

M.A. ECONOMICS

SEMESTER – I/II/III/IV

Seme- ester	Sub. Code	Title of the course	Type of Course	Credits	Contact	
					hours/ week	
Semester I			C/E/S		L	IL.
1.1	MAE01	Micro Economics-1	C	4	3	1
1.2	MAE03	Mathematical Methods in Economics	C	4	3	1
1.3	MAE04	Statistical Methods in Economics	C	4	2	2
1.4	MAE05	Macro Economics-1	C	4	3	1
1.5	MAES01	Introduction to Environment and Ecology	S	4	3	1
1.6	MAES02	Dynamics of Communication Skills and Technical Writing	S	4	2	2
Semester II						
2.1	MAE02	Micro Economics-2	C	4	3	1
2.2	MAE06	Macroeconomics-2	C	4	3	1
2.3	MAE07/09	Development Issues in Indian Economy-1 or Theory of International Trade	C	4	3	1
2.4	MAE11	Introductory Econometrics	C	4	3	1
2.5	MAE12	Public Economics-1	C	4	3	1
2.6	MAEE01	Environmental Economics-1	E	4	3	1
Semester III						
3.1	MAE13	Public Economics-2	C	4	3	1
3.2	MAE14	Theories of Economic Growth	C	4	3	1
3.3	MAE15	Development Economics	C	4	3	1
3.4	MAEE02	Environmental Economics-2	E			
3.5	MAES03	Computer Application in Mathematical Economics & Statistics	S	4	3	1
3.6	MAEE03	Natural Resource Economics	E	4	2	2
Semester IV						
4.1	MAEE04	Global Environmental Issues and Sustainable Development	E	4	3	1

4.2	MAES04/05	Health Economics/Economics of Human Development	S	4	3	1
4.3	MAEE05	Environmental Impact Assessment	E	4	3	1
4.4	MAE08/10	Development Issues in Indian Economy-2 or International Macro-economics, money and Finance	C	4	3	1
4.5	MAE16	Research Methodology and Data Base of the Indian Economy	C	4	3	
4.6	MAE17	Master's Thesis	C	4	3	

MAE: Economics Core; MAEE: Economics Elective (Environmental Economics in the Present case)

MAES: Economics Supportive

Type of Courses Offered

Core (C), Elective (E), Supportive and Socially Oriented (S)

Pedagogy

L: Lectures, I.L.: *Integrated Learning* involving Tutorials, Group Discussions, Assignments, Field work; P: Project Work

Notes:

*Either of the two courses on Indian Economy or the two courses in International Economics is to be opted as a combination. This choice is subject to resource availability.

Detail Syllabus

DETAILED SYLLABUS FOR EACH COURSE

SEMESTER I

I.1 Microeconomics-I (MAE 01)

Module 1 Concepts and Methods of Micro-economic Analysis, Scarcity and Choice, Optimization and Equilibrium, Comparative Statics (10)

Theory of Consumer: Preference relations and their properties, Consumption Decision. (Optimizing Behavior of the consumer under alternative preference structures- Utility, Indifference curves and revealed preference). Comparative statics of the consumer's decision, Slutsky Equation, Derivation of Demand Curves. Demand elasticities. Welfare evaluation of economic change (prices). Consumer's surplus(10)

Module 2: The Classical Firm and its Characteristics. Alternative Theories of the Firm, Critical evaluation of marginal analysis; (5)

Theory of Production and Costs. The Production function- Assumptions, Variation in Scale, Variation in input proportions, The multi-product firm and production possibility set.

Minimization of costs in the long and the short run. Derivation of cost functions from production functions; derived demand for factors of production

Supply: Profit maximization in the short and the long run. The multi-product case. Comparative statics- The firm's Supply function. Technical progress.

Cobb-Douglas, CES, and Trans-log production functions and their properties; (15)

Module 3: Price and Output Determination under alternative markets

perfect competition — short run and long run equilibrium of the firm and industry, supply curve; Monopoly — short run and long run equilibrium, price discrimination, welfare aspects, monopoly control and regulation;

Monopolistic competition — general and Chamberlin approaches to equilibrium, equilibrium of the firm and the group with product differentiation and selling costs, excess capacity under monopolistic and imperfect competition, criticism of monopolistic competition; (10)

Oligopoly — Non-collusive (Cournot, Bertrand, Edgeworth, Chamberlin, kinked demand curve and Stackelberg's solution) and collusive (Cartels and mergers, price leadership and basing point price system) models; Price and output determination under monopsony and bilateral monopoly; Workable competition — Structure, conduct and performance norms. (10)

Basic Readings

1. Gravelle, H and Ray Rees (2004), *Microeconomics*, 3rd edition, Prentice Hall Longman London.
2. Sen, A. (1999), *Microeconomics: Theory and Applications*, Oxford University Press, New Delhi.
3. Varian, H. (2005), *Intermediate Microeconomics: A Modern Approach* W.W. Norton, New York.
4. Roy Choudhary, K *Microeconomics*, Vol 1.

1.2. Mathematical Methods (MAE 03)

The main objective of this paper is to train the students to use the techniques of mathematics which are commonly applied to understand and analyze economic problems. The students are expected to formulate problems in economic theory and learn simple solutions with one or two variables, leaving the solution of general problems for the paper on Application of Computers in Economics.

Mathematical Methods

Module-1

Concept of a function; Limits, continuity and differentiability of a real valued function; Convex and concave functions; Multivariable functions, Differentiation-Total and Partial; Interpretation of partial derivatives; Optimization with single and multivariable functions- Unconstrained and constrained optimization in simple economic problems; Integration-simple and Definite; (20)

Module 2 :

Concept of a vector - its properties; Concept of matrix - their types, Simple operations on matrices, matrix inversion. Determinants and their basic properties; Solution of simultaneous equations through Cramer's rule; Input-output Analysis Difference equations - Solution of first order and second order difference equations; Differential Equations (20)

Module 3:

Linear programming — Basic concept; Formulation of a linear programming problem — Its structure and variables; Nature of feasible, basic and optimal solution; Solution of simple linear programming problems through graphical and simplex method*; Concept of duality and statement of duality theorems; Formulation of the Dual and its interpretation; Shadow prices and their uses; Game Theory; Strategies - simple and mixed; Value of a game; Saddle point solution; Simple applications. (20)

*Use computers to solve general formulations in the paper on 'Computer Application in Economics')

Basic Readings

1. Chiang, Alpha, C., *Fundamental methods of Mathematical Economics*; 4th Edition, McGraw Hill, 2008.
2. Mukherji, B. and V, Pandit, (Latest Edition), *Mathematical methods of Economic Analysis*, Allied,

1.3. Statistical Methods (MAE 04)

The paper deals with simple tools and techniques, which will help a student in data collection, presentation, analysis and drawing inferences about various statistical hypotheses. The students are expected to formulate problems in economic theory and learn simple solutions with one or two variables, leaving the solution of general problems for the paper on Application of Computers in Economics.

