Semester	I
Paper Number	
Paper Title	Microeconomics-I
No. of Credits	6
Theory/Composite	Theory
No. of periods assigned	6 Theory
Course description/objective	To provide advanced knowledge of microeconomic theory and its applications and to provide the students the knowledge of utility maximization problem of a consumer along with concepts of compensating variation, equivalent variation, duality in consumption using a mathematical approach.Another objective is to expose students to the concept of general equilibrium analysis with the help of exchange economy, pareto optimality to provide the knowledge of public goods and externalities problem and how to find solutions to such problems.
Syllabus	**Module 1 (30 marks)** **Consumer Behaviour** Choice of a representative consumer – Duality approach - Indirect Utility Function, Expenditure Function - Consumer surplus, Equivalent and compensating variation - revealed preference; Uncertainty- Concept of lotteries, Expected utility, Measures of risk aversion, the demand for insurance. **Module 2 (20 marks)** **Theory of the Firm and the Competitive Market** Cost minimization –Shephard's Lemma and Properties of Cost function and Conditional factor demand functions; Profit maximization- Profit function and its properties, Hotelling's Lemma and properties of factor demand functions; The competitive firm – market equilibrium — taxes and subsidies, behaviour of firm under uncertainty. **Module 3 (30 marks)** **General equilibrium and Welfare Economics** The exchange economy – Equilibrium (Existence, uniqueness, stability) – Pareto Optimality-concept of core - Core equivalence theorem. One consumer one producer Economy The Production Model- fixed and flexible coefficients – relation between endowments and product mix – relation between commodity prices and factor prices. Fundamental theorems of welfare economics; Public goods: Efficient provision of a discrete public good and a continuous public good, Externalities and solution to externalities problem.
Readings	• Varian H. (2009) - Microeconomic Analysis, 3rd Edition, Viva Books Pvt. Ltd. • AnjanMukherji: An Introduction to General Equlibrium Analysis. • Avinash Dixit: Optimization in Economic Theory • Kreps: A course in microeconomic theory • Jones (1965) The Structure of Simple General Equilibrium

<table>
<tr><td></td><td>ModelsJournal of Political Economy Vol. 73, No. 6, pp. 557-572
• Mas-Colell, Whinston and Green(2012):Microeconomics Theory, Oxford University Press.</td></tr>
<tr><td>Evaluation</td><td>Continuous Internal Assessment: 20 marks
End- Semester Theory Examination: 80 marks</td></tr>
<tr><td>Paper Structure for End Sem Theory</td><td>
<table>
<tr><td>Module</td><td>No. of Questions to be Answered</td><td>No. of Alternatives</td><td>Marks</td></tr>
<tr><td>Module 1</td><td>2</td><td>3</td><td>15 x 2 = 30</td></tr>
<tr><td>Module 2</td><td>2</td><td>3</td><td>10 x 2 = 20</td></tr>
<tr><td>Module 3</td><td>2</td><td>3</td><td>15 x 2 = 30</td></tr>
<tr><td colspan="3">Total Marks</td><td>80</td></tr>
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Semester	I
Paper Number	
Paper Title	Macroeconomics-I
No. of Credits	6
Theory/Composite	Theory
No. of periods assigned	6 Theory
Course description/objective	To provide a brief review of the topics taught in the undergraduate course and to understand the more advanced macroeconