AC-19/3/2012
Item No.

UNIVERSITY OF MUMBAI

Syllabus for the M.A Part - I

Program: M.A

Course: ECONOMICS

SEMESTER –I & II at the M.A Part - I Examinations

(Credit Based Semester and Grading System with effect from the academic year 2012–2013)

A. About Credit Scheme:

1. 96 credits for entire course (24 Credits per semester- 24*4 semester = 96)
2. 6 credits per paper (6*4 papers = 24 at each semester)
3. 48 teaching hours per paper during the semester
4. 12 teaching hours per unit during the semester
5. (all papers have 4 units)
6. 4 teaching hours per week per paper

B. COURSE & SYLLABUS FOR THE M.A. (By Papers) EXAMINATION IN ECONOMICS

Under the M.A. (by papers) scheme, there are 2 groups, an entire Economics student will have to compulsorily choose both. The student will have to study a total of 16 papers (Group I: 8 Papers and Group II: 8 Papers) in four semesters over the 2-year s M.A. degree course.

- **GROUP I -ECONOMICS- (COMPULSORY):**
- **GROUP II -ADVANCED ECONOMICS – (OPTIONAL)**

Candidates opting for entire Economics at the M.A. degree course are required to select any two optional subjects (of four papers each) from the following 9 optional subjects of Group II, of which Paper I & II will be taught at semester I & II respectively in M.A. – Part I; and Paper III & IV will be taught at semester III & IV respectively in M.A. – Part II.

(Syllabus for semester –I & II at the M.A. Part – I)

GROUP I -ECONOMICS- (COMPULSORY):

- **GROUP I - MICRO ECONOMICS (1)**

Gr. (I) –Semester- I:	MICRO ECONOMICS	PAPER I: EC101
Semester- II:	MICRO ECONOMICS	PAPER II: EC201

- **GROUP I - MACRO ECONOMICS (2)**

Gr. (I) – Semester- I:	MACRO ECONOMICS	PAPER I: EC102
Semester- II:	MICRO ECONOMICS	PAPER II: EC202

➢ GROUP II -ADVANCED ECONOMICS – (OPTIONAL):

➢ **GROUP II – (i)**		**AGRICULTURAL ECONOMICS**	**(03)**
Gr. (II) – Semester- I:		AGRICULTURAL PRODUCTION ANALYSIS	PAPER I: EC103
	Semester- II:	AGRICULTURAL MARKETING ANALYSIS	PAPER II: EC203
➢ **GROUP II – (ii)**		**INDUSTRIAL ECONOMICS**	**(04)**
Gr. (II) – Semester- I:		INDUSTRIAL ECONOMICS	PAPER I: EC104
	Semester- II:	INDUSTRIAL ECONOMICS	PAPER II: EC204
➢ **GROUP II – (iii)**		**MONETARY ECONOMICS**	**(05)**
Gr. (II) – Semester- I:		MONETARY THEORY	PAPER I: EC105
	Semester- II:	MONETARY THEORY	PAPER II: EC205
➢ **GROUP II – (Iv)**		**ECONOMICS OF INFRASTRUCTURE & SERVICES**	**(06)**
Gr. (II) – Semester- I:		TRANSPORTATION ECONOMICS	PAPER I: EC106
	Semester- II:	TRANSPORTATION ECONOMICS	PAPER II: EC206
➢ **GROUP II – (V)**		**INTERNATIONAL ECONOMICS**	**(07)**
Gr. (II) – Semester- I:		INTERNATIONAL TRADE & COMMERCIAL POLICY	PAPER I: EC107
	Semester- II:	INTERNATIONAL TRADE & COMMERCIAL POLICY	PAPER II: EC207
➢ **GROUP II – (vi)**		**MATHEMATICAL ECONOMICS**	**(08)**
Gr. (II) – Semester- I:		MATHEMATICAL METHODS & PROGRAMMING	PAPER I: EC108
	Semester- II:	MATHEMATICAL METHODS & PROGRAMMING	PAPER II: EC208

- **GROUP II – (vii) ECONOMETRICS (09)**

Gr. (II) – Semester- I:	FOUNDATION OF ECONOMETRICS	PAPER I: EC109
Semester- II:	FOUNDATION OF ECONOMETRICS	PAPER II: EC209

- **GROUP II – (viii) FINANCIAL ECONOMICS (10)**

Gr. (II) – Semester- I:	FINANCIAL ECONOMICS	PAPER I: EC110
Semester- II:	FINANCIAL ECONOMICS	PAPER II: EC210

- **GROUP II – (ix) URBAN ECONOMICS & REGIONAL DEVELOPMENT (11)**

Gr. (II) – Semester- I:	MICRO-THEORY & POLICY ISSUES	PAPER I: EC111
Semester- II:	MICRO-THEORY & POLICY ISSUES	PAPER II: EC211

(Syllabus for semester –III & IV at the M.A. Part – II)

- **GROUP I -ECONOMICS- (COMPULSORY):**
- **GROUP I - DEVELOPMENT ECONOMICS (1)**

Gr. (I) – Semester- III:	DEVELOPMENT ECONOMICS	PAPER I: EC301
Semester- IV:	DEVELOPMENT ECONOMICS	PAPER II: EC401

- **GROUP I - PUBLIC ECONOMICS (2)**

Gr. (I) – Semester- III:	PUBLIC ECONOMICS	PAPER I: EC302
Semester- IV:	PUBLIC ECONOMICS	PAPER II: EC402

➢ GROUP II -ADVANCED ECONOMICS – (OPTIONAL):

➢ GROUP II – (i) AGRICULTURAL ECONOMICS (03)

Gr. (II) – Semester- III:	AGRICULTURAL GROWTH & DEVELOPMENT	PAPER III: EC303
Semester- IV:	AGRICULTURAL GROWTH & DEVELOPMENT	PAPER IV: EC403

➢ GROUP II – (ii) INDUSTRIAL ECONOMICS (04)

Gr. (II) – Semester- III:	LABOUR ECONOMICS & INDUSTRIAL RELATIONS	PAPER III: EC304
Semester- IV:	LABOUR ECONOMICS & INDUSTRIAL RELATIONS	PAPER IV: EC404

➢ GROUP II – (iii) MONETARY ECONOMICS (05)

Gr. (II) – Semester- III:	MONETARY POLICY	PAPER III: EC305
Semester- IV:	MONETARY POLICY	PAPER IV: EC405

➢ GROUP II – (Iv) ECONOMICS OF INFRASTRUCTURE & SERVICES (06)

Gr. (II) – Semester- III:	ECONOMICS OF SOCIAL INFRASTRUCTURE	PAPER III: EC306
Semester- IV:	ECONOMICS OF SOCIAL INFRASTRUCTURE	PAPER IV: EC406

➢ GROUP II – (V) INTERNATIONAL ECONOMICS (07)

Gr. (II) – Semester- III:	INTERNATIONAL FINANCE & MONETARY SYSTEMS	PAPER III: EC307
Semester- IV:	INTERNATIONAL FINANCE & MONETARY SYSTEMS	PAPER IV: EC407

➢ GROUP II – (vi) MATHEMATICAL ECONOMICS (08)

Gr. (II) – Semester- III:	ADVANCED MATHEMATICAL METHODS	PAPER III: EC308
Semester- IV:	ADVANCED MATHEMATICAL METHODS	PAPER IV: EC408