Module 1 (15)

Typical data sets arising in economics, Qualitative, Quantitative, Income, Expenditure, Time Series and Panel data. Major sources of data sets: Census, Government agencies, e-resources, Graphical representations, Measures of Central tendency, Measures of dispersion.

Sampling methods: Census, simple random sample with and without replacement, stratified sampling methods.

Module 2 (15)

Probability theory: Laws of addition and multiplication; Independence of events, Conditional probability and concept of independence; Bayes theorem with applications; Random variable; Discrete and Continuous random variables; Probability density functions; Binomial, Poisson and Normal distributions, their mean and variance, graphs of normal density functions.

Module 3 (15)

Correlation: Pearson's product moment and Spearman's rank correlation-their properties; Partial and multiple correlations, linear and nonlinear regression.

Estimation: Concept of an estimator and its sampling distribution: Desirable properties of a good estimator; Point and Interval estimation.

Module 4 (15)

Testing of statistical hypotheses – Formulation of the problem; Null and alternative hypothesis; Type 1 and Type 2 errors, Goodness of fit; Confidence intervals and level of significance; Hypothesis testing for means, variance, regression coefficients based on standard normal, t, Chi-square and F tests.

Basic Readings:

1. Lee, C. F., Lee, J. C. and Lee, A. C. Statistics for Business and Financial Economics. (2000), World Scientific, Singapore.
2. Black, Ken. Business Statistics. (2004), John Wiley & Sons.
3. Taylor, S. Business Statistics. (2001), Palgrave.
4. Bluman, A. G. Elementary Statistics. (2009), McGraw-Hill.

1.4. Macroeconomics-I (MAE 05)

Module-1 Basic Concepts:-

Macroeconomic Variable- Stocks and Flows, Macroeconomic relationships, Micro assumptions of macroeconomics, Problem of Aggregation: Macroeconomic Equilibrium, Flow equilibrium and Stock equilibrium, Full equilibrium.

National Income Accounts, Flow of Funds Accounts and Input-Output Accounts, Concept of Wealth and Price Indices

Module-2 Determination of Income and Employment:-

Models of Income and Employment Determination: An Overview, Walrasian interpretation of Keynesian unemployment- Patinkin, Clower, Leijonhufvud, New Keynesian Interpretation, Post-Keynesian Interpretation-Sidney Weintraub, Paul Davidson, Kalecki and Minsky, New Classical Economics

Module-3 Money and Inflation:-

Demand for Money- Friedman, Baumol, Tobin, Patinkin's Real Balance Effect, Issues regarding endogenous and exogenous supply of money, R.B.I.'s Approach to Supply of Money

Demand-Pull and Cost-Push Inflation, Phillips Curve Controversy, Natural Rate of Unemployment- Adaptive expectation and Rational expectation models, Lessons from the Indian Economy

Module-4 Consumption Function and Investment Function:-

Life Cycle Hypothesis, Permanent Income Hypothesis, Random Walk Hypothesis, Classical Theory of Investment, Keynesian Theory of Investment, Accelerator, Neo-Classical and New Classical Theories of Investment.

Recommended Texts-

1. Dornbusch, Fischer & Startz, Macroeconomics, Tata McGraw-Hill Publishing Co. Ltd.
2. Branson, W.H., "Macroeconomic Theories and Policies,

1.5. Introduction to Environment and Ecology (MAES 01)

Module I (20 hours)

The Planet and Concept of eco-system; Major eco-systems of the world; Solar energy Flow; Bio-Geo chemical cycles:- Carbon Cycle, Hydrological Cycle, Nitrogen cycles; Climate systems and Oceanic Currents

Module II (20 hrs)

Economy-Environment Interaction; Entropy law and Material balance - resources and waste generation; Stock and Flow of exhaustible resources and Fund services of Eco-system resources; Problems of Resources Depletion and degeneration;
Classification of resources: Renewable and Non-renewable. Biotic and Abiotic, Exhaustible and Non-exhaustible resources
Biotic Resources: Vegetation and forests; Agriculture, Fishery and livestock; Biodiversity: Exhaustion and Degradation
Abiotic Resources: Land and Soil, Surface Water and ground water; Energy resources; Non-Energy mineral resources; Problems of their depletion and exhaustion (Land and Soil use and erosion must be covered here)

Module III (15 hours)

Problems of Pollution due to Overuse of Ecosystem Services (With reference to sectoral activities of agriculture, mining, industry and other activities such as transport and Health services)

Air Pollution: Types of pollutants and their impact; Ozone Depletion; Global Warming; Acid rain; Urban Pollution and Urban Health

Water Pollution- The Concepts of BOD and COD, Ph values, Fluoride; Biotic Waste; Fertilizer use; Euthrophication of water Bodies; Arsenic pollution; Heavy metals and Toxic wastes; Sewage

Land Degradation- the problem of Solid waste disposal and contamination; The problem of Salinity and water logging

MODULE IV (5 hours)

Introduction to Sustainable Development:

Concept, Sustainable resource use and pollution control policy.

(This is to provide an interface with economics. The teacher is not expected to teach the *theory of sustainable development*.)

Recommended Readings:

1. Sengupta, Ramprasad, Ecology and Economics: An Approach to Sustainable Development, Oxford University Press, 2003.
2. Ramprasad Sengupta, Ecological Limits and Economic Development, Oxford University Press, 2012.
3. Eugene P.Odum, Ecology, 1996, Sinauer Associates Inc. chapters 3 and 5 Parts from : Y.Anjaneyulu, Introduction to environmental Science, B.S.Publications 2004

1.6. Dynamics of Communication Skills and Technical Writing (MAES 02)

Module 1: Language Skills (10)

- a. Usage of Grammar: Tenses, Articles and Modals
- b. Vocabulary Building: Antonyms, Synonyms, Prefix and Suffix

Module 2: Technical Communication (10)

- a. Letters & Resume Writing: Formal and Informal Letters and Resume writing
- b. Presentation Skills: Types of presentation, preparing presentations, audience recognition, , skills for seminar.

