and Random Variable

The concept of a sample space and elementary events – Mutually exclusive events, dependent and independent events, compound events – a priori and empirical definition –Addition and multiplication theorems – Compound and conditional probability – Bayes theorem. Random variable, probability function and probability density function – Expectation, variance, covariance, variance of a linear combination of variables, moments and moment generating functions.

Module II: Probability Distribution

Binomial, Poisson, Normal, Beta, Gamma and Normal distribution: Derivation of moments around origin and moments around mean – Standard normal distribution.

Module III: Correlation and Regression, Index Number and Time Series

Relationship between two variables – Karl Pearson’s and Spearman’s correlation coefficient, Regression – Estimation of two regression lines – Angle between two regression lines – Properties of regression coefficients – standard error of regression coefficients – Partial and multiple correlation and regression (concept).

Index Number – Laspeyeres, Paasche’s and Fisher’s index numbers – Tests for ideal index number – Base shifting, base splicing and deflating – Concept of constant utility index number. Time series – Components of time series – Methods of estimation of linear and non-linear trend.

Module IV: Statistical Inference

Properties of an ideal estimator - Concept of sampling distribution – χ^2 (Chi-Square), t and F distributions and their properties - Type I and type II errors, One tailed and two tailed tests – Testing of hypothesis based on Z, t and F distributions – Properties of an ideal estimator: unbiasedness, efficiency and consistency.

Recommended Readings:

1. Nagar, A.L. and R. K. Das, *Basic Statistics*, Oxford University Press, New Delhi, 1993.
2. Gupta, S. C., *Fundamentals of Applied Statistics*, S.Chand and Sons, New Delhi, 1993.
3. Goon, A M., M.K.Gupta and B.S. Dasgupta, *Fundamentals of Statistics*, Vol. I and Vol. II, The World Press Limited, Calcutta, 1996.
4. Kapoor, J.N. and H.C. Saxena, *Mathematical Statistics*, S.Chand & Company, New Delhi, 1992.
5. Millar, J., *Statistics for Advanced Level*, Cambridge University Press, Cambridge, 1996.
6. Hogg, R.V. and A.T. Craig, *Introduction to Mathematical Statistics*, Macmillan Publishing Co., New York, 1970.
7. Gupta, S.C. and V.K. Kapoor, *Fundamentals of Applied Statistics*, S. Chand and Sons, New Delhi, 1993.
8. Gupta, S.C. and V.K. Kapoor, *Fundamentals of mathematical Statistics*, S. Chand and Sons, New Delhi.

ECO-C-415: INDIAN ECONOMY

Objective: India economy has undergone a great change in so far as the basic mode of its operational techniques is concerned. Among other things, it has called for change in the syllabus to keep pace with emerging realities.

Module I: National Income, Employment and Price Behaviour

National income – Trends in growth and structure, performance of different sectors. Employment and unemployment: Recent trends and estimates – Changing structure and emerging issues – Labour market reforms - Inflation: Recent trends in prices in India and its causes, price stability.

Module II: Agriculture and Industry

Agricultural performance: Growth and productivity - Economic reforms and their impact on agriculture – Agricultural policy — Institutional reforms. Evolution of Indian industries: An overview – Evaluation of industrial policies of 1948 and 1956 – PSUs: Performance and shortcomings – PSUs and disinvestment debate - Economic reforms and industry.

Module III: Infrastructure

Physical infrastructure: Power, transport and communication – Financial infrastructure: Bank – Social infrastructure: Education and healthcare – Institutional infrastructure: Market - Financing infrastructure: Problems and policies.

Module IV: Public Finance and Economic Reforms

Trends in revenue and expenditure of central & state governments – Public debt – Characteristics of tax reforms in India – Deficit financing and price behaviour in India: Consequences and policy suggestions, Rationale for economic reforms – Main components of structural reforms – Evaluation of structural reforms – Impact of WTO on Indian economy – Foreign capital and MNCs in India.

Recommended Readings:

1. Bardhan, P., *The Political Economy of Development in India*, Oxford University Press, New Delhi, 1999.
2. Jalan, B., *The Indian Economy—Problems and Prospects*, Viking, New Delhi, 1992.
3. Ahluwalia, I. J. and I. M. D. Little (eds.), *India's Economic Reforms and Development (Essays in Honour of Manmohan Singh)*, Oxford University Press, New Delhi, 1999.
4. Kapila, Uma (Ed.), *India's Economic Reforms*, Academic Foundation, New Delhi.
5. Government of India, *Economic Survey (Annual)*, Ministry of Finance, New Delhi.
6. Parikh, K.S., *India Development Report – 1999-2000 and 2001-02*, Oxford University Press, New Delhi.
7. Byres, T. J. (Ed.), *The Indian Economy: Major Debates Since Independence*, Oxford University Press, New Delhi, 1998.
8. Dreze, J. and A. Sen, *India: Economic Development and Social Opportunities*, Oxford University Press.
9. Dutt and Sundaram, (Latest edition) *Indian Economy*, S.Chand and Company, New Delhi.
10. Mundel, S., *Public Finance: Policy Issues for India*, Oxford University Press, New Delhi, 1999.
11. Mishra, S.K. & V.K. Puri *Indian Economy*, Himalayan Publishing House, Mumbai (latest edition)
12. Kapila, Uma (ed) *Indian Economy Since Independence*, Academic Foundations, Delhi (latest edition)
13. Parikh, K. (ed) *India Development Report (Various years)* Oxford University Press, New Delhi
14. Government of India *Economic Surveys* Various years, New Delhi.

ECO-C-501: ENVIRONMENTAL ECONOMICS

Objective: The syllabus is used to deal with problems of valuation of environmental goods and designing of instruments and institutions for the management of environment.

Module I: The Economy and the Environment

Interlinkages between the economy and the environment – Sources and Causes of environmental degradation - Externality and market efficiency–Common Property Resources- Open Access and Tragedy of commons, Relationship between resource stock and growth.