- **GROUP II – (vii) ECONOMETRICS (09)**

Gr. (II) – Semester- III: ECONOMETRIC MODELS, TECHNIQUES & APPLICATIONS PAPER III: EC309

Semester- IV: ECONOMETRIC MODELS, TECHNIQUES & APPLICATIONS PAPER IV: EC409

- **GROUP II – (viii) FINANCIAL ECONOMICS (10)**

Gr. (II) – Semester- III: FINANCIAL ECONOMICS – MANAGEMENT PAPER III: EC310

Semester- IV: FINANCIAL ECONOMICS – MANAGEMENT PAPER IV: EC410

- **GROUP II – (ix) URBAN ECONOMICS & REGIONAL DEVELOPMENT (11)**

Gr. (II) – Semester- III: MACRO-THEORY & POLICY ISSUES PAPER III: EC311

Semester- IV: MICRO-THEORY & POLICY ISSUES PAPER IV: EC411

C. SCHEME OF EXAMINATION (EACH SEMESTER:

The performance of the learners shall be evaluated into two parts. The learner's performance shall be assessed by Internal Assessment with 40% marks in the first part by conducting the Semester End Examinations with 60% marks in the second part. The allocation of marks for the Internal Assessment and Semester End Examinations are as shown below:-

(I) Internal Assessment: 40 Marks (40%)

Sr. No	Evaluation type	Marks
1	One Assignment/Case study/Project	20
2	One Periodical class Test	10
3	Active participation in routine class instructional deliveries (case studies/ seminars//presentation)	05
4	Overall conduct as a responsible student, mannerism and articulation and exhibit of leadership qualities in organizing related academic actives	05

(II) External Theory examination: 60 Marks (60%)

Question Paper Pattern.
Semester End Examination

Max. Marks: 60 Time: 2 hours

Note:
1. All questions are **COMPULSORY**
2. Each question carries 15 marks.
3. Draw neat diagrams wherever necessary

Q.1. Answer the following: (From Unit-I)

A (7)
B (8)
OR
C (7)
D (8)

Q.2. Answer the following: (From Unit-II)

A (7)
B (8)
OR
C (7)
D (8)

Q.3. Answer the following: (From Unit-III)

A (7)
B (8)
OR
C (7)
D (8)

Q.4. Answer the following: (From Unit-IV)

A (7)
B (8)
OR
C (7)
D (8)

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GROUP I -ECONOMICS- (COMPULSORY)	
GROUP I - (1) MICRO ECONOMICS	**CREDITS-6**
SEMESTER- I: MICRO ECONOMICS	**PAPER- I: EC101**

UNIT-1: *Consumer Behaviour*: (12)
Rational choice and revealed preference, feasible set and consumption decisions, consumer's utility maximization problem, income and substitution effects, Expenditure function, indirect utility function, Roy' identity and Slustsky equation , choice under uncertainty.

UNIT-2: *Production, Cost and Supply*: (12)
Production: returns to scale and varying proportions, production functions (Cobb Douglas, CES and Translog), variations in scale, variations in input proportions, Cost: Long and short run cost minimization, cost function, cost minimization with multiple plants, Long run and short run profit maximization, profit function and comparative statics.

UNIT-3:**:** *Price and Output Determination* : (12)
Perfect competition: Features, tatonnement process,Marshall's process, Price determination in short and long run, Equilibrium of Firm and Industry, Expectations and market stability, Monopoly: Price and output determination, Price discrimination ,Monopsony : Bilateral Monopoly

UNIT-4**:** *General Equilibrium and Welfare Economics*: (12)
Walrasian equilibrium in a competitive economy, existence and stability of equilibrium, Pareto efficiency and competitive markets, Market failures, theory of second best, measuring the welfare effects of price changes.

References:

1. Gravelle H. and Rees R.(2004), Microeconomics,3rd edition, Pearson Eduction Ltd., New Delhi.
2. Stigler G. (1996), Theory of Price, 4thEdition, Prentice Hall of India, New Delhi.
3. Sen. A. (1999), Microeconomics : Theory and Application, Oxford University Press, New Delhi.
4. Kreps David M. (1990), ACourse in Microeconomic Theory, Princeton University Press, Princeton.
5. Samuelson, P. A. and Nordhaus (1998), Economics, 16thEdition, Tata McGraw Hill, New Delhi
6. Varian H. (2000), Microeconomic Analysis, W.W. Norton, New York.

GROUP I - (1)	MICRO ECONOMICS	CREDITS-6
SEMESTER- II:	MICRO ECONOMICS	PAPER - II: EC201

UNIT-1: **Uncertainty and game theory:** (12)
Choice under uncertainty, Neumann-Morgenstern utility functions, Risk aversion and measures of risk aversion, normal form and extensive , solution concepts including Nash equilibria, subgame perfection and other refinements, repeated games, elements of cooperative game theory and bargaining games

UNIT-2: **Asymmetric Information** (12)
Moral Hazard and Adverse Selection, optimal contracts under symmetric information, principal-agent models, properties of contracts under moral hazard and adverse selection, signaling and screening,Spence's labour market signaling model.

UNIT-3: **Industrial Organisation and Market Structures** (12)
Cournot, Bertrand and Stackelberg models (in Game theoretic perspective) ,Bertrand paradox monopoly and deadweight loss, first, second and third degree price discrimination

UNIT-4: **Alternative Theories of the Firm** (12)
Marris' model of managerial enterprise; Williamson's model of managerial discretion; Behavioral theory of the Firm (Model of Cyert and March); Full cost pricing principle; Limit pricing principle (Bains, Sylos- Labini, Modigliani and Bhagwati); Issues regarding existence, purpose and objectives of a firm; boundaries and internal organization; Resource-based, transaction-costbased and knowledge-based theories of firm.

References:

1. Gravelle H. and Rees R.(2004), Microeconomics,3rd edition, Pearson Eduction Ltd., New Delhi.
2. Hal R.Varian Intermediate Microeconomics Analysis, W.W. Norton, New York.
3. Kreps David M. (1990), A Course in Microeconomic Theory, Princeton University Press, Princeton.

GROUP I -ECONOMICS- (COMPULSORY)

GROUP-I : (2) - MACRO ECONOMICS	**Credits: 6**
SEMESTER- I: MACRO ECONOMICS	**PAPER I: EC102**

Preamble: Macroeconomics-I effectively purports to be a bridge to the Macroeconomics-II course; though, at a basic level, it is complete in itself. It develops the subject up to the Neo-Classical synthesis of Keynesian and Classical frameworks via the monetarist supply curve. The treatment expected is through development of algebraic models using specific linear macro relationships right to the derivation of fiscal and monetary policy multipliers in the IS-LM framework. The multipliers are also expected to be derived using differential calculus techniques in the AS-AD framework. The inter-relationships between monetary, fiscal and exchange rate policies will be stressed at a basic level.

Unit 1: Macroeconomic Variables (12 sessions)

Macroeconomic Variables – National Income Accounts – Growth Rates – Inflation, Price Indices – Unemployment – Flow-of-Funds Accounts – Social Accounting Matrices – Government Expenditure and Deficit Concepts – Some Key Identities – Sectoral and Economy-wide Budget Constraints

Unit 1I: Determination of National Income and Price Level (12 Sessions)

Keynesian Models of National Income Determination – IS-LM Analysis – Fiscal and Monetary Policy Multipliers – Phillips Curve and the Monetarist Phillips Curve – AS-AD Model – the Neo-Classical Synthesis

Unit 1II: Open-Economy Macroeconomics (12 Sessions)

Balance of Payments – Exchange Rate Regimes – Mundell-Fleming Model under Fixed and Flexible Exchange Rates – Exchange Rate Overshooting – Purchasing Power and Interest Rate Parities – Automatic Adjustment – Adjustment Policies: External *versus* Internal Balance

Unit 1V: Micro-foundations of Macroeconomic Relationships (12 Sessions)

Consumption Analysis: Permanent Income and Life-Cycle Hypotheses – Consumption under Uncertainty – Savings in Inter-temporal Models – Investment Functions: Neo-Classical and Keynesian – Money Demand – Money Supply Process: Money Multiplier