Module 3: Interview Skills: (10)

- a. Types of Interviews: Preparing for interviews, Mock interview drills, frequently asked questions, about the organization etc.
- b. Group Discussion: Developing group communication skills, case studies and role-play.

Module 4: Reading and presentation Skills (30) (extra addition as discussion took place during meeting)

Reading books (original books written by Keynes, Hicks, Schumpeter, Adam Smith etc.), reports, articles and present in front of class (and respective subject teachers).

Suggested Tutorials:

1. Introduction to the Sounds of English- Vowels, Diphthongs & Consonants.
2. Introduction to Stress and Intonation.
3. Situational Dialogues/ Role Play.
4. Oral Presentations- Prepared and Extempore.
5. 'Just A Minute' Sessions (JAM)
6. Describing Objects / Situations/ People.
7. Information Transfer.
8. Debate.

9. Telephonic Skills.
10. Giving Directions.

Basic Readings:

1. Grierson , J. Sharori Technical Writings, Process and Product, Pearson Education, 2004.
2. Betty Kirkpatrick: The Concise Oxford Thesaurus.OUP, 24th Impression 2003.
3. Raman, Meenakshi : Communication Skills, Oxford University Press, India, 2009.
4. Adams, Dorothy: Everyday English, Cengage Learning, India, 2009.

SEMESTER II

2.1 Microeconomics-2 (MAE 02)

Theory of Distribution

Neo-classical approach — Marginal productivity theory; Product exhaustion theorem; Elasticity of technical substitution, technical progress and factor shares; Theory of distribution in imperfect product and factor markets; (15)

General Equilibrium

Partial and general equilibrium, Walrasian excess demand and input-output approaches to general equilibrium, existence, stability and uniqueness of equilibrium and general equilibrium, coalitions and monopolies; Production without consumption — one sector model, homogeneous functions, income distribution; (15)

Welfare Economics

Pigouvian welfare economics; Pareto optimal conditions; Value judgment; 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. (15)

Market failure and the Second best

Causes of Market Failure, Instances of Market failure, the theory of Second Best, Government action and Government Failure. (15)

References

1. Gravelle, H and Ray Rees (2004), *Microeconomics*, 3rd edition, Prentice Hall Longman London.
2. Mas-colell, A, Michael D. Wiston and Jerry G. Green (1995), *Microeconomic Theory*, OUP, New York.
3. Sen, A. (1999), *Microeconomics: Theory and Applications*, Oxford University Press, New
4. Delhi.
5. Stigler, G. (1996), *Theory of Price*, (4th Edition), Prentice Hall of India, New Delhi.
6. Varian, H. (2004), *Microeconomic Analysis*, W.W. Norton, New York.
7. Roy Choudhary, K; *Microeconomics*, Vol 2,3.

2.2 Macroeconomics- 2 (MAE 06)

Preamble

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

Module-1 **Macroeconomics in the Short Run**

Fluctuations of Macroeconomic variables, The Stylized facts, Wage-Price rigidities, and Keynesian Cycles.

Open Economy Issues: Open economy IS-LM-MP, The Mundell-Flemming Model, Stabilisation, Macroeconomic Policy and Exchange Rate Regimes. Asset Price Volatility, Interest rate and Exchange rates, Crisis models and Strategic interactions.

Module-2 **Micro-foundations of Real and Nominal Rigidities**

Non-Walrasian model and Economic Fluctuations, Imperfect Information, Imperfect Competition and Asymmetric Information, Solving for Rational Expectation Equilibrium, Coordination Failure

Module-3 **Macroeconomics in the Medium Run:-**

Ricardian Equivalence, The Open economy Consumption Smoothing, and foreign capital, The firm; Tobin's 'q' theory of investment , Research and Development, Human Capital and Externalities- Empirical Issues, Real Business Cycle Dynamics.

Module-4 **Macro Policy:-**

Coordination of Fiscal and Monetary Policy, Rules versus Discretion, Credibility, Commitment devices, Monetary Transmission Mechanism and Targeting.

Recommended Texts-

1. Romer D. (2001) *Advanced Macroeconomics*. McGraw Hill Book Company: London,
2. Blanchard Olivier & Fischer Stanley. *Lectures on Macroeconomics*. Cambridge: MIT Press,
3. Heijdra B., van der Ploeg F. (2002) *Foundations of Modern Macroeconomics*, Oxford University Press,

2.3 Development Issues in Indian Economy-1 (General Issues)

(MEA 07)

Module-1

Economic development and institutions – Role of state, markets and civil society institutions.. Characteristics of Indian markets and need for state interventions. Growth of Indian economy since independence – Sectoral growth rates and changing structure. Poverty trends. Inequalities and regional imbalances.

Module-2

Pre 1991 Development policies: Role of central planning, Import substitution and development of capital goods and heavy industries, Industrial licensing and exchange controls, Growth of public sector growth.

Post 1991 development in global economies; Trade and exchange rate liberalization, market oriented reforms, Capital flows from World Bank and IMF. Structural adjustment programmes and conditionalities. Exchange rate and trade policy changes, Industrial policy and setting up of regulatory structures like SEBI, TRAI, IRDA, etc.

Module 3

Growth of domestic savings and investment. Role of foreign capital - borrowing, equity and direct investment. Technology inflows. Monetary policy issues: Price level and inflationary trends - Composition of wholesale price index. Retail prices.

Basic Reading

1. Ray, Debraj; Development Economics, Oxford University Press, 2002.
2. To be supplemented by scholarly readings from Economic and Political Weekly, Indian Economic journal and Indian Economic Review
3. Uma Kapila, Indian Economy: Issues in Development & Planning and Sectoral Aspects

2.4 Theory of International Trade (MAE 09)

Module 1

'Pure' theory of trade - Classical theory, Comparative advantages and labour productivity differences as the basis of trade. "Trade is better than no trade". Constant costs and complete specialization in a two good, one factor model. Extension to multi country and multi commodity trade. Gains from trade and terms of trade.