Module II: Environmental Valuation

Basic concepts of valuation method, Measurements of environmental values - use value, option value and non - use value, Valuation methods- Contingent valuation method, Travel cost method and Hedonic pricing method.

Module III: Environmental Regulations and Policies

Institutional alternatives – Command and control, Economic Instruments - Pigouvian taxes and subsidies - Market based instruments- Mixed instruments - Coase's bargaining solution and collective action- Macroeconomic policies and the environment.

Module IV: Environment and Development

Environment - development trade-off - Population, poverty and environment - Kuznets curve - Trade and environment - Concept and indicators of sustainable development – Rules to sustainability, Measurements of sustainable development – Pearce-Atkinson measure – Concept of Green Accounting.

Recommended Readings:

1. Hanley N, J.F. Shogern and Ben White, *Environmental Economics in Theory and Practice*, Macmillan, 1997.
2. Kolstad,C.D., *Environmental Economics*, Oxford University Press, New Delhi, 1999.
3. Sankar,U. (Ed), *Environmental Economics*, Oxford University Press, New Delhi, 2001.
4. Dasgupta, Partha, *The Control of Resources*, Oxford University Press, New Delhi, 1982.
5. Fisher Antony, *Resource and Environmental Economics*, Cambridge University Press, 1981.
6. Pearce D.W., *Environmental Economics*, Longman, London, 1972.
7. Chopra, K. (1998), *Valuation of Bio-diversity within Protected Areas: Alternative Approaches and a Case Study*, Institute of Economic Growth, Delhi, 1998.
8. Chopra, K., G.K. Kadekodi and K.N. Murty, *Participatory Development: An Approach to the Management of Common Property Resources*, SAGE, New Delhi, 1990.
9. Dasgupta, P.S. and G.M. Heal, *Economic Theory and Exhaustible Resources*, Cambridge University Press, Cambridge, 1985.
10. Kerr, J.M. et al (Eds), *Natural Resource Economics: Theory and Applications in India*, Oxford and IBH Publication Co. Pvt. Ltd., New Delhi, 1997.
11. Bhattacharya, R.N. (Ed), *Environmental Economics – An Indian Perspective*, Oxford University Press, New Delhi, 2001.
12. Pearce, D.W., and R.K. Turner (1990): *Economics of Natural Resources and the Environment*, The Johns Hopkins University Press

13. Stevens, R.N (2000): *Economics of the Environment*, fourth edition, W.V. Norton and company, New York
14. Field, B.C (2012): *Natural Resource Economics: An Introduction*, second edition, Levant Books, Kolkata
15. Callan, S.J and J.M. Thomas (2000): *Environmental Economics and Management: Theory, Policy and Application*, second edition, The Dryden Press, Orlando, Florida.
16. Conrad, J.M (1999): *Resource Economics*, Cambridge university Press

ECO-C-502: ECONOMETRICS-I

Objective: The econometric theory has become a very powerful tool for understanding of applied economic relationships and meaningful research in economics. This paper is introduced to equip the students with basic theory of Econometrics and relevant applications of the methods.

Module I: Linear Regression Model

Properties of good estimators in small and large samples - Ordinary Least Square (OLS), assumptions and properties of OLS estimators (BLUE) – Unbiased estimator of the variance of the error term – Confidence interval and significance - Extension of two variable model, logarithmic and reciprocal transformation.

Module II: General Linear Model

Assumption of OLS and estimation – Correlation matrix, properties of estimators: Their variance and testing their significance and confidence intervals.

Module III: Autocorrelation and Heteroscedasticity

Autocorrelation: Meaning and types (positive and negative) – Effects of autocorrelation on the properties of OLS estimators – Detection of autocorrelation: Durbin-Watson test and von-Neumann ratio.

Heteroscedasticity: Meaning and effects on the properties of the OLS estimators – Detection: Glacer method.

Module IV: Multicollinearity and Errors in Variables

Multicollinearity: Meaning, its effects on the estimation of parameters and their variances.

Errors in variables: Meaning (errors in equation and in variables) – Effects of errors in variables when errors occur in a) dependent variable, b) independent variable and c) both dependent and independent variables.

Recommended Readings:

1. Nagar, A.L. and R. K. Das, *Basic Statistics*, Oxford University Press, New Delhi, 1993.
2. Gupta, S. C., *Fundamentals of Applied Statistics*, S.Chand and Sons, New Delhi, 1993.
3. Hadley, G, *Linear Algebra*, Addison-Weley publishers Company, Tokyo.
4. Vatssa, B.S., *Theory of Matrices*, Wily Eastern Limited, New Delhi, 1995
5. Gujarati, D.N. *Basic Econometrics*, McGraw Hill, New Delhi, 1995.
6. Koutsoyiannis, A., *Theory of Econometrics*, The MacMillan Press Ltd., London, 1977.
7. Johnston, J, *Econometric Methods*, McGraw Hill, Book Co., London, 1991.
8. Maddala, G.S., *Econometrics*, McGraw Hill, New York, 1999.

9. Salvatore, Dominick and Derrick Reagle, *Statistics and Econometrics*, Schaum's Outline Series, Tata McGraw-Hill Publishing Company Limited, New Delhi, 2005.
10. Stock, James H. and Mark W. Watson, *Introduction to Econometrics*, Pearson Education, 2004.
11. J. F. Wooldridge (2008): *Introductory Econometrics: A Modern Approach*, Third edition: South-Western Cengage Learning India
12. Green, W. H. (2009): *Econometric Analysis*, fifth edition, Pearson Publication
13. Johnson, R. A. and D.W. Wichern (2009): *Applied Multivariate Statistical Analysis*, Fifth edition, PHI learning Pvt. Ltd., New Delhi
14. Mills, T.C and R, N. Markellos (2008): *The Econometric Modeling of Financial Time Series*, third edition, Cambridge University Press
15. Patterson, Kerry (2002): *An Introduction to Applied Econometrics: A Time Series Approach*, Palgrave Macmillan
16. Enders, W (2004): *Applied Econometric Time Series*, Second edition, Wiley
17. Chatfield, Chris (2004): *The Analysis of Time Series: An Introduction*, sixth edition. Chapman and Hall/CRC New York

ECO-C-503: FINANCIAL ECONOMICS

Objective: In view of growing importance of financial market and financial institutions in the process of development, financial economics is included as a full paper.