References

1. Rudiger Dornbusch, Stanley Fischer and Richard Startz, *Macroeconomics*, 9e, Tata McGraw-Hill Publishing Co. Ltd., New Delhi, 2004.
2. David Romer, *Advanced Macroeconomics*, 2e, McGraw-Hill International Edition, 2001.
3. Ben J. Heijdra and Frederick Van Der Ploeg, *Foundations of Modern Macroeconomics*, Oxford University Press, Oxford, 2002.
4. Lance Taylor, *Reconstructing Macroeconomics*, Harvard University Press, Cambridge, Mass., 2004

GROUP -I : (2)	**MACRO ECONOMICS**	**Credits: 6**
SEMESTER- II:	**MACRO ECONOMICS**	**PAPER II: EC202**

Preamble: Macroeconomics-II goes beyond the Neo-classical synthesis to separately consider the New Classical and New Keynesian frameworks as alternative macroeconomic paradigms. Growth analysis is explicitly introduced in inter-temporal optimising models. The mathematical techniques required are of a higher order and some of the prerequisites are expected to be built up within Unit-I. Romer's *Advanced Macroeconomics* will be used as a bridge between Dornbusch, Fischer and Startz, *Macroeconomics* (used for Macroeconomics-I) and Blanchard and Fischer, *Lectures in Macroeconomics* (used for Macroeconomics – II). Issues in policy analysis are explicitly considered Unit-IV.

Unit 1: Growth Analysis and Inter-Temporal Models (12 sessions)

Solow-Swan Model – Infinite Horizon (Ramsey-Cass-Koopmanns) model – Basics of Overlapping-Generations (Diamond) Model

Unit 1I: New Classical Macroeconomics and Real Business Cycles (12 sessions)

Rational Expectations Equilibrium Models – Lucas Critique – Incomplete Information Models – Persistence of Output Fluctuations – Nelson-Plosser and Campbell-Mankiw Tests – Search and Matching Models – Real Business Cycle Theory

Unit 1II: New Keynesian Theories of Business Cycles and Unemployment (12 Sessions)

Incomplete Nominal Adjustments – Real *versus* Nominal Rigidities – Models with Balance-Sheet Effects – Real Non-Walrasian Theories – Coordination Failures – The Efficiency Wage Model – Insider-Outsider Models – Hysteresis – Search and Matching Models – Applications to Open Economy

Unit 1V: Macroeconomic Policy Issues (12 Sessions)

Macroeconomic Policy Issues – Targets, Indicators and Instruments – Activist Policy – Gradualism *versus* Shock Therapy – Rules *versus* Discretion – Role of Credibility – Dynamic Inconsistency Problem – Inflation Targeting – Seignorage – Barro-Ricardo and Blinder-Solow Hypotheses – Political Economy of Stabilisation and Adjustment

References

1. David Romer, *Advanced Macroeconomics*, 2e, McGraw-Hill International Edition, 2001.
2. Olivier Jean Blanchard and Stanley Fischer, *Lectures on Macroeconomics*, Prentice-Hall of India Pvt. Ltd., New Delhi, 2000
3. Ben J. Heijdra and Frederick Van Der Ploeg, *Foundations of Modern Macroeconomics*, Oxford University Press, Oxford, 2002.
4. Lance Taylor, *Reconstructing Macroeconomics*, Harvard University Press, Cambridge, Mass., 2004

GROUP II – (03)	**AGRICULTURAL ECONOMICS**	**CREDITS-6**
SEMESTER- I:	**AGRICULTURAL PRODUCTION *ANALYSIS***	**PAPER I: EC103**

Sr. No	Topic and Details	Number of Lectures
1.	**Agricultural Production and Productivity** Agricultural production – Resource and efficiency in traditional agriculture, Production function analysis in agriculture, factor combination and resource substitution, cost and supply curves - Size of farm and laws of returns – Theoretical and empirical findings - Farm budgeting and cost concepts, supply response of individual crops and aggregate supply - Technical change and agricultural productivity	**12**
2.	***Demand for Farm Products*** Characteristics of demand for farm products - Concept and measurement of own-price cross _ Price and income elasticities of demand and their interrelationship _ Quantity and quality components of demand for food - Growth in demand for food in developing and developed countries - Forecasting of demand for food products - Rationale for and types of government intervention for food and nutrition security in developing countries	**12**
3.	***Supply of Farm Products*** Characteristics of supply of farm products - Issues relating to specification of supply response function (Distributed lags, acreage vs. production response etc.) - Rigidities in farm supply response - Supply response of individual crops and aggregate production Market supply of a subsistence crop - Supply response in Indian agriculture - Price vs. non-price factors in inducing aggregate supply growth - Characteristics of farm product markets in India Role of farmers' marketing co-operatives - Futures trading - Towards free trade in agricultural commodities	**12**
4.	***Economics of Production and Resource Use and Instability in Agriculture*** Resource and input use - Public/private capital formation - Important production relationships - Economics of input and product substitution - Imperfections in product and input markets in developing agriculture - Decision making under risk and uncertainty _ Sources of price variability and income instability - Rationale for and types of government intervention fur price support and reduction in instability - Alternative concepts of cost of cultivation and determination of minimum support prices in India - Role and optimum size of buffer stocks.	**12**

References:

1. American Economic Association, *Readings in Agricultural Economics*, (Units, 2,3)
2. Dantwala M.L. (ed.)(1991), *Indian Agricultural Development since Independence,* Second Revised Edition, Oxford & IBH Publishing Co. (General Reference).
3. Heady E.o. (1961), *Economics of Agricultural Production and Resource Use,* New York Englewood Cliffs Prentice-Hall (Unit 4)
4. K. Subbarao (1989) ,*Agricultural Marketing and Credit,* ICSSR(Unit 3).
5. Mellor J.W.(l969), *The Economics of Agricultural Development,* Vhora & Co. Cornell University Press (Units 2,3)
6. Penson J.B. , Capps Oral, Rosson CP. (1996), *Introduction to Agricultural Economics,* Prentic-Hall,Inc.(Units 4)
7. Sadhu A.N. & Singh Amarjit (1966), Fundamentals of Agricultural Economics Himalaya Pub. House, Delhi.
8. Vaidhanathan, A. (1995), The Indian Economy: Crisis, Response and Prospects, Orient Longmans, New Delhi
9. Southworth Herman and Bruce Johnston (eds.) (1968) : Agricultural Development and Economic Growth, Cornell University Press, New York.

GROUP II – (03)	**AGRICULTURAL ECONOMICS**	**CREDITS-6**
SEMESTER- *II*:	***AGRICULTURAL MARKETING ANALYSIS***	**PAPER I: EC203**

Sr. No	**Topic and Details**	**Number of Lectures**
1.	Introduction: Nature and Problems of Agricultural Commodity Markets – Types; Group, Global, Corporate & Forward - agricultural marketing and price system in India - Marketing Margins and Marketing Margin Determinants; and Evaluation of Marketing Efficiency .	*12*
2.	*Rural Money Markets* Reorganization of rural credit – co-operatives, commercial banks, regional rural banks, micro finance, Role of NABARD and Vaidynathan committee - Credit fragmentation - Organized and unorganized sectors - Report of Radhakrishna Committee - Credit rationing _ Moral hazards Evolution of credit systems in India - Imperfections in rural credit markets in India.	*12*
3.	*Labour Markets* Concepts of work, skill and productivity - Methods of measurement of employment and unemployment - Free and unfree labour - Types of employer - Employee relationships _ Determinants of wage rates - Labour market segmentation - Gender-based discrimination Biases in data sources - Time disposition studies.	*12*
4.	*Land and Lease Markets* Types of farming - Historical evolution - Segmented property rights - Characteristics and functioning - Economic, extra-economic and legal restrictions- Lease market - Formal and informal leases - Economics of share tenancy - Crop-sharing practices in India - Inequity in distribution of holdings - Market interlocking and interlinkages - Analysis of rural c1assesAgrarian structure and agrarian relations in India	**12**