Neo- classical trade theory - two factor, two goods and variable cost model. Opportunity cost. Role of demand even with same production function. Incomplete specialization. General equilibrium in two-country, two goods open economy model.

Heckscher Ohlin factor endowment model. From equalization of commodity prices to factor price equalization. Stolper-Samuelson theorem. Specific Factor Model

Module 2

Leontief Paradox and factor intensity reversals and pattern of trade

Intra-industry and intra-firm trade. Modern explanations of trade patterns Transportation costs. Increasing returns. Product differentiation. Trade under imperfect competition, Technology and demand. Empirical testing of trade models. Leontieff Paradox and factor intensity reversals - Solow, Arrow-Minhas results with CES production function. Global trade patterns.

Gains from trade. Distribution and welfare. Terms of trade and Offer curves. Growth and terms of trade effects. Rybczynski theorem. Immiserizing growth. Growth and factor mobility - immigration and capital mobility. Trans-national corporations

Module 3

Trade policy and Theory of trade interventions. General equilibrium effects of tariffs on welfare. Offer curves and tariffs. Arguments for protection. Quotas. Comparison of tariffs and quotas. Countervailing duties and export subsidies. Effects of tariffs on factor prices. Effective rate of protection. Dumping. Non-tariff barriers. Voluntary Export Restraints, Export Subsidies etc.

Theory of customs union – ‘second best’ argument – trade creation and trade diversion, Stages of integration Regional trade groupings, GATT and WTO

References

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

2.5. Introductory Econometrics (MAE II)

Module-1

Classical Linear Regression Model- two and three variables- estimation testing and forecasting, Introduction to multiple linear model and tests of linear restrictions. (15)

Module-2

Multicollinearity. Heteroscedasticity and Auto-correlation: Causes, consequences, common tests and remedies. (15)

Module-3:

Models for Binary Choice-The logit and the probit regression. Dummy variables (10)

.Module-4

Simultaneous Equation Models. Identification. Methods of Estimation- Properties of estimators (Without Derivations and Proofs). Introduction to Time Series Econometrics. (20)

Recommended Text Book

1. Damodar N. Gujarati, *Basic Econometrics*, 4th Edition, McGraw Hill, 2008.

Supplementary References

2. Damodar Gujarati, *Essentials of Econometrics* McGraw Hill, 2005.
3. C. Mukherjee, H.White and M. Wuyts, *Econometrics and Data Analysis for Developing Countries*, Routledge, 1998.
4. Ramu Ramanathan, *Introductory Econometrics with Applications*. Cengage Learning (Thompson), 2002.

2.6 Public Economics-1 (MAE 12)

Module-1: Introduction

Scope and Methods of Public Economics, Economic Analysis of Public Policy, Market Economy and Mixed Economy, Ways of Government Intervention (10)

Module-2 Theory of Public Goods

Alternative Classifications of Public Goods, Optimal Provision of Public Goods, Private Provision of Public Goods, Nash-Cournot Solution, Preference Revelation, Samuelson and Lindahl Equilibrium, Club Goods Model (20)

Module-3 Problem of Externalities and Solutions

Positive and Negative Externalities, Negative Externalities and Social Cost, Choice of Policy Instruments, Pigouvian Tax, Coase Theorem and Private Negotiation (Private Property Solution) Tradable Permits, Subsidy Solution, Externality Solutions and their Problems (15)

Modul-4 Theory of Regulation and Pricing

Economic Rationale of Regulation, Concerns of Regulation like Environment, Health and Safety, Network Economies, Regulating Rate Structure, Public Utility Pricing, Marginal Cost Pricing and Two-Part tariff, Private Provision of Public Goods (15)

Reference Books

1. John Leach (2004); *A course in Public Economics*, Cambridge University Press
2. Jean Hindriks and Gareth D. Myles (2006), *Intermediate Public Economcs*, MIT Press
3. Peter Abelson (2008); *Public Economics: Principles and Practices*, Oxford University Press
4. David A. Starrett (1988), *Foundations of Public Economics*, Chambridge University Press

Other Useful references

1. Viscuss WK (2009); *Economics of Regulations and Anti-Trust*, Joseph Harrington Press
2. Kniesner T.J. (2005); *Economics of Regulation: Principle and Regulations*, MIT Press
3. Kahn Alfred Edward (1988); *Economics of Regulations: Principles and Institution*, MIT Press
4. Dennes C. Muller (2003); *Public Choice III*, Cambridge University Press

2.7 Environmental Economics-1 (MAEE 01)

MODULE I (10 Hrs)

What is environmental economics? Distinction between environmental Economics and natural resource economics. Issues of Environmental economics: Problems of Market Failure: Public bads and externalities. Social choice of optimum pollution. (Kolstad, Chapters1-4)

MODULE II (15 Hrs)

Theory of environment Regulation: Price Rationing, Pigovian taxes; Subsidies for Abatement of pollution-The case in the short and long run; Property Rights and the Coasian Approach: bargain Solution. (Kolstad, Chapters 5-8)

MODULE III (10 Hrs)

Quantitative regulation:Command and Control- Standard setting; Tradable pollution permits (Kolstad, Chapter 9); Mixed permit- charge system (H, S & W chapter 3); Output Tax

s

MODULE IV (15)

The Problem of uncertainty and risk in Environmental policy choice; Regulation with unknown Control cost; Monitoring emissions, enforcement and Moral hazard; Environmental Risk and uncertainty, Disaster management and insurance. (Kolstad chapters 10-12);

Suggested Texts :

1. Kolstad, C, D. (2003) Environmental Economics, Oxford university Press
2. Hanely, Nick, Jason F.Shorgen, and Ben White, Environmental Economics: In Theory and Practise 1999, MacMillian

SEMESTER III

3.1 Theories of Economic Growth (MAE-14)

Module-1

Problem of Economic Growth- Problem of Economic Growth and the General Solution; Growth Equilibrium: Existence, Uniqueness and Stability; Harrod –Domar Model of Economic Growth

Module-2

Neo-Classical Models of Growth: Growth model of R.M. Solow, Instability & Convergence debate, Ms. Joan Robinson and Concept of Golden Age and Golden Rule of Accumulation; Models of Optimum Economic Growth- Keynes-Ramsey Rule, Cass-Koopmans Model

Module-3

Neo-Keynesian Models of Growth & Distribution- Kaldor and L. Pasinetti

Technology and Growth- Hicks, Harrod and Solow- Neutrality of Technical Change, Embodied and Dis-embodied Technical Change, Growth Accounting.