Module I: Capital and Finance

Corporate entity – sole proprietorship, partnership, joint stock company, limited liability, separation of ownership from control, conflicts of interests between shareholders and managers; sources of finance: equity and loan, different types of shares: ordinary, preference; loan, stocks and debentures.

Module II: Cost of Capital

Business Risk and Financial Risk, Cost of loan and equity traditional view on loan finance, advantages and disadvantages of loan finance, Modigliani and Miller view of gearing (leverage), critical appraisal of Modigliani and Miller view.

Module III: Risk and Return

Measurement of Risks, Portfolio risk, probability distribution of returns, systematic and unsystematic risk, diversification; risk and return in a portfolio: utility theory, attitudes towards risk and expected value of return; Arrow- Pratt's measures of Absolute and Relative Risk Aversions.

Module IV: Portfolio Theory and Pricing of Capital Assets

Optimal portfolio select, efficient frontier, lending and borrowing, capital asset pricing model (CAPM) assumptions, and derivation of CAPM, empirical tests; Arbitrage pricing model.

Recommended Readings:

1. Copeland T E, J F Weston and K Shastri (2005) *Financial Theory and Corporate Policy*, Fourth Edition, Pearson Addition –Wesley, USA.
2. Cuthbertson, K (1996) *Quantity Financial Economic: Stocks, Bonds and Foreign Exchange*, John Wiley and Sons, USA
3. Eichberger J and I R Harper (1997) *Financial Economics*, Oxford University Press, New York.
4. Tuckman, B (1995) *Fixed Income Securities – Tools for Today's Markets*, Wiley Frontiers in Finance.
5. Zvi Bodie, Alex Kane and Alan J, Marcus, *Investments*, 8th edition, ISBN: 0-07 338237 – X McGraw-Hill.
6. Chandler, L. V. and S. M. Goldfeld, *The Economics of Money and Banking*, Harper & Row, New York, 1977.
7. Bhole, L. M., *Financial Institutions and Markets*, Tata McGraw Hill Company Ltd., New Delhi, 1999.
8. Gupta, S B, *Monetary Economics Institutions and policy*, S. Chand & Co., New Delhi, 1995.
9. Branson, W H, *Macroeconomic Theory and Policy*, Universal Book Stall, New Delhi, 1979.
10. Patinkin, *Money, Interest and Prices*, Harper and Row, New York
11. Khan M. Y., *Indian Financial System*, Tata McGraw Hill, New Delhi, 1996.
12. Coghlans, R., *The Theory of Money and Finance*, Macmillan, London, 1980
13. Frisch, H., *Theories of Inflation*, Cambridge University Press, 1983.
14. Sheffrin, S.M., *Rational Expectation*, Cambridge University Press, 1996.

ECO-C-504: POPULATION ECONOMICS

Objective: The objective of the paper is to acquaint the students to the components of population, its measurement and its economic implications. Some minor modifications have been done in the earlier paper in order to make it more up to date.

Module I: Population Growth and Fertility

Trends of population growth since the beginning of 20th century; basic measures of demography: rates and ratios; data sources: census, surveys and vital statistics. Measures of fertility: CBR, GFR, TFR, cumulative fertility rate, child women ratio, gross and net reproduction rates; determinants of fertility: Malthusian view and its shortcomings; social mobility and fertility: Dumont's social capillarity theory; economic models: Easterlin's and Becker's theories of fertility and their critical evaluation.

Module II: Mortality

Basic measures: CDR, age specific death rate; early neonatal, neonatal, infant mortality rates, perinatal mortality and maternal mortality rates; Life table, complete and abridged life table and their construction; trends of mortality in developed and developing countries; determinants of mortality; causes of high mortality in LDCs with special reference to India; measures taken in India to improve health status.

Module III: Migration and Urbanization

Measures of migration, internal and international migration: theories of migration: push and pull factors, Lee's and Harris Tadaro models. Urbanization: its measures and determinants; factors propelling urbanization in developed countries; urbanization in developing countries: its patterns and factors promoting urbanization in the developing countries with special reference to India; problems of urbanization in developing countries.

Module IV: Population Policy

Arithmetic, geometric and exponential growth rates of population; relation between growth rate and doubling time of population, age distribution (age pyramid), young and old age dependency ratios and their determinants; dependency ratio and savings, physical and human capital formation; population estimates and projections: mathematical and demographic methods; measures of labour force; factors determining labour force participation rate. Major demographic features of India's population (birth rate, death rate and their trends); evaluation of family welfare programme in India, National Population Policy 2000; Manpower planning in India.

Recommended Readings:

1. Shryock, H., *The Methods and Materials of Demography*.
2. Bogue, D J., *Principles of Demography*
3. Barcley, G W., *Techniques of Population Analysis*
4. United Nations Publications, *The Determinants and Consequences of population Trends* (Series No.50)
5. Goon, Gupta & Dasgupta, *Fundamental Statistics (Vol-II)*
6. Kapoor, V K, *Fundamental of Applied Statistics*.
7. Saxena, P. C. and Talwar P. P. (Eds.), *Recent Advances in the Techniques of Demographic Analysis*, Himalayan Publishers, Bombay, 1988.

8. Coale, A. J. and E. M. Hoover, *Population Growth and Economic Development in Low Income Countries*, Oxford University Press.
9. Becker, G. S., *An Economic Analysis of Fertility in Demographic and Economic Change in Developed Countries*, A Report of NBER, Princeton University Press, Princeton, 1960.
10. Easterlin, R. A., *An Economic Framework for Fertility Analysis Studies in Family Planning*, 1975.
11. Leibenstein, *Economic Backwardness and Economic Growth*, Wiley, New York, 1957.
12. Leibenstein, *An Interpretation of the Economic Theory of Fertility, Promising Path or Blind Alley*, The Journal of Economic Literature, XII (2), 1974.
13. Agarwala, S. N., *India's Population Problems*, Tata - Mcgraw Hill, New Delhi.
14. Srinivasan, K., *Basic Demographic Techniques and Applications*, Sage Publications, New Delhi, 1992.
15. Bhende and Kanitkar, *Principles of Population Studies*, Himalaya Publishing House, Delhi, 2003.
16. Deepak K Mishra (Ed) Internal Migration in Contemporary India, Sage Publications, New Delhi, 2016

ECO-O-505: BASIC ISSUES OF INDIAN ECONOMY

Objective: The objective of the paper is to acquaint the students to the basic components of the Indian economy.