References:

1. Agarwal, Bina(1996), *Women and Land rights in South Asia,* (Unit 4).
2. Bardhan, Pranab and Christopher Udry (1999), *Development Microeconomics,* Oxford Publication, (Units 2,3,4,).
3. Basu, Kaushik, (1990), *Agrarian Structure and Underdevelopment',* Harwood (Units 3,4)
4. Cheung S.N.S. (1969), *The Theory of Share Tenancy.* (Unit 4)

5. Dantwala M.L. (ed.)(1991), *Indian Agricultural Development since Independence,* Second Revised Edition, Oxford & IBH Publishing Co. (General Reference).
6. Ghatak S(1976), *Rural Money Markets in India,* Macmillan Co.(Unit 2)
7. K. Subbarao (1989) *,Agricultural Marketing and Credit,* ICSSR(Unit 2).
8. Mies Maria(l986), *Indian Women in Subsistence and Agricultural Labour,* ILO Publication (Unit 3)
9. Rudra, Ashok,(1982), *Indian Agricultural Economics* :*Myth and Realities,*Allied Publishers (Units 3,4)
10. Thorner, D. and Thorner A, (1962), *Land and Labour in India,* Asia Publishing House. (Units 3,4)
11. Southworth Herman and Bruce Johnston (eds.) (1968) : Agricultural Development and Economic Growth, Cornell University Press, New York.

GROUP II – (04)	**INDUSTRIAL ECONOMICS**	**Credits: 6**
SEMESTER- I:	**INDUSTRIAL ECONOMICS**	**PAPER I: EC104**

Sr. No.	Topic and Details	No of Lectures
1.	**Introduction:** Nature and scope of industrial economics – Introduction to concepts: plant, firm, business house, industrial sector and industrial structure- Determinants of Firm Structure.	12
2.	**Theory of Firm:** Organizational structure of a firm – Objectives of firms – Theories of growth of firms –Sales and growth maximization hypothesis- Determinants of size and profitability - Types of costs: U-shaped and L-shaped – Cost curves – Depreciation – Price fixation – Administered prices.	12
3.	**Investment Decisions:** Methods of evaluating investment expenditure – Social Cost Benefit Analysis – Balancing private and social returns – Assessment of financial soundness –Sources of Finance- Ratio analysis-Sensitivity Analysis-Inflation accounting Capital Structure: Optimum Capital Structure.	12
4.	**Industrial Organization:** Concepts and determinants of market structure, market conduct and market performance – Interrelationships among structure, conduct and performance – Factors affecting location and theories of location.	12

GROUP II – (04)	**INDUSTRIAL ECONOMICS**	**Credits: 6**
SEMESTER- II:	**INDUSTRIAL ECONOMICS**	**PAPER II: EC204**

Sr. No.	Topic and Details	No of Lectures
1.	**Industrial Policy and Growth:** Industrial Growth: Trends in Industrial Growth in India Overview of industrial policy prior to 1991-Industrial policy resolution of 1991 and changes thereafter Regional Development: Role of industrial policy for regional development-Trends and pattern of regional development.	12
2.	**Industrial Finance:** Nature and types of industrial finance, sources of institutional finance, Commercial Banks, Trends in institutional finance for industrial sector. Capital Structure in India.	12
3.	**Impact of Globalization:** Trends and pattern of FDI in India-Trends and pattern of Indian industry abroad-M&A- Export and import component of Indian industrial sector.	12
4.	**Problems and Prospects of Selected Industries:** Iron and Steel - Cotton textiles- Jute- Sugar – Coal - Cement and engineering goods; Small-scale and cottage industries in India-SMEs in India- Public Sector industries in India-Performance and problems - Industrial sickness-Exit policy – Role of BIFR -Industrial concentration and remedial measures-Productivity and Capacity Utilization.	12

References:

Ahluwalia I. J. (1985), *Industrial Growth in India- Stagnation Since Mid-Sixties*, Oxford University Press,
Delhi. Chapter: 2.

Hay and Morris D. J. (Latest), *Industrial Economics- Theory and Evidence*, Oxford University

Press.
Chapters: 12, 13.

Koutsoyiannis A. (19985), *Modern Microeconomics*, ELBS/Macmillan, Hong Kong. Chapter: 13. (Module 1).

Martin Stephen, (1988/Latest), *The Industrial Economics- Economic Analysis and Public Policy*, Macmillan (Paper I)
Publishing Company, New York. Chapters: 7 and 8. (Module 1).

Mohanty, Binode, (1991), (Ed.) *Economic Development Perspectives*, Vol. 3, Public Enterprises and
Performance, Common Wealth Publishers, New Delhi

Mookherjee Dilip, (1998), (Ed.) *Indian Industry-Policies and Performance*, Oxford University Press, Delhi.
Chapters: 5, 8, and 9.

Pandey I M., (2000), Financial Management, Vikas Publishing House Pvt. Ltd., New Delhi.
Chapters: 2, 4,
7, 11, 13 and 17. (Module 3).

Shepherd W. C. (1985), *The Economics of Industrial Organization*, Prentice Hall, Inc., London.
Chapters:
3, 4, 11, 12, 13, 14 and 15. (Modules 1 and 2).

Vepa R. K. (1988), *Modern Small Industry in India*, Sage Publications.

GROUP II – (05)	**MONETARY ECONOMICS**	**CREDITS-6**
SEMESTER- I	**MONETARY THEORY**	**PAPER - I: EC105**

PREAMBLE -This paper analyses the significant role of 'Money' and Banks'. It provides essential and through knowledge to the economic students relating to the theoretical aspects of money. It covers various approaches towards evolution of money, demand for money, supply of money, rate of interest, inflation, agencies which creates and supplies money and operate monetary policy. The paper also deals with banks and financial markets, which are most significant in the process of growth and development. Since reforms introduced in financial sector, many new concepts have emerged in this sector. For the students of economic it is essential to understand and analyse these new concepts as well as monetary forces and real forces, their development role and limitations in shaping and influencing the monetary and related policies both at the national and international level.

Unit -1 Nature and Role of Money 12

Money and near money; Approaches to the definition of money—empirical definition of money; Monetary standards—gold and paper; Money and payments system; Value of money—measurement of value of money; Measures of money supply.

Unit -2 Theories of Money and Income 12

Theories of demand for money—Classical and Keynes; Money supply—approaches to the definition of money supply, components of money supply, The H theory of money supply, Money multiplier process, determinants of money multiplier; Keynes' income theory of money; Neo-classical theory of money.

Unit -3 Money and the theory of interest 12

Real and monetary theories of interest rates-the term structure and the yield curve- determination of equilibrium exchange rates

Unit -4The monetary transmission mechanism 12

The money and the credit transmission mechanism- Exogenous/endogenous money- inflation interest and exchange

References:

1. Bhole, L. M. 2002. Financial Institutions and Markets. Tata McGraw Hill & Co. New Delhi
2. Miskin, F. 2003. The Economics of Money: Banking and Financial Markets. Addison Wesley Longmate, New York.
3. Gupta, S. B. 2001. Monetary Economics. S. Chand and Co. Ltd. New Delhi.
4. Hubbard, G. R. 1997. Money, the Financial System and Economy. Addison Wesley, N. York
5. Thomas. M. et. al 1984. Money, Banking and the Economy. W. W. Norton and Company, New York,
6. Robinson, R. I. 1981. Financial Markets. McGraw Hill, London.
7. Smith, P. F. 1978. Money and Financial Intermediation: the Theory and Structure of Financial System. Prentice Hall, New Jersey.
8. Chandler L. V. and Goldfeld, S. M. 1977. The Economics of Money and Banking. Harper & Row, New York.
9. Burton, Maureen and Bruce Brown. The Financial System and the Economy Principles of Money and Banking. Prentice Hall of India, New Delhi.
10. Mishkin, F. 2007. Monetary Policy Strategy, Prentice Hall of India, New Delhi.