Money and Growth- James Tobin and H.G. Johnson;

Module-4

Endogenous Growth Models- AK Models, Lucas Model of Human Capital, Romer Model of Endogenous Innovation.

Recommended Text-

1. Barro, Robert J. and Xavier Sala-i-Martin, Economic Growth, McGraw-Hill,
2. H.G. Jones, “ An Introduction to Modern Theories of Economic Growth” McGraw-Hill Book Company
3. Jones C.I., “Introduction to Economic Growth” W.W. Norton & Company, New York
4. Romer, David, Advanced Macroeconomics, New York: McGraw-Hill Co.,
5. Sen, A.K.,ed.(1970) Growth Economics, Penguin Books.
6. Blanchard, O. and Fischer, S. 1989. Lectures on Macroeconomics.

3.2 Public Economics -2 (MAE-13)

Module-1: Public Finance (20)

Objectives and Instruments of Fiscal Policy, Taxation-General Principles: Efficiency, Equity, Cost of Collection and Compliance; Tradeoff between Efficiency and equity; Effect of Taxes on labor supply and Savings-Income, commodity and wealth tax. Laffer’s Curve,

Superiority of direct taxes over indirect taxes (Commodity, sales, turnover or value added tax)

Non-Tax Fiscal Instruments: Profit and Dividends, Rents and Royalties, Non-revenue Effects of Non-Tax Instruments

Module-2

Public Debt: Public Debt and External Debt, Theories of Public Debt, Ricardian Equivalence, Debt Management Techniques (10)

Budget and Fiscal Policy: Capital and Revenue Accounts, Dynamic Nexus between Two Accounts, Budget Deficits, Theories of Deficits, Indian Budget Deficits: Union and States, (10)

Module-3

Public Expenditure: Leviathan Hypothesis, Revenue/Capital, Plan/Non Plan and Development/ Non development expenditure, Niskanen Model, Efficiency and Equity Tradeoff, Transfers and Subsidies, Financing of Social Programs (10)

Fiscal Federalism: Principles Determining Federal Division of Revenue and expenditure, Vertical and Horizontal Imbalances, Transfer Mechanism in India, Role of Finance & Planning Commissions, Sharing of Taxes, Non-tax Revenues and Grants (10)

Selected Readings

1. Musgrav R.A. and P.B. Musgrave (1989); Theory and Practice of Public Finance 5th ed, Tata Mc Graw Hills
2. Gupta Janak Raj (2007); Public Economics in India: Theory and Practice, Atlantic Publisher
3. Bagchi Amaresh; Readings in Public Finance, Oxford University Press

3.3 Development Economics (MAE 15)

Module 1

Concept of Development – From GDP per capita to holistic indicators. PPP and international differences. International poverty line and estimates of poor. Factors of development.

Colonialism and dependency theories. Schumpeter –Innovation, enterprise and process of ‘creative destruction’. Rejection of trade as the ‘engine of growth’. Nurkse and Prebisch arguments. Structural changes: Kuznets analysis of structural change. (15 Hours)

Module 2

Concept and Measures of Poverty-, Pareto Distribution, Head- Count Ratio, Income Gap Ratio, FGT Index.

Concept and Measures of Inequality – Lorenz Curve and Gini coefficient, Issues in composite Indices, Problems of Aggregation.

Inequality and Growth- the inverted U curve hypothesis, Inequality and growth – Interrelationships. (15 Hours)

Module 3

Role of capital formation – vicious circle arguments, Rostow’s stages of development, Kuznet’s economic history analysis of characteristics of development. Capital formation and allocation of investment- Balanced and unbalanced growth theories. Rosenstein –Rodan and Hirschman. Denison’s growth accounting – Contribution of labour, capital and Technology. (15 Hours)

Module 4

Role of agriculture. Dual economies and surplus labour argument, Ranis-Fei Model, Unemployment- efficiency wage theory as an explanation for wage rigidity and involuntary unemployment, Collusive theory of unemployment. Population growth and critical Minimum Effort. Demographic transition. Demographic dividend. (15 Hours)

Required Readings:

1. A.P. Thirlwall: *Growth and Development*, ELBS.
2. D Ray: *Development Economics*, OUP.
3. S. Ghatak: *Introduction to Development Economics*, Rutledge.
4. Kaushik Basu: *Analytical Development Economics. The Less Developed Economy Revisited*, OUP.
5. D Lal; *The Poverty of Development Economics*, OUP.
6. G. Meier: *Leading issue in Economic Development* (4th Edition), OUP.
7. Meier and Rauch: *Leading Issues in Economic Development* (8th Edition), OUP
8. M.P. Todaro and S.C. Smith: *Economic Development* (8th Edition), Pearson.

3.4 Environmental Economics-2 (MAEE02)

MODULE I (15 Hrs)

A. Economic Valuation of Environmental Damage or Benefits

- i) Economic Theory and Measurement of Environmental Benefits. Demand for Environmental Service – Willingness to Pay and Willingness to Accept.
- ii) Concepts of Consumer’s Surplus. Compensating and Equivalent Surplus in the context of rationed goods and the Environment.

MODULE II (20)

- i) Alternative Approaches and Methods of Environmental Valuation – Revealed Preference and Stated Preference Method – Hedonic Pricing, Household Production Function, Travel Cost Method, Defensive cost and Contingent Valuation Method. Case studies to be discussed.
- ii) Valuation of Health and Human Life
- iii) Valuation of Bio-Diversity

MODULE III (10)

Macroeconomic Aspects of the Environment

- a. The concept of Sustainable Development.

- b. Measuring Sustainable Development
- c. Sustainable Macroeconomic Accounting of National Income and Wealth.
- d. Green Accounting.

MODULE IV (15)

Development and Environment: The Environmental Kuznets Curve. Theory of Krutilla-Fisher Equation for Preservation or Development.