Module I: Concept of National Income and Issues of Indian Economy

GDP, GNP, NNP, Per Capita Income, measurement of National Income, Sustainable development and Green GNP, HDI. Planning – Objectives and achievements, growth of national Income, population, poverty, unemployment and inflation, rural development programmes – MGNREGA, PMGSY and Indira Awas Yojna - evaluation.

Module II: Indian Agriculture

Importance of agriculture, trends in agricultural production and productivity, Green revolution and its impact, land reforms, PDS and food security, National Agricultural policy, APCI, Remunerative prices, Farm subsidies, Water resources.

Module III: Public Finance

Sources of public revenue and types of expenditure; Concepts of Revenue deficit and Fiscal deficit; Trends in revenue and expenditure of Government of India, Finance Commission of India, NITI Ayog, Centre-State financial relations.

Module IV: Economic Reforms in India and Balance of Payment

Concept of globalisation, Rationale for economic reforms, Banking and Financial sector reforms (Narasimham Committee Recommendations), Impact of reforms on economic growth, trend and growth of FDI in India, India's balance of payment position, WTO and India.

Recommended Readings:

1. Bardhan, P., *The Political Economy of Development in India*, Oxford University Press, New Delhi, 1999.
2. Jalan, B., *The Indian Economy—Problems and Prospects*, Viking, New Delhi, 1992.
3. Ahluwalia, I. J. and I. M. D. Little (eds.), *India's Economic Reforms and Development (Essays in Honour of Manmohan Singh)*, Oxford University Press, New Delhi, 1999.
4. Kapila, Uma (Ed.), *India's Economic Reforms*, Academic Foundation, New Delhi.
5. Government of India, *Economic Survey* (Annual), Ministry of Finance, New Delhi.
6. Dutt and Sundaram, (Latest edition) *Indian Economy*, S.Chand and Company, New Delhi.
7. Mundle, S., *Public Finance: Policy Issues for India*, Oxford University Press, New Delhi, 1999.

ECO-C-511: THE ECONOMY OF NORTH EAST INDIA

Objective: The present syllabus has been modified to cater to the need of an updated syllabus for the students of North East economy in a crystal fashion.

Module I: Structure of North East Economy

North East economy: An overview – Basic Features of North East economy - Relative performance of the North East economy in the country - Economic performance of the region – Level and growth of NSDP and Per Capita NSDP – Changing sectoral composition of state income and sectoral contribution to the growth of income with respect to Arunachal economy - Natural Resource Base – Land, mineral, water and forests – Status of human development in N.E. India.

Module II: Population

Population: Trends and features, causes for its rapid growth, population growth and economic development - Urbanization: Trends and features, causes for rapid growth and consequences - Work force structure and its changes, participation of female labour force, unemployment situation in North East India.

Module III: Agriculture and Industries

Agricultural practices in the region – Permanent cultivation, shifting cultivation and its effects – Jhum cultivation and the problem of induction of new technology - Land tenure and problems of agricultural credit - Land use pattern and cropping pattern in North East India and Arunachal Pradesh - Agricultural productivity – Causes of low productivity - Status of industry in North East - Factors inhibiting the growth of industries.

Module IV: Infrastructure, Fiscal and Developmental Issues

Infrastructure development: Power, transport, communication, market and banking: NEDFi, SIDBI, IDBI – State of public finance and fiscal issues in North Eastern economy with special reference to Arunachal Pradesh – Opportunities and Challenges of North East economy in the background of economic liberalization of India – Opening of NE economy and ‘Look East’ policy of the government of India.

Recommended Readings:

1. NEDFi Data Bank, *Quarterly Journal of Northeastern States*, Different Years.
2. Alam, K (Ed), *Agricultural Development in Northeast India*, Deep and Deep Publications, New Delhi, 1993.
3. Banerjee, Amalesh and Biman Kar (Ed), *Economic Planning and Development of Northeastern States*, Kanishka Publishers and Distributors, New Delhi, 1999.
4. Behera, M.C. and N.C. Roy (Eds), *Trends in Agrarian Structure in the Hills of Northeast India*, Commonwealth Publishers, New Delhi, 1997.
5. Das, Gurudas, *Tribes of Arunachal Pradesh in Transition*, Vikash Publishing House, New Delhi, 1995.

6. Ganguly, J.B., (Ed), *Urbanization and Development in Northeast India*, Deep and Deep Publications, New Delhi, 1995.
7. Majumdar, D.N. (Ed), *Shifting Cultivation in Northeast India*, Omsons Publications, New Delhi, 1990.
8. Mitra, A., *Internal Migration and Economic Development in the Hills*, Omsons Publications, New Delhi, 1997.
9. Yogi, A.K., *Development of the Northeast Region--- Problems and Prospects*, Spectrum Publications, New Delhi.
10. Behera, M.C. (Ed), *Agricultural Modernisation in Eastern Himalayas*, Commonwealth Publishers, New Delhi, 1998.
11. Planning Commission, Government of India, *National Human Development Report*, 2001.
12. *Assam Economic Journal* (different issues), Dibrugarh University.
13. Baruah, Alokesha (Ed), *India's North-East Developmental Issues in a Historical Perspective*, Manohar Publishers, New Delhi, 2005.
14. Government of Arunachal Pradesh, *Human Development Report of Arunachal Pradesh, 2005*.
15. Government of India, Planning Commission, *State Development Report of Arunachal Pradesh, 2009*.
16. Deepak K Mishra and Vandana Upadhyay (Ed) *Rethinking Economic Development in North East India: The Emerging Dynamics*, Rutledge, London/New Delhi, 2017

ECO-C-512: AGRICULTURAL ECONOMICS

Objective: This paper has been designed to provide theoretical and analytical knowledge of Agricultural Economics to the students and also to provide them insight into the issues of Indian agriculture in the changed global scenario.