GROUP II – (05)	MONETARY ECONOMICS	CREDITS-6
SEMESTER- II	MONETARY THEORY	PAPER - I: EC205

PREAMBLE -This paper analyses the significant role of 'Money' and Banks'. It provides essential and through knowledge to the economic students relating to the theoretical aspects of money. It covers various approaches towards evolution of money, demand for money, supply of money, rate of interest, inflation, agencies which creates and supplies money and operate monetary policy. The paper also deals with banks and financial markets, which are most significant in the process of growth and development. Since reforms introduced in financial sector, many new concepts have emerged in this sector. For the students of economic it is essential to understand and analyse these new concepts as well as monetary forces and real forces, their development role and limitations in shaping and influencing the monetary and related policies both at the national and international level.

Unit -1: Banking in India 12

Commercial banks—Reforms, performance with respect to public, New private and foreign banks in the post reform period- new technologies in banking in India.

Unit -2: Central Banking: 12

Changing trends in monetary policy in India.- RBI's short term liquidity management- Financial sector reforms and monetary policy - recent trends; banking soundness and macroeconomic management.

Unit -3: Indian Public Finance 12

Union finance—sources of income; Trends in revenue and expenditure. FRBM Act Public debt since 1991—growth and composition, ownership pattern and debt management; Concepts of deficits. Analysis of central government budgets.

UNIT -4: FINANCIAL MARKETS IN INDIA 12

Indian Money Market – structure and characteristicsSub Markets – Call Money Market, Treasury bill Market, and commercial bill market, Certificate of Deposits, Commercial Papers, Discount MarketIndian Capital Market – Structure and types. Role of SEBI (Securities and Exchange Board of India) andIRDA (Insurance Regulatory Development Authority)

References:

1. Bhargava, P. K. 1982. Centre State Resource Transfers in India. The Academic Press, Gurgoan.
2. Bhargava, P. K. 1984. Some Aspects of Indian Public Finances. Uppal Publishing House New Delhi
3. Bhargava, P. K. 1991. India's Fiscal Crisis. Ashish Publishing House, New Delhi.
4. Bhatt. R. S. 1996. Unit Trust of India and Mutual Funds: A Study. UTI Institute of Capital Markets, Mumbai.
5. Datt, R. (Ed.) 2001. Second Generation Economic Reforms in India. Deep and Deep Publications New Delhi.
6. Khan, M. Y. 1996. Indian Financial System. Tata McGraw Hill, New Delhi.
7. Machiraju, M. R. 1999. Indian Financial System. Vikas Publishing House, New Delhi.
8. Mundel, S. 1999. Public Finance Policy- Issues for India. Oxford University Press N. Delhi.
9. RBI Bulletins, Various Issues,
10. R.B.I. Report on Currency and Finance.
11. Reports of Finance Commission- latest issue
12. Indian Economic Survey- latest issue
13. Lekhi, R. K. 1999. Public Finance. Kalyani Publishers New Delhi.
14. Report on Financial Sector Reforms. 2001. Tax Foundation of India. New Delhi.

GROUP II – (06)	**ECONOMICS OF INFRASTRUCTURE & SERVICES**	**CREDITS-6**
SEMESTER- I:	**TRANSPORTATION ECONOMICS**	**PAPER - I: EC106**

Sr. No	**Topic and Details**	**No. Of Lecture**
1.	**Introduction:** Economic characteristics and types- Physical and social infrastructure. Role of the state in infrastructure provision-Economic rationale of state provision-Public utilities-Need for regulation in present period-Public Private Partnership	**12**
2.	**Planning for infrastructure:** The development of infrastructure planning; Planning at aggregate and disaggregate levels: Integrating infrastructure planning with the large planning framework exercise-Infrastructure planning in India-Process, implementation and experience.	**12**
3.	**Transport Economics:** Characteristics of demand and supply-The structure of Transport Costs. Demand for Transport. Models of Freight and Passenger Demand. Model choice; Cost Functions in the Transport Sector. Principle of Pricing. Special Problems of Individuals Modes of Transport; Inter-modal condition in the Indian Situation-Location of Economic Activities.	**12**
4.	**Communications:** Characteristics and problems of f Postal Services- Criteria for Fixation of Postal Rates –Telecommunication- Rate-making in Telephone Utilities. Principles of Decreasing Costs in Telephone Industry. Measurement of Standards of Services in Telephone and Postal Utilities-Optimal telecom Tariffs.	*12*

GROUP II – (06)	**ECONOMICS OF INFRASTRUCTURE & SERVICES**	**CREDITS-6**
SEMESTER- II:	**TRANSPORTATION ECONOMICS**	**PAPER - I: EC206**

Sr. No.	Topic and Details	No. Of Lecture
1	**Energy Economics**: Primacy of Energy in the Process of Economic Development, Factors Determining Demand for Energy; Effects of Energy Shortages. Energy Conservation, Renewable and Non-conventional Sources of Energy. Efficient Energy options- The search for an Optimal Energy Policy in the Indian Context.	*12*
2.	**Electricity and Gas** Supply characteristics and pricing of Electricity. The Relative Economics of Thermal, Hydel and Nuclear Power Plants. The Case for a National Power Grid. The Exploitation of Natural Gas-Pricing Problems- Environmental Implications	*12*
3.	**Water supply:** Financing Water Utilities. Urban and Rural Water Supply-The concept of user charge, Pricing Problems-Environmental Implications-The problem of distribution	**12**
4.	**Infrastructure Financing and Regulation:** Conventional methods of financing infrastructure-Scope for private financing of infrastructure- Reforms in financing -Theory of Regulation, Deregulation and Privatization in Infrastructure. Approaches to privatization of infrastructure and services and a competition policy- Evolution of infrastructure policy in India with focus on case studies regarding different modes.	**12**

References:

1. World Bank (1994) : Infrastructure for Development, World Development Report, Washington D.C.
2. 3 I Network (2004): India Infrastructure Report 2004, Delhi, OUP, 2004.
3. 3 I Network (2010): India Infrastructure Report 2004, Delhi, OUP, 2010
4. Boyle, G. 1996. Renewable Energy: Power for a Sustainable Future. Oxford: Oxford University Press.

5. Cooper, J. 2003. Price elasticity of demand for crude oil: estimates for 23 countries. OPEC Review: Energy Economics & Related Issues 27, 1, 1–8.
6. Cropper, M. and Oates, W. 1992. Environmental economics: a survey. Journal of Economic Literature 30, 675–740.
7. Michael A. Crew and Paul R. Kleindorfer(1986): The Economics of Public Utility Regulation, MIT Press 1986.
8. Energy and Communications in Transition, MSU Public Utility Papers, 1981
9. Jon Strand(2011): Low-Level Versus High level Equilibrium in Public Utility services, Policy Research Paper 5723
10. Button,K.J. (2003) Transport economics, Edward Elgar, Aldershot, England.
11. Dahl, C.A. (2004) International energy Markets: Understanding Pricing, Policies and Profits, Penn Well.