Environmental Cost-Benefit Analysis for Sustainable Development. Rationale of Discounting the Future in the context of Sustainability

Endogenous Growth Theory and Sustainable Development. Technological Change and the Environment

Total Hours: 60 hrs.

Tutorials can be conducted depending on the need and the nature of the topic. The allocation for tutorial should not exceed 20%.

Suggested Readings:

1. Johansson Per-Olov: The Economic Theory and Measurement of Environmental Benefits, Cambridge University Press, Cambridge, 1987.
2. Kolstad C.D., Environmental Economics, Oxford University Press, 2000.
3. Bhattacharya R.N. (ed.), Environmental Economics: An Indian Perspective, Oxford University Press, 2001.
4. M.N. Murthy Environment, Sustainable Development, and Well-being Valuation, Taxes, and Incentives, OUP May 2009
5. Oates W.E. (ed.), The Economics of the Environment, An Elgar Critical Writings Reader, Edward Elgar, 1994. PART 4 REFERENCES
6. Jeoren, C.J.M van den Breghe (Ed) Hand Book of Environmental and Natural Resource Economics, (Edward Elgar, 1999) Part VI paper numbers 42, 44, 45, 46.
7. Pearce D.W. And R.K. Turner, Economics of Natural Resources and the Environment, Harvester Wheatsheaf, 1990.
8. Kadekodi, Gopal K., Environmental Economics in Practice, Oxford University Press, 2004.
9. Arrow, Kenneth J. and Anthony C. Fisher, "Environmental Preservation, Uncertainty and Irreversibility" Quarterly Journal of Economics, Vol. 87, 1974.
10. Krutilla John V. (1967). "Conservation Reconsidered", American Economic Review, Vol. 57, 1067.
11. Sujarto Marjit (ed) India Macro Annual 2007, Sage publications.
12. Dasgupta P., Human Well-being and the Natural Environment, Oxford University Press, 2001. Chapter 9
13. Kanchan Chopra and Vikram Dayal (Ed). Hand book of Environmental Economics in India. Oxford University Press 2009. Chapter 2 by Partho Dasgupta and Maelier

3.5 Computer Application in Mathematical Economics and Statistics (MAES03)

Module 1: An overview of Computers (15)

Introduction to computer and Computer technologies. Overview of computer – Basic operating instructions. Overview of databases. Introduction to soft wares – MS Office, Excel, STATA, Eviews. Loading the data to Excel, STATA, Eviews – Differences in the use of different software packages

Module 2: Exploratory Data and Simple Statistical Analysis (10)

- a. Tabular and Graphical Representation of data with interpretation. Displaying graphs on the screen – Saving and operating graphs – Printing graphs – Labelling graphs – Overlay (two scales) graphs – Multiple graphs on a page.
- b. Descriptive Statistics: Central Tendency, Dispersion and Shape. Mean, median and mode – Variance and Standard Deviation – Skewness and Kurtosis – Five number summary – Covariance – Correlation (zero order, rank and partial correlation).
- c. Simple Parametric and Non-parametric tests, t-test procedures, F-test, Mann Whitney procedures – Principal Components, Factor and Cluster Analysis

Module 3: Linear Regression-Interpretation using applications (25)

- a. Two Variable Regression Model, Multiple Regression including dummy variable
- b. Growth rate calculation, Trend Analysis
- c. Functional Forms
- d. Testing for Multicollinearity, Heteroscedasticity, and Autocorrelation and remedial measures
- e. Specification error
- f. Simultaneous Equation Model- 2SLS
- g. Qualitative Response Model- Probit, Logit and Tobit

Module 4: Application to Environmental Economics (10)

In this module students should be exposed to the methodological aspects of handling cross sectional data, time series data, longitudinal or panel data, survey data, etc. which are often used in environmental studies. Different econometric techniques especially with reference to valuation should be elaborated with suitable applications.

Basic Readings:

1. HGL - R. Carter Hill, William E. Griffiths and Guay C. Lim (2007) Principles of Econometrics, 3rd Edition, November; (ISBN 978-0-471-72360-8) John Wiley & Sons Inc.
2. GHL - William E. Griffiths, R. Carter Hill and Guay C. Lim (2008) Using EViews for Principles of Econometrics, 3rd Edition, February; (ISBN: 978-0-471-78711-2) John Wiley & Sons Inc.
3. AH - Lee C. Adkins and R. Carter Hill (2007) Using Stata for Principles of Econometrics, 3rd Edition, December; (ISBN: 978-0-470-18546-9) John Wiley & Sons Inc.
4. GM - Darren George and Paul Mallery (2010) SPSS for Windows Step by Step: A Simple Study Guide and Reference, 17.0 Update, 10th Edition; (ISBN: 9788131762257) Pearson Education.

5. DP - Glyn Davis and Branko Pecar (2010) Business Statistics Using Excel, Paperback Ed., January, (ISBN: 978-0-19-955689-2) Oxford University Press.
6. Ham - Lawrence C. Hamilton (2006) Statistics with STATA, (ISBN: 0-495-10972-X), Thomson Brooks/Cole.
7. CT - A. Colin Cameron and Pravin K. Trivedi (2009) Microeconometrics Using Stata, (ISBN: 1-59718-048-3) A Stata Press Publication.
8. HM - Timothy C. Haab and Kenneth E. McConnell (2003) Valuing Environmental and Natural Resources: The Econometrics of Non-Market Valuation (New Horizons in Environmental Economics) , Paperback Ed., March; (ISBN: 1843763885) Edward Elgar Pub HMS –
9. A. K. Enamul Haque, M. N. Murty, Priya Shyamsundar (2011) Environmental Valuation in South Asia, (ISBN: 1107007143) Cambridge University Press.

3.6 Natural Resource Economics (MAEE03)

MODULE I (10 HRS)

Theory of General Equilibrium incorporating Resources and Environmental Pollution.

MODULE II (20 hrs)

Economics of Renewable Resources: Biotic and A-biotic. Optimal Management of Renewable Resources – Cases of Water, Soil, Forest, Fishery, Bio-Diversity: Theories of Pricing, Depletion and Augmentation of Resources. Agriculture and the Environment, Land Use and Environment in Developing Economies.