Module I: Introduction to Agricultural Economics and Farm Management

Nature of Agricultural economics - Interdependence and complementarities between agriculture and industry - Farm efficiency measures - Farm mechanization. Nature of agricultural production function: Spillmans, Cobb-Douglas type – Cob-web theorem - Nerlove's model - Marketed and marketable surplus - Mathur-Eizkel hypothesis.

Module II: Theories of Agricultural Development

Problems of labour surplus economy: Lewis' model and Jorgenson's models – Theories of agricultural development: Schultz and Mellor - Farm household models: Chayanov, Barnum-Squire and Low's models – Share tenancy: Marshall and Cheung models.

Module III: Agricultural Finance and Marketing

Rural credit market: Lenders' risk hypothesis, monopolistic credit market –Sources of agricultural finance: Cooperative credit society, Commercial banks, Regional rural banks and NABARD –Microfinance - Rural credit policy. Agricultural marketing in India – Cooperative marketing – Government measures to improve the system of agricultural marketing.

Module IV: Issues in Agricultural Development in India

New technology and its impact on output, employment and income distribution, Problems of diffusion of new technology - Food security and PDS – Agricultural subsidies and price policy – Public investment in agriculture – National agriculture policy - WTO and Indian agriculture: Agreement of Agriculture (AoA), Sanitary and Phyto-sanitary measures and their implications.

Recommended Readings:

1. Heady, E.O., *Economies of Agricultural Production and Resource Use*, Prentice Hall.
2. Heady, E.O. and J. Dhillon, *Agricultural Production Functions*, Kalyani Publishers, New Delhi.
3. Ellis, Frank, *Peasant Economics: Farm Household and Agrarian Development*, Cambridge University Press.
4. Foster, G.W. and M.C. Leoger, *Elements of Agricultural Economics*, Prentice Hall.
5. Bardhan, P.K., *Interlocking Factor Markets and Agrarian Development: A Review of Issues*, Oxford Economic Paper, Vol- 32, No., 1980.
6. Bardhan, P.K., *Land, Labour and Rural Poverty*, Oxford University Press, 1984.
7. Basu, K., *The Less Developed Economy: A Critique of Contemporary Theory*, Oxford University Press, 1984.
8. Basu, K., *Analytical Less Developed Economy*, Oxford University Press.
9. Bhaduri,A., *Unconventional Economic Essays*, Oxford University Press, 1993.
10. Mishra S.K and V.K Puri, *Indian Economy*, Himalayan Publishing House (latest edition).
11. Srivastav, O., *Agricultural Economics*.
12. Soni, R.N, *Leading Issues in Agricultural Economics*, Vishal Publishing Co. (Latest edition).
13. Srivastav, O.S, *Theories and Policy of Agricultural Economics*, Anmol Publications Pvt. Ltd. 2010.

ECO-E- 513: DEVELOPMENT ECONOMICS

Objective: In this paper, planning is included in Development Economics to make it more relevant. The new concepts like 'community approach to development' and 'trade and political economy of development' are also incorporated

Module I: Sectoral aspects of Development

Role of Agriculture in Economic Development; Barriers to Agriculture; Agricultural Transformation: Designing an Agricultural Strategy; Rationale and Pattern of Industrialization in developing countries; Choice of Techniques, appropriate technology and employment; Terms of Trade between Agriculture and Industry.

Module II: Economic Development and Institutions

Market efficiency and Market Failure; Role of State in Economic Development: State Capacity and State Failure; The Washington Consensus Issues of Good Governance; Community approach to development: State, market and community – Market and prisoner's dilemma – Community, social capital and development – Critical evaluation of the social capital approach to development.

Module III: Development Planning

Rationale for planning in a developing economy – Input-output model in closed and open economy - Samuelson's substitution theorem, Hawkins-Simons condition and sectoral projections – Plan models in India: Mahalanobis model – Plan in a market-oriented economy.

Module IV: Trade and Political Economy of Development

Import substitution and export led growth – Krueger's model of rent seeking society – Institutions and development: Contribution of Stephen Knack and Philip Keefer – Foreign direct investment, foreign institutional investment and economic development – Foreign aid and economic development

Recommended Readings:

1. Meier, G, *Leading Issues in Economic Development*, Oxford University Press, New Delhi, 1990.
2. Higgins, B., *Economic Development*, W.W. Norton, New York, 1959.
3. Baran, Paul, *Political Economy of Growth*, Monthly Review Press, New York, 1967.
4. Todaro, M.P., *Economic Development*, Longman, London, 1996.
5. Myrdal, G., *Economic Theory and Underdeveloped Regions*, Duckworth, London, 1957.
6. Roy, D., *Development Economics*, Oxford University Press, 1999.
7. UNDP, *Human Development Reports*, Oxford University Press.
8. Thirwal, A.P., *Growth and Development*, Macmillan, London, 1999.
9. Chenery, H and T.N. Srinivasan (1995), *Hand Book of Development Economics*, Vol-I, II Elsevier, Amsterdam
10. Behrman, S and T.N. Srinivasan (1995), *Hand Book of Development Economics*, Vol- III, Elsevier, Amsterdam
11. Chakravarty, S (1987), *Development Planning: The Indian Experience*, Clarendon Press, Oxford.

ECO-E-514 ECONOMETRICS-II

Objective: The course covers various advanced econometric methods applicable to different topics in economics and those needed for applied economic research.

Module I: Alternative Methods of Estimation

Aitken's Generalised least square method of estimation, properties of GLS estimation. Feasible estimator, GLS with general linear restrictions, *A Priori* information

Module II: Limited Dependent Variables Cases

Qualitative Choice variables, Linear probability model: LOGIT, PROBIT and TOBIT.