GROUP II – (07)	**INTERNATIONAL ECONOMICS**	**CREDITS-6**
SEMESTER- I: INTERNATIONAL TRADE & COMMERCIAL POLICY		**PAPER I: EC107**

Preamble: This optional course, to be offered in first semester, which requires a good understanding of Microeconomics. The course aims at providing a theoretical exposition of bases, effects and growth of free flow of international trade with empirical evidence.

UNIT-1: Classical Theory (12)

Absolute and comparative advantage- Real cost and Opportunity cost approaches-Gains from trade-Decomposition of gains-Offer curves-Terms of trade-Commodity, Income and Factorial terms of trade.

UNIT-2: Neo-classical Theory (12)

Factor intensities and factor endowments-The Heckscher-Ohlin model- Trade and factor price equalization theorem. Leontief paradox-Other explanations for trade-Availability and vent for surplus, Linder's demand hypothesis. Technological gap (Imitation-gap) theories of trade- Product Cycle Hypothesis.

UNIT-3: Modern Theory (12)

Intra-industry trade-Trade in functionally homogeneous products-Border trade, Periodic trade, Entrepot trade-Imperfect competition and trade- The Neo-Heckscher-Ohlin model (Falvey model), Neo-Chamberlinian models (Krugman model), Oligopolistic models (Brander-Krugman model), Reciprocal-dumping model (Iceberg model)- Measurement of intra-industry trade- Balassa index, Grubel-Lloyd index, Aquino index.

UNIT-4: Trade and Growth (12)

Trade and Growth-Effects of growth on trade- Immiserising growth-The Rybczynski Theorem-Extension of the Rybczynski theorem. Technical progress and international trade- Neutral technical progress, capital-saving technical progress, Labour-saving technical progress.

References:

1. Feenstra Robert C. (2004), International Trade: Theory and Evidence, Princeton, University Press, Princeton. (Unit 2 and 3)
2. Grimwade Nigel (2001). International Trade, (Latest edition), Routledge. London. (Units 2 and 3).
3. Grubel H. G. And Lloyd P. J. (1975), Intra-Industry Trade: The Theory and Measurement of International Trade in Differentiated Products, the Macmillan Press Ltd., London. (Unit 3)
4. Salvatore Dominick (2002), International Economics, (Latest edition), John Wiley and Sons, Singapore. (Units 1, 2, 3 and 4).
5. Södersten Bo and Reed Geoffrey (1994), International Economics, Mcmillan, London. (Units 1, 2, 3, and 4).

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GROUP II – (07)	**INTERNATIONAL ECONOMICS**	**CREDITS-6**
SEMESTER- II: INTERNATIONAL TRADE & COMMERCIAL POLICY		**PAPER I: EC207**

Preamble: This optional course, to be offered in second semester, which requires a good understanding of Microeconomics. The course aims at providing a theoretical exposition of policy framework and promotion of the growth of international trade leading to improvement in economic welfare with empirical evidence.

UNIT-1: Trade Restrictions (12)

The Partial Equilibrium Analysis of Tariff – Theory of Tariff Structure – General Equilibrium: Analysis of a Tariff in a Small Country and Large Country. The Optimum Tariff. Tariffs and real rewards to factors of production – The Stolper-Samuelson Theorem. Tariff Structure and Effective Rate of Protection.

UNIT-2: Non-Tariff Trade Barriers (12)

Non-tariff trade barriers and import quotas, other non-tariff barriers and the new protectionism voluntary export restraints, Technical Administrative and Other Regulations – International Cartels – Dumping – the Political Economy of Protectionism – Strategic Trade Policy – Lobbying – subsidies and countervailing measures.

UNIT- 3: Economic Integration (12)

Economic Integration – Customs Unions and Free Trade Areas. The Theory of Customs Union – Trade Creation – Trade Diversion – Regional Trading Arrangements – SAFTA, NAFTA, EFTA, ASEAN, European Union.

UNIT-4: Trade Policy and Developing Countries (12)

Preferential treatment to developing countries in WTO – UNCTAD – GATS – TRIMS – international trade in services – GATS – Export Instability – Prebisch-Singer Hypothesis – Infant Industry Argument – Import Substitution Versus Export Promotion – Foreign Portfolio Investment and Foreign Direct Investment – Dunning's Eclectic Theory – Multinational Firms – Taxation and Transfer Pricing Problem.

References:

1. Grimwade Nigel (2001). International Trade, (Latest edition), Routledge. London. (Units 2 and 3).
2. Krugman P. and M. Obstfeld (2000), 'International Economics: Theory and Policy', 5th edition, Addison Wesley Longman Pvt. Ltd.
3. Salvatore Dominick (2002), International Economics, (Latest edition), John Wiley and Sons, Singapore. (Units 1, 2, 3 and 4).
4. Södersten Bo and Reed Geoffrey (1994), International Economics, Mcmillan, London. (Units 1, 2, 3, and 4).

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GROUP II (08)	**MATHEMATICAL ECONOMICS**	**CREDITS - 6**
SEMESTER- I:	**MATHEMATICAL METHODS & PROGRAMMING**	**PAPER - I: EC108**

Unit -I: Set Theory, Function, Vector and Matrix (12)
Set Theory: Concepts of sets and its operations; Relations and functions, Types of functions; Vector and vector spaces, Vector and points; Matrix: Elementary operations, Solution of simultaneous equations; Characteristic roots and Eigen vectors.

Unit -II: Linear Programming, Input-Output Analysis and Optimization (12)
Linear programming: Concept and formulation of LP problems, Solutions: Graphical and Simplex methods, Dual formulation and interpretation, Duality theorems, Shadow prices and their uses; Static Input-Output Analysis: Open and closed models; Maxima and Minima – One and more than one choice variables, unconstrained and constrained functions; Applications: Multiproduct firm, Price discrimination, Utility maximization, Least-cost input combination; Homogeneous and homothetic functions: Cobb-Douglas and C.E.S production functions.

Unit -III: Differential Equation (12)
Concepts, Solutions of first and second order linear and non-linear differential equations- homogeneous and non-homogeneous cases; Applications: Dynamic market model, Domar growth model, Solow growth model, Phase diagram, Time path, Market model with price expectation.

Unit -IV: Difference Equation (12)
Concepts, Solutions of first order and second order difference equations; Applications: Cobweb model, Market model with inventory, Phase diagram, Market model with price ceiling, Samuelson multiplieracceleration interaction model.

References:
1. Allen, R.G.D. (1967): *Mathematical Analysis for Economists*, Macmillan.
2. Budnick, F.S. (1993): *Applied Mathematics for Business, Economics and Social Sciences*, McGraw Hill.
3. Chiang, A.C. (2005)*: Fundamental Methods of Mathematical Economics*, McGraw Hill, ND.
4. Dorfman, Samuelson and Solow (1958): *Linear Programming and Economic Analysis*, McGraw Hill, NY.
5. Henderson (2003): *Microeconomic Theory- A Mathematical* Approach (3e), McGraw Hill.
6. Hoy, Livernois, Mckenna, Rees and Stengos (2004): *Mathematics for Economics*, Prentice Hall, ND.

Additional Reading List
1. Baumol, W.J. (1977): *Economic Theory and Operations Analysis*, Prentice Hall, ND.
2. Handry, A.T. (1999): *Operation Research*, Prentice Hall, ND.
3. Mathur, P.N. and R. Bhardwaj (eds.) (1967): *Economic Analysis in Input-Output Research*. Input-Output
Research Association of India, Pune.
4. Nicholson, R.H. (1986): *Mathematics for Business and Economics*, McGraw Hill, NY.
5. Samuelson, P.A. (2005): *Micro Economics* (18e), McGraw Hill, International Edition.
6. Taha, H.A. (1998): *Operation Research*: *An Introduction* (7e), Prentice Hall, ND.
7. Takayama, A. (1974): *Mathematical Economics*, Dryden Press, Hinsdale, III.