MODULE III (15Hrs)

Economics of Non-Renewable Resources: Theories of Depletion and Investment for Exploration. Pricing and Market. Natural Resource Cartels: CASES OF Energy and Non-fuel Minerals Energy, Environment and Economic Growth

MODULE IV (Hrs15)

Economics of Common Property Resources and Institutions. Participatory Development for Sustainability. Specific Issues of Sustainability for Developing Economies:

- i) Population, Poverty and Environmental Resource Base.
- ii) Human Development and Environmental Sustainability. Distributional and Equity Issues in Environmental Policy.

Total Hours: 60 hrs.

Tutorials can be conducted depending on the need and the nature of the topic. The allocation for tutorial should not exceed 20%.

Suggested texts:

Suggested Texts and references:

1. Hanely, Nick, Jason F. Shorgen, and Ben White, Environmental Economics: In Theory and Practise 1999, MacMillan Chapters 7-11.

2. Hanely, Nick, Jason F. Shorsten, and Ben White., Introduction to Environmental Economics, OUP, 2004, (Chapters 6,10,11,12,13 and 14 For module I)
3. Kneese, A.V., R.U. Ayres, Production Consumption and externalities, American Economic review, 1969, June Vol.59, 282-97
4. Kneese, A.V., R.U. Ayres and R.C. d'Arge, Economics of the Environment: A Material Balance Approach, Journal of Political Economy, Vol. 86, 1970.

SEMESTER IV

4.1. Global Environmental Issues and Sustainable Development (MAEE04)

MODULE I (15 hrs)

Trans-national Issues and the Environment

- i) Trade and Environment: Trade, Foreign Investment and the Environment. Ecological dumping and standards
- ii) Trans-national Pollution. Management of the Global Commons
- iii) Globalization, Economic Reforms and the Environment

MODULE II (10 hrs)

Economics of Global Warming and Climate Change: Nordau's Dice Model.

MODULE III (15hrs)

Energy, Environment and Economic Growth: Indian Energy and Environment issues and Climate Change negotiations.

MODULE IV (15 hrs)

Environmental Issues and Policies in India: Water, Land Transport and Urban development and related issues

Suggested readings

Module I

Sengupta, R.P, High Economic growth, Equity and Sustainable Energy Development in Kanchan Chopra and Vikram Dayal (Ed). Hand book of Environmental Oxford University Press 2009.

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

Kavi Kumar, in Kanchan Chopra and Vikram Dayal (Ed). Hand book of Environmental Economics; Oxford University Press 2009.

Joyashree Roy in Kanchan Chopra (Ed).2009

Module II

Nicholas Stern, The Economics of Climate Change: Stern review, Cambridge University Press, 2007

Module III

I. Mohan Munasinghe and James Gustave Speth, Sustainable Development in Practice Cambridge University Press

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

Module IV

1. Remaining sections in Kanchan Chopra and Vikram Dayal (Ed). Hand book of Environmental Oxford University Press 2009.

2. The integrated energy Policy of the Planning Commission

4.2 Economics of Human Development (MAES 05)

Module 1 (12)

Concepts and Dimensions of Human Development, Ends and Means of Development, Multi-faceted Nature of Development, Rawls: A Critique of Utilitarianism, Sen: The Capability Approach, Dimensions of Development, Human Rights and Human Development, Cultural Diversity and Human Development

Module 2 (12)

Measurement Aspect: Refinement of Human Development Index, Measuring Deprivation adjusted for Group Disparities, Secluded (isolated) and Proximate Illiteracy, Measuring Group Differentials and Multidimensional Poverty

Module 3 (12)

Economics of Public investment in education, health care and environmental sustainability, Dynamic linkage between human development and growth

Module 4 (12)

Other dimensions of human development: Social capital, inclusion, empowerment and freedom

Module 5 (12)

HD in India, Role of institutions (national and international), government and NGOs, Studies specifically related to Indian economy showing linkage between human development and economic growth.

Readings:

1. Sen, Amartya K., *Choice, Welfare and Measurement*, Oxford, Basil Blackwell, 1982
2. [Nussbaum, Martha](#), and Sen, Amartya. *The Quality of Life*. Oxford: Clarendon Press, 1993
3. Sen, Amartya, *Development as Freedom*, Oxford, Oxford University Press, 1999

4. Ranis, G, F. Stewart and A. Ramirez (2000), Economic Growth and Human development, in *World Development*, February 2000, Vol. 28(2): 197-219
5. Ranis, G and F. Stewart Dynamic Links between the Economy and Human Development, in *Policy Matters: Economic and Social Policies to Sustain Equitable Development*, José Ocampo, Jomo K.S. and Sarbuland Khan (eds), Zed Books Ltd., London, UK. 2007, pp.32-52
6. Ranis, G, F. Stewart and Emma Samman "Human Development: Beyond the Human Development Index," *Journal of Human Development*, 7(3), November 2006. pp.323-358.
7. Various UNDP reports

4.3 Health Economics (MAES 04)

Module 1: Health Economics (20)

The state and scope of health economics, Human Capital and health, Health as a Social Indicator, Health dimensions of development: the health and development interdependency, the dual Relationship between Health and Economic Status, Determinants of health: Poverty, Malnutrition and Environmental quality, Components of economic appraisal of health programme.

Module 2: Costs and Benefits of health services (20)

Private benefits and costs of providing health services, the failure of the market to provide essential health services, the provision of health services by the government , application of cost benefit analysis to public health and family planning projects, benefits and costs (both private and social) of training to professional manpower in health sector.

Module 3: Valuing Health and health damage (20)

Human capital approach: measurement of mortality: value of statistical of life, years of life lost; morbidity valuation: cost of illness, Burden of disease: Meaning and significance, DALY: A measure of burden, The DALY framework: Components and postulates, DALY and QALY, the GBD assessment, BD and DALY: A critical appreciation. Health Accounting: National health accounts, from SNA to NHA, Health expenditure efforts.

Basic Reading:

1. Anthony J. Cuyler and Joseph P. (ed.) (2000), Handbook of Health Economics, Newhouse North-Holland, Elsevier Science
2. Clewar, Ann, and David Perkins. 1998. Economics of Health Care Management. London Prentice Hall.
3. Folland, Sherman, Allen Goodman, and Miron Stano, 2001. The Economics of Health and Health Care, New York: MacMillan, Third Edition.
4. Sherman Folland, Allen C. Goodman, and Miron Stano, (2004), The Economics of Health and Health Care, 4th Edition, Prentice Hall.