Module- III: Simultaneous Equation Models

Simultaneous equation system, two-way linkage – OLS estimation and simultaneous equation bias - Structural form and reduced form – Identification, rules of identification, rank and order conditions; Seemingly uncorrelated Regression equation (SUR model), Recursive system

Module IV: Estimation of Simultaneous Equation Model

Just identified model: Indirect least square method, consistency of ILS estimators. Overidentified model: Failure of ILS estimation (ILS estimators not unique) - 2SLS estimation, consistency of 2SLS estimators – Matrix presentation of 2SLS estimators. Application of GLS on structural equation, K-Class estimator.

Recommended Readings:

1. Johnston, J., *Econometric Methods*, New York, McGraw Hill, 1972
2. Fisher, F. M., *The Identification Problem*, New York, McGraw Hill, 1966
3. Koyck, L. M., *Distributed Lags and Investment Analysis*, North-Holland, 1954
4. Klein, L. R., *A Text book of Econometrics*, Row-Peterson, 1953
5. Goldberger, A. S., *Econometric Theory*, New York, Wiley, 1964
6. Gujarati, D.N. *Basic Econometrics*, McGraw Hill, New Delhi, 1995.
7. Koutsoyiannis, A., *Theory of Econometrics*, The MacMillan Press Ltd., London, 1977.
8. Johnston, J, *Econometric Methods*, McGraw Hill, Book Co., London, 1991.
9. Maddala, G.S., *Econometrics*, McGraw Hill, New York, 1999.
10. Salvatore, Dominick and Derrick Reagle, *Statistics and Econometrics*, Schaum's Outline Series, Tata McGraw-Hill Publishing Company Limited, New Delhi, 2005.
11. Stock, James H. and Mark W. Watson, *Introduction to Econometrics*, Pearson Education, 2004.

ECO-E-515: ECONOMICS OF INFRASTRUCTURE

Objective: The important role infrastructure plays in a country's and region's development need not be reiterated. The paper exposes the students wholly to issues involved in development of infrastructure in developing countries.

Module I: Introduction

Infrastructure and economic development – Infrastructure as a public good – Social and physical infrastructure – Special characteristics of public utilities – Economies of scale of joint supply – Marginal cost pricing vs. other methods of pricing of public utilities – Cross subsidization: Free prices, equity and efficiency.

Module II: Transport Economics and Communication

The structure of transport costs and location of economic activities – Demand for transport – Model of freight and passenger demand - Cost functions in the transport sector – Principle of pricing – Special problem of individual models of transport. Rate making in telephone utilities – Principles of decreasing costs in telephone industry- Characteristics of postal services – Criteria for fixation of postal rates – Measurement of standards of service in telephone and postal utilities.

Module III: Energy Economics

Primacy of energy in the process of economic development – Factors determining demand for energy – Energy conservation – Renewable and non-conventional sources of energy – Energy modeling.

Module IV: Social Infrastructure, Health and Education

Organization and financing of supply of social services – Private vs. public sector financing – Debate about fixation of prices of social services. Education and economic growth – Approaches to educational planning: Rate of return and manpower balance approaches – The issues in education policy. Health dimensions of development – Determinants of health: Poverty, malnutrition, illiteracy and lack of information – Economic dimension of health care: Demand and supply of health care – Financing of health care and resource constraint.

Recommended Readings:

1. Indian Council of Social Sciences Research (ICSSR), *Economics of Infrastructure*, Vol.VI, New Delhi, 1976.
2. National Council of Applied Economic Research (NCAER), *India Infrastructure Report: Policy Implications for Growth and Welfare*, NCAER, New Delhi, 1996.
3. Norton, H. S., *Modern Transport Economics*, C E Merrill, London, 1971.
4. Garfield, P. J. and W. Lovjoy, *Public Utility Economics*, Prentice Hall, Englewood Cliffs, 1964.
5. Centre for Monitoring Indian Economy, *India: Energy Sector*, CMIE, Mumbai, 1996.
6. Vaizey, J., *Economics of Education*, Faber and Faber, London, 1962.
7. Baru, R V, *Private Healthcare in India: Social Characteristics and Trends*, Sage Publications, New Delhi, 1998.

ECO-E-516: GENDER AND DEVELOPMENT ECONOMICS

Objective: The objective of the paper is to provide an analysis of gender issues in the process of development and to highlight its centrality in the entire process. The course covers the basic theories on the relation between gender stratification and development. The stress is put to familiarize the students with the rich empirical literature on various dimensions of gender and development issues especially in South Asian and Indian context.

Module I: Gender and Economics: Introduction

Gender and feminisms - Economic methodology and feminist critiques - Development: Meaning and concept - Human development and gender - Construction of Human Development Index and Gender-related Development Index and criticisms.

Module II: Work and Employment

Types of work, work participation rates, labour force participation rate - Female labour supply: Neo-classical theory - Models of allocation of time: Becker and Mincer - Segregation in labour market: Discrimination in work place, measures of discrimination, Differential employment - Household work and non-market work: Time Use Survey

Module III: Agriculture, Environment, Health and Well-Being

Gender and property rights: Theories, experiences in South Asia, India and Arunachal Pradesh - Boserup's thesis on gender and agricultural change and its criticisms - Technological change and female labour - The impact of Green Revolution - Gender, environment and development: Linkages - Gender issues in natural resource management. Sex ratio, child sex ratio, son preference, differential mortality between sexes - Differential access to health care - Intrafamily distribution of food and nutrition - Women's autonomy, fertility and health status - Health and poverty.

Module IV: Gender and Globalisation

Women under capitalism: Review of political economy approaches - Structural adjustment and women - Gender, informalisation and flexible production - Review of gender and development policies: Role of international bodies, governments and civil society institutions - Mainstreaming gender concerns: Methods and approaches.