GROUP II (08)	**MATHEMATICAL ECONOMICS**	**CREDITS - 6**
SEMESTER- II:	**MATHEMATICAL METHODS & PROGRAMMING**	**PAPER -II: EC208**

Unit -I: Set Theory, Linear and Metric Space and Elements of Topology 12
Elementary (crisp) set theory, union, intersection and Cartesian product, the concept of coordinate set, correspondence, concept of single and multi-valued functions, injection and bijection, upper and lower bounds, supremum and infimum, the linear space Rn, additive group, vector space, inner product, metric space, symmetry and asymmetry, normed linear space, basis and linear functions, linear combination. The concept of ball, open/closed ball, transformation of a set to a topological space, topology induced by a metric, accumulation point, derived set and closure, sequence, convergence, interior point, open kernel, product topology, concept of compactness, Heine-Borel and Weierstrass theorems, T1 , T2 (Hausdorff) and normal spaces, relative topology.

Unit -II: Mathematical Theory of Optimization 12
The concept of optimization, the concept of global vs. local optima, saddle point, convex and non-convex sets, the concept of hyper-plane, separation of sets, half-spaces, supporting hyper-plane, linear manifold, Minkowski's separation theorem, Minkowski-Farkas lemma, Slater and Carlin conditions, Moore's theorem. Conditions for local/ global optimum, Karush-Kuhn-Tucker's main theorem, Arrow-Hurwicz-Uzawa theorem, John's theorem, quasi-concave programming, Arrow-Enthoven theorem, vector-maximum problem, concepts of semi-continuity, Berg's theorem, the Maximum Theorem, fixed point theorems of Brouwer and Kakutani, Gale-Nikaido theorem.

Unit III: Mathematical Theory of Dynamical Systems and Stability 12
Introduction to differential equations, autonomous and non-autonomous systems, 1st , 2nd and nth order differential equations, linear and nonlinear differential equations, various concepts of stability, Cauchy-Peano theorem, Lipschitz condition, the equilibrium point and equilibrium state, global vs. local stability, linear approximation stability, Routh-Hurwitz theorem, Schur-Cohn theorem, Liapunov's function and his 1st and 2nd methods, uniformly Liapunov stable system, the concept of quasi-stability, Uzawa's modified Liapunov function, introduction to phase diagrams.

Unit -IV: The Calculus of Variations and Optimal Trajectory 12
The minimum distance and the brachistochrone problems, the Hamilton principle, Euler's equation, the fundamental theorem of calculus of variations, the concept of functional, Euler's conditions and sufficiency theorem, elements of optimal control, controllability and bang-bang theory, control parameters, examples of optimum control problem, Pontryagin's maximum principle, explicit constrains in the optimal control problem, the control function, generalized Hamiltonians, Hestenes' theorem, bounded state variables and the optimal control problem.

References:
1. Arrow, K.J. and M.D. Intriligator (1982): *Handbook of Mathematical Economics*, North Holland, Amsterdam.
2. Dorfman, R, P.A. Samuelson and R.M. Solow (1958): *Linear Programming and Economic Analysis*, McGraw Hill, NY.
3. Du, D.Z., P.M. Pardalos and W. Wu (2001): *Mathematical Theory of Optimization*, Kluwer Academic/Springer.
4. Evans, L.C. (????): *An Introduction to Mathematical Optimal Control Theory*, downloadable from http://math.berkeley.edu/~evans/control.course.pdf

5. Gale, D. (1960): *The Theory of Linear Economic Models*, McGraw Hill, NY.
6. Nikaido, H. (1969): *Convex Structures and Economic Theory*, Academic Press, NY.
7. Rudin, W. (1964): *Principles of Mathematical Analysis*, McGraw Hill, NY.
8. Takayama, A. (1974): *Mathematical Economics*, The Dryden Press, Illinois.

Additional Reading Materials

1. Berg, C. (1963): *Topological Spaces*, Macmillan, NY.
2. Gantmacher, F.R. (1959): *TheTheory of Matrices*, Chelsea Publishing Co., NY.
3. Hahn, W. (1963): *Theory and Application of Liapunov's Direct Method*, Prentice Hall, NJ.
4. Halmos, P.R. (1960): *Naïve Set Theory*, Van Nostrand, Princeton.
5. Hestenes, M.R. (1966): *Calculus of Variations and Optimal Control Theory*, Wiley, NY.
6. Hull, D.G. (2003): *Optimal Control Theory for Applications*, Springer-Verlag, ND.
7. Newman, P. (1968): *Readings in Mathematical Economics*, John Hopkins, Baltimore

GROUP II – (09)	ECONOMETRICS	CREDITS-6
SEMESTER- I:	FOUNDATION OF ECONOMETRICS	PAPER - I: EC109

UNIT- 1: Basics of Statistical Inference (12 Hours)

Properties of estimators: point versus interval estimation - Hypothesis Testing Data Issues: time series, cross section and panel data ideas of Probability and distribution functions - Mathematical expectation, Law of large numbers – (without proof) - Central limit Theorem (without proof)

UNIT- 2: *Statistical Inference & Estimation theory* (12 Hours)
Estimation theory - Unbiasedness, sufficiency, consistency and asymptotic efficiency - MLE estimation - Cramer-Rao inequality and minimum variance bound estimators - Rao-Blackwell theorem - Sufficiency, completeness and stochastic independence - - Likelihood ratio tests - Wald tests and Langrange multiplies tests.

UNIT- 2: The Regression Model (12 Hours)
The classical linear regression model: theory of least squares - Gauss Markov theorem - Statistical properties of the least square estimator in finite samples - Inference and prediction - dummy variables distributed lags - restricted least squares

UNIT- 3:Violation of the Classical Assumptions (12 Hours)
Problem of Heteroscedasticity and Testing for presence of heteroscedsaticity - Remedial measures, Autocorrelation - Remedial Measures - Multicollinearity and __ specification issues,

GROUP II – (09)	ECONOMETRICS	CREDITS-6
SEMESTER- II:	FOUNDATION OF ECONOMETRICS	PAPER - II: EC209

UNIT- *1. Probability Theory* (12 Hours)
Calculus of probability - Sample space and events - Notion of random variables and distribution functions - Conditional probability and statistical independence - Conditional distribution of a random variable - Mathematical expectation and moments of random variables - Conditional expectations - Laws of large numbers - Central Limit Theorem.

UNIT- *2.Multivariate Analysis* (12 Hours)
Method of principal components - Principal components regression - Discriminant analysis Factor analysis.

UNIT- *3.Bayesian Analysis* (12 Hours)
Bayes theorem - Posterior distribution from an informative prior - Noninformative priors - Hypothesis testing - Point estimation - Bayesian analysis of the classical regression model Point and interval estimation - Hypothesis testing.

UNIT- 4: Time Series Modeling (12 Hours)
ARIMA Modelling: Box-Jenkins approach (identification, estimation and diagnostic testing i.Unit roots and Cointegration: Data Generating Processes, Dickey-Fuller and Phillips-Perron approaches to unit root tests

References:

1. Jan Kmenta, *Elements of Econometrics,* McMillan Publishing, Second Edition, 1990
2. alter Enders, *Applied Econometric Time Series,* Wiley. Second Edition. 2003
3. William E. Griffiths. R. Carter Hill, George G. Judge: *Learning and Practicing Econometrics.* 1993.
4. Damodar Gujarati, *Basic Econometrics,* McGraw-Hill, Fourth Edition, 2002.