4.4 Advanced Econometrics (MAES 06)

(Course outline under preparation)

4.5 Environmental Impact Assessment (MAEE 05)

Module 1: Overview of EIA (15)

Objectives and development of EIA. Benefits of EIA, Indian directions of EIA. Rapid and comprehensive EIA perspectives. Sources and collection of data for EIA.

Module 2: EIA Methodology (15)

Outline of EIA process, Screening, Scoping, Purpose of scoping, impact implications, Baseline studies and superimposition of projected plant emission impacts; reliability of data base; intrinsic and external database supports and interpretations; checklist, matrices, Overlays and Geographical Information System. Impact analysis and Predictions, Environmental Impact Statement [EIS]; Public hearing as part of EIA, EIA report.

Module 3: Environmental Management and ISO certification (15)

Environmental management system (EMS), ISO14000 (EMS), National Environment Protection Act (NPEA). Components of environmental management system- objectives, policies, Implementation review, Life cycle Analysis – LCA, waste minimization and product augmentation.

Module 4: Public participation (15)

Social impact assessment (SIA), Strategic environmental assessment (SEA), Public involvement, Public Hearing compulsion, Restoration and Rehabilitation Methodologies, Mitigation criteria, Project Modification, Post project Analysis, Environmental Impact assessment of Watershed Management and Air Pollution.

4.6. Development Issues in Indian Economy-2 (Sectorial Issues) (MEA 08)

Unit-1

Structure of Rural Economy: Farm and Non-farm sector

Growth rate of agriculture – main features. Recent deceleration of agricultural growth and public investment in agriculture. Agricultural prices, Agriculture and non-agriculture terms of trade. Agricultural price policy: Support prices, procurement prices and buffer stocks. Import and export controls on agricultural commodities. Futures commodity trading. Market regulations of agricultural commodities. Agricultural Policy in India- Its contribution to agricultural development, Food security and poverty reduction

Major subsidies in agriculture: Fertilizer, Power, Irrigation and input subsidies.

Unit-2: Rural livelihood

Livelihoods and Employment: Structure of rural poverty, Food security and the Public Distribution System; Employment Security- NREGA

Unit 3: Industry

Industrial growth and diversification. Policy changes and industrial growth – examples of automobile and telecom sector growth. Industrial price regulations and subsidies through price controls – examples of oil and petroleum and fertilizer sectors.

Unit-4 miscellaneous Issues

Infrastructure sectors. Investment requirements of roads, power, ports and other infrastructure sectors. Policy initiatives to bridge the gaps e.g allowing foreign investment and private-public partnership mode SMEs and Informal sector Labour market reforms - Exit policy and liberalization of labour markets.

4.7. International Macro-economics, Money and Finance (MAE 10)

Unit-1

International Macro-economic- Prices and Output in an open economy. Long-run adjustment mechanisms. Automatic adjustment – foreign trade multipliers. Fiscal and monetary policy under flexible exchanges. Interdependence and Multi-lateral co-ordination.

Balance of payments. Current account and fiscal deficit. Capital account. Disequilibrium and adjustment. Elasticity conditions for adjustment in trade account. Currency markets transactions. Currency standards, convertibility and reserve currencies. Exchange Rates.

Unit-2

Purchasing power parity. Interest rate parity. Nominal, real and effective exchange rates. . Fixed and flexible exchange rates. Exchange controls. Short-run and long run capital movements. Hedging, speculation and hot money transfers under capital account convertibility. Implication of capital flows—Mundell-Fleming Model, currency crisis and contagion.

Unit-3

Money and the role of banks. EU and monetary integration. Dollarization. Optimum currency areas, Monetary, banking and foreign exchange regulations. The International Monetary Fund. Reforming the international institutional architecture. China and reserve currency issues.

4.8 Research Methodology and Data Base of the Indian Economy (MAE16)

Module 1 (20)

Meaning of research in economics: Types of research, Introduction to research philosophy Research methodology, methods and techniques- differences among them, the logical framework of

investigation, the nature of problem and appropriate methodology, macro-level vs. micro level research, problems in aggregation, methodology leading to methods and then techniques, analysis of historical records, participant or non-participant observation, mass observation, questionnaires: reliability and validity, personal interviews, group interviews, Triangulation, case studies, Data collection & Sampling, types of Sampling, Sampling Procedure, Choice of Sampling technique.

Module 2 (20)

Objectivity and Biases in research-Francis Bacon's ideals, ideological bias, wam-glow effect, embedding effect and strategic bias, information bias, *non-causa pro causa*, illegitimate generalization, unwarranted conclusion; Myrdal and objectivity in social research.

Module 3 (20)

Formulation of research problem- identification and operationalization of the problem, survey of literature, development of working hypotheses, preparation of research design, investigation in availability of information, sampling design, error minimization, evaluation of time and cost, collection of information, processing of collected information, hypothesis testing, interpretation and generalization, systematization of findings, writing of report, references and bibliography.

Module-4

Data base of Indian Economy

Important Data Sources- National and International; Familiarity with different data base such as: Capital online, RBI-Hand Book of Statistics on Indian Economy, National Sample Survey Organisation reports, Annual Survey of Industries, Census data – National Family and Health Survey (NFHS) reports. indiastat.com, NSSO, RBI Bulletin, , Economic Survey etc. Accessing and using *UNIT RECORDED DATA* of the NSSO.

Compulsory Reading

1. Don Ethridge, “*Research Methodology in Applied Economics: Organizing, Planning and Conducting*” Second Edition, Blackwell Publishing 2004.

Other References

2. Johnson, Glenn Leroy *Research methodology for economists: philosophy and practice*, Macmillan ; 1986. xx, 252 p.
3. Greenlaw, S., *Doing Economics: A Guide to Understanding and Carrying Out Economics Research*, Houghton Mifflin
4. Kagel, JH and Roth, AE (1995) *The Handbook of Experimental Economics*, Princeton University Press, Princeton.
5. Kothari, CR (1995) *Research Methodology: Methods and Techniques*, Wishwa Prakashan (Wiley Eatern Ltd), New Delhi.

4.9 Master's Thesis (MAE 17)

(Instructions for the students and allocation of marks as per progress report/ presentation is under preparation)