Recommended Readings:

1. Dewan, Ritu, 'Gender in Neoclassical Economics: Conceptual Overview', *Economic and Political Weekly*, Vol 30, No 17, pp 46-48, 1995.
2. Elson, D., Theories of Development. Chapter 6 in *Gender and Development: Theoretical, Empirical and Practical Approaches*, Lourdes Beneria with Savitri Bisnath (eds.). Cheltenham U. K.: Edwin Elgar Publishing Limited. [first published in the Elgar companion to feminist economics in 1999], 2001.
3. Feber, Marianne A. and J A Nelson (Eds), *Beyond Economic Man: Feminist Theory and Economics*, University of Chicago Press, Chicago, 1993.
4. Nussbaum, Martha C., *Women and Human Development: The Capability Approach*, Kali for Women, New Delhi. (Introduction: Feminism and International Development), 2000.
5. Ostergaard, L., 'Gender' in L. Ostergaard (ed) *Gender and Development: A Practical Guide*, Routledge, London and New York, 1992.

6. Seth, M., *Women and Development: The Indian Experience*, Sage Publications, New Delhi, 2000.
7. Amsden, Alice H., 'Introduction' in Alice H. Amsden (ed), *The Economics of Women and Work*, St. Martin's Press, New York, pp 11-35, 1980.
8. Anker Richard, 'Theories of Occupational Segregation by Sex: An Overview', in M F Loutfi (Ed), *Women, Gender and Work: What's Equality and How do We Get there?* ILO, Rawat Publication, Jaipur, 2002.
9. Becker, Gary, 'A Theory of Allocation of Time', *The Economic Journal*, Vol 80, No. 200, pp 493-517, 1965.
10. Cain, Glen g, 'The Economic Analysis of Labour Market Discrimination: A Survey', in O Ashenfelter and R Layard (eds), *Handbook of Labour Economics*, Vol I, Elsevier Science Publishers, BV, 1986.
11. Hirway, I., 'Conceptual and Methodological Issues of Time Use Studies', *Proceedings of the International Seminar on Time Use Studies*, CSO, Government of India, New Delhi, 1999.
12. Jose, A V (Ed), *Limited Options: Women Workers in Rural India*. ARTEP, ILO, New Delhi, 1989.
13. Raju, Saraswati and Depica Bagchi (Eds), *Women and Work in South Asia: Regional Patterns and Perspectives*, Routledge, London and New York, 1993.
14. Standing, G., *Labour Force Participation and Development*, International Labour Office, Geneva, 1978.
15. Agarwal B, *A Field of One's Own: Gender and Property in South Asia*, Cambridge University Press, Cambridge, 1995.
16. Agarwal, B., 'Environmental Action, Gender Equity and Women's Participation', *Development and Change*, Vol 28, pp 1-44, 1997.
17. Boserup, Ester, *Women's Role in Economic Development*, St. Martin's Press, New York, 1970.
18. Krishna, Sumi, 'A "Genderscape" of Community Rights in Natural Resource Management', in Sumi Krishna (ed) *Livelihoods and gender: Equity in Community Resource Management*, Sage, New Delhi, 2004.
19. Shiva, V., The Violence of Green revolution: Third World Agriculture, Ecology and Politics, Third World Network, Penag, 1991.
20. Unni, Jeemol, *Women's Participation in Indian Agriculture*, Oxford and IBH Publishing Co, New Delhi, 1992
21. Agnihotri, S.B., Sex Ratio Patterns in the Indian Population—A Fresh Exploration. New Delhi: Sage, 2000.
22. Basu, A., 'Is Discrimination in Food Really Necessary for Explaining Sex Differentials in Childhood Mortality?' *Population Studies*, Vol. 43, No.2, pp. 193-210, 1989.
23. Das Gupta, Monica, Lincoln C. Chen and T. N. Krishnan (Eds), *Women's Health in India: Risk and Vulnerability*, OUP, New Delhi, 1996.
24. Dasgupta, Monica and P.N. Mari Bhat, 'Intensified Gender Bias in India: A Consequence of Fertility Decline', in M. Krishnarajet al. (Eds.), *Gender, Population and Development*, pp. 73-93. New Delhi: Oxford University Press, 1998
25. Dreze, J and A. Sen, *India: Economic Development and Social Opportunity*, OUP, New Delhi (Chapter7: Gender Inequality and Women's Agency), 1996
26. Dyson, T and Moore, M., 'On Kinship structure, Female Autonomy and Demographic Behaviour in India', *Population and Development Review*, Vol.9, No1, 1983.
27. Harriss, B., 'The Intrafamily Distribution of Hunger in South Asia' in J. Dreze and A. Sen (Eds) *The Political Economy of Hunger*, Vol.I, Clarendon, Oxford, 1990.

28. Kynch, J and A Sen, 'Indian Women: Well-being and Survival' *Cambridge Journal of Economics*, Vol 7, pp 363-380, 1983.
29. Oxaal, Z. and Cook, S., 'Health and Poverty: A Gender Analysis.' BRIDGE Report No. 46, prepared for the Swedish International Development Agency. IDS, Brighton, 1998.
30. Standing, H., 'Gender and Equity in Health Sector Reform Programmes: A Review', *Health Policy and Planning: A Journal on Health in Development*, Vol. 12, No. 1, Oxford University Press, Oxford, 1997.
31. Sudha, S. and S. Irudaya Rajan., 'Female Demographic Disadvantage in India 1981-91: Sex Selective Abortions and Female Infanticide', *Development and Change*, Vol. 30, pp. 585-618, 1999.
32. Ghosh, Jayati, *Globalisation, Export-Oriented Employment for women and Social Policy: A Case Study of India*. Paper prepared for the UNRISD project on Globalization, Export-Oriented Employment for Women and Social Policy. New Delhi, Jawaharlal Nehru University, 2001.
33. Kabeer, N., 'Resources, Agency, Achievements: Reflections on the Measurement of Empowerment', *Development and Change* Vol. 30, No. 3, pp. 435-464, 1999.
34. Mies, M., 'Gender and Global Capitalism' in Leslie Sklair (Ed), *Capitalism and Development*, Routledge, London and New York, 1994.
35. Moser, C. O. N., Gender Planning in the Third World: Meeting Practical and Strategic Gender Needs. *World Development* Vol. 17, No.11, pp. 799-1825, 1989.
36. Standing, G., Global Feminization Through Flexible Labor: A Theme Revisited, *World Development*, Vol 27, No 3, pp 583-602, 1999.
37. Tiano, S., 'Gender, Work and World Capitalism' in B B Hess and M Marx Ferree (Eds), *Analyzing Gender: A Handbook of Social Science Research*, Sage, Newbury Park, 1987.
38. Unni, J., 'Gender and Informality in Labour Market in South Asia', *Economic and Political Weekly*, Vol. 34, No. 26, pp. 2263-73, 2001.