GROUP II – (10)	**FINANCIAL ECONOMICS**	**CREDITS-6**
SEMESTER- I:	**FINANCIAL ECONOMICS**	**PAPER I: EC110**

UNIT-1: Basic Concepts in Finance: 12

Periodic, compounded and effective annual rates of interest – Pure discount bonds and spot yields, coupon paying bonds, holding period return –Utility, uncertainty and measures of risk aversion.

UNIT-2: Portfolio Theory: 12

Portfolio return, portfolio risk, Covariance – Two Asset Portfolio – Risk Aversion and Utility Indifference Curves – Optimum Portfolio - Capital Allocation Line and Utility Indifference Curves – Finding Optimal Portfolio – Finding the Efficient Frontier – Markowitz Model – Power of Diversification.

UNIT-3: Capital Asset Pricing Model: 12

Mean-Variance criterion, measuring risk and return for a single asset and for a Portfolio, Portfolio diversification, Portfolio efficiency frontier, capital market line, market portfolio, security market line, extensions of the CAPM, performance measures, Roll's critique, arbitrage pricing theory.

UNIT-4: Valuation Models: 12

Rational Valuation Formula, Consumption CAPM, Efficient Markets Hypothesis – Stock prices and martingales – Weak form, semi-strong form and strong form – Test of the EMH – Empirical evidence on efficiency in the stock market.

References:

1. Copeland T.E., J. F. Weston and K. Shastri (2005): **Financial Theory and Corporate Policy**, Fourth Edition, Pearson Addison-Wesley USA.
2. Cuthbertson, K, (1996): **Quantitative Financial Economics: 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

GROUP II – (10)	**FINANCIAL ECONOMICS**	**CREDITS-6**
SEMESTER- II:	**FINANCIAL ECONOMICS**	**PAPER I: EC210**

UNIT-1: Rational Bubbles Euler Equation and the Rational Valuation Formula: 12

Test of rational bubbles - Intrinsic Bubbles – Anomalies and Noise Traders – The Winner's Curse, Noise Trading and Herding (Shiller), Noise Traders and Contagion (Kirman), Shleifer –Vishny model of short-termism.

UNIT-2: Systems of Financial Markets: 12

Spot Markets – Contingent Claims Markets – Arrow Securities – Ordinary Securities Markets – Incomplete Markets – Financial Markets and Financial Intermediaries.

UNIT-3: The Bond Market: 12

The Yield to Maturity –Term structure models, Ho-Lee model, Black-Derman Toy model, Black-Karasinski model – Measures of price sensitivity – Price value of a basis point, duration and convexity, Macaulay and Modified Duration.

UNIT-4: Firms and Financial Markets: 12

Firms and Stock Market Equilibrium – Separation of Ownership and Control – Financial Structure of the Firm – Insurance Markets – Debt Contracts – Credit Rationing.

References:

6. Copeland T.E., J. F. Weston and K. Shastri (2005): **Financial Theory and Corporate Policy**, Fourth Edition, Pearson Addison-Wesley USA.
7. Cuthbertson, K, (1996): **Quantitative Financial Economics: Stocks, Bonds and Foreign Exchange,** John Wiley and Sons, USA
8. Eichberger J. and I.R. Harper (1997): **Financial Economics,** Oxford University Press, New York.
9. Tuckman, B. (1995), **Fixed Income Securities – Tools for Today's Markets**, Wiley Frontiers in Finance.
10. Zvi Bodie, Alex Kane and Alan J. Marcus, Investments, 8th edition, ISBN: 0-07-338237-X, McGraw-Hill

GROUP II – (11)	URBAN ECONOMICS & REGIONAL DEVELOPMENT	CREDITS-6
SEMESTER- I:	MICRO-THEORY & POLICY ISSUES	PAPER I: EC111

Preamble

This objective behind introducing this course is to acquaint the underlying theories, propositions and issues that usually arise in studying an urban situation. The course will equip the student with the basic theoretical premises and analytical tools (borrowed from the standard micro and macro economics) that are used by an urban economist. The course therefore is not necessarily grounded in any particular reality (except where explicitly mentioned), however for pedagogical purposes, explanation and illustrations will naturally come from the Indian situation.

1. Historical emergence of urban economics and regional development as academic disciplines – Spatial structure and growth – Comparison between developed and developing countries (8 lectures)

2. Decentralisation of economic decisions (arguments for and against) -Regional inequality – Rural/urban interlinkages – Indian situation. (10 lectures)

3. Analytical techniques in urban economics and difficulties in measurement of Urban growth – Regional I/O tables – difficulties and uses – Multi-regional models – Statistical/econometric/qualitative models in regional and urban studies – Data sources and techniques – Geographical Information System (GIS). (15 lectures)

4. City functions and structure – Size/distribution/growth – Concept of Urbanisation – Urban morphology (sub/ de/ re/ over/ urbanisation) – Classical models – Location of residential and industrial activities – Industrial productivity and agglomeration – Tertiary sector – Metropolitan/mega cities – Trends world wide – Indian situation – The case of Mumbai. (15 Lectures)

References

O'Sullivan, A. (2002) *Urban Economics*, McGraw-Hill Irwin. (BASIC TEXT All Modules)

Shukla, V. (1996) *Urbanization and Economic Growth*, Himalaya Publishers Pvt. Ltd. (Modules 1,2,3)

Ramachandran, R. (1989) *Urban Economics and Urban Systems in India***,** OUP (Module 1)

http://www.mu.ac.in/arts/social_science/eco/vibhuti_html

GROUP II – (11) URBAN ECONOMICS & REGIONAL DEVELOPMENT CREDITS-6

SEMESTER- II: MICRO-THEORY & POLICY ISSUES PAPER I: EC211

Preamble

This objective behind introducing this course is to acquaint the underlying theories, propositions and issues that usually arise in studying an urban situation. The course will equip the student with the basic theoretical premises and analytical tools (borrowed from the standard micro and macro economics) that are used by an urban economist. The course therefore is not necessarily grounded in any particular reality (except where explicitly mentioned), however for pedagogical purposes, explanation and illustrations will naturally come from the Indian situation.

1. Regional Migration (8 lectures)

   Factor Migration: the classical theory of labour migration, *Alternatives:* the human capital model, the job search model, the gravity model. Disparities in Regional Unemployment

2. Urban labour markets – Developed and developing economies – Informal sector – Segmentation and hierarchy – Dualism – Impact of globalisation – Todaro model – Migration theory and empirical trends in India and Mumbai (10 Lectures).

3. Theory of land use pattern – Housing markets – Role of state – National housing policy – Slums (extent/types) – Rehabilitation policy – Theoretical underpinning of land ceiling and rent control – Examples of U.S. and U.K. and some developing country – Case study of Mumbai (15 Lectures).

4. Urban Infrastructure – The Indian *state of affairs* (physical) – Transport – Water supply and sanitation – Electricity – (social sector) – Education – Health services – Acesses to basic urban amenities – Financial instruments (municipal bonds) (15 Lectures).

References

1. O'Sullivan, A. (2002) *Urban Economics*, McGraw-Hill Irwin. (BASIC TEXT All Modules)
2. Harvey Armstrong and Jim Taylor(2000) *Regional Economics and Policy*, 3rd edition, Blackwell Publishing(Module 1)
3. Todaro Michael P *Internal Migration in Developing Countries a review of Theory evidence methodology & research priorities*, ILO Geneva
4. Shukla, V. (1996) *Urbanization and Economic Growth*, Himalaya Publishers

Pvt. Ltd. (Modules ,2,3)
5. Bidyut Mohanty (1993) *Urbanization in Developing Countries Basic Services and community Participation*, Institute of Social Science, Concept Publishing House (Module 4).

Additional References-

Books and Articles by Amitabh Kundu on Basic Amenities (Module 4)
Also http://www.mu.ac.in/arts/social_science/eco/vibhuti_html