ECO-E-517: COMPUTER APPLICATIONS IN ECONOMICS

Objective: Economics, being an empirical science, computers have emerged as pivotal instruments of economic analysis, research and forecasting. Therefore, the future economists must be equipped with skills and tools based on computers, which the course will provide to them.

Module I: Introduction to Computer System and Data Processing

Operating system – Input-output - Computer networking and resource sharing, hardware, software and firmware, examples and techniques in programming languages like C, C++, visual basic and jawa. Concept of data, record and file – Types of data and data structures, data analysis - Data storage and retrieval – Database: concepts and operation on database.

Module II: Statistical Processing Techniques and Methods

Series, groups, tables, graphs and objects – Time and frequency series – Regression methods and techniques – Regression analysis.

Module III: Its Application to Finance

On line banking – Electronic trading – Data sharing and decimation – Electronic transaction - Document delivery – Authentication and validation transaction processing.

Module IV: Its Application to Commerce

Electronic trading and marketing – On line shopping and malls - Document and transaction security and digital signature.

Recommended Readings:

1. Rajaraman, V., *Fundamentals of Computer*, Prentice Hall of India, New Delhi, 1996.
2. Lipschultz, M. M. and S. Lipschultz, *Theory and Problem of Data Processing*, Schaum's Outline Series, McGraw Hill, New York, 1982.
3. Levin, R. I. and C. A. Kirkpatrick, *Quantitative Approaches to Management* (3rd Edition), McGraw Hill, 1975.
4. Intrilligator, M. D., *Econometric Models, Techniques and Applications*, Prentice Hall, Englewood Cliffs, N J, 1978.
5. Sinha, P. K., *Computer Fundamentals*, BPB Publications, New Delhi, 1992.

ECO-E-518: REGIONAL ECONOMICS

Objective: The basic objective of the course is to provide an overview of the scope and method of regional economics to the students. The significance of the spatial aspects of development process is being increasingly realized in a globalised world. The purpose of the paper is to equip the students with the basic tools of regional analysis.

Module I: Introduction to Regional Economics and Economic Analysis

Regional economics: Definition and scope - Defining a region - Delimiting functional regions - Relations of activities within a region- Forward and backward linkages - Regional specialization. Price determination in regional setting - Market area analysis - Spatial variation in costs - Regional income and employment determination - Regional income multiplier.

Module II: Theories of Firm Location: Agglomeration Economies

Objectives of location choice - Location factors - Location and the theory of production - Determinants of agglomeration - Location measures: Location quotient, coefficient of localization, localization curve.

Module III: Regional Input-Output Analysis

Input-output analysis: Introduction - Input-output analysis in a single region - Input-output analysis In two or more regions: The inter-regional input-output (IRIO) model - Input-output analysis in a two or more regions: The multi-regional input-output (MRIO) system.

Module IV: Regional Growth and Development

Causes of regional growth - Interregional trade and factor movements - Interregional convergence and divergence - Measurement of spatial disparity: Principal component analysis - Central place theory; Growth pole theory; theory of cumulative causation; Dependency theory: Centre-periphery and world system theories.

Recommended Readings:

1. Walter Isard, *Location and Space-Economy*, Cambridge, Mass, The MIT Press, 1956.
2. Hugh O. Nourse, *Regional Economics*, New York, McGraw-Hill, 1968.
3. Harry W. Richardson, *Regional Economics*, Urbana, Ill, University of Illinois Press, 1979.
4. Richardson, Harry, *Regional Growth Theory*, New York, John Wiley and Sons, 1973.
5. Krugman, P. *Development, Geography and Economic Theory*, 1995.
6. Krikelas, A., "Why Regions Grow: A Review of Research on the Economic Base Model." *Economic Review*. Federal Reserve Bank of Atlanta. July/August, 1992.
7. W. Isard, et al., *Methods for Interregional and Regional Analysis*. Ashgate, Adershot, 1998.
8. Fujita, M., P. Krugman and A. Venables, *The Spatial Economy*, 1999.
9. Blanchard, O.J. and Katz, L., "Regional Evolutions." *Brookings Papers on Economic Activity*, 1992.
10. Isserman, Andrew, M., "It's Obvious, It's Wrong, and Anyway They Said it Years Ago? Paul Krugman on Large Cities." *International Regional Science Review*. 19 # 1 & 2: 37 – 48, 1996.

11. Kaldor, Nicholas, "The Case for Regional Policies." *Scottish Journal of Political Economy*, 17 (Nov), 337 – 348, 1970.
12. King, L.J., *Central Place Theory*, Beverly Hills, CA, Sage, 1984.
13. Krugman, Paul, "Urban Concentration: the Role of Increasing Returns and Transportation Costs." *International Regional Science Review*, 19 # 1 & 2: 37-48, 1996
14. Miller, R., and P. Blair. *Input-Output: Foundations and Extensions*, 1985.
15. Perroux, Francois, "Economic Space, Theory and Applications." *Quarterly Journal of Economics*, LXIV, 1950.
16. Thomas, Morgan D, "Growth Pole Theory: An Examination of Some of Its Basic Concepts," in Niles Hansen (ed.) *Growth Centers in Regional Economic Development*, New York: The Free Press: 50-81, 1972.

ECO-E-519 DISSERTATION WRITING

Objective: the paper is being introduced in order to inculcate Research Aptitude among the Masters students.

MODULE: Dissertation writing will be based on Primary and / or Secondary Data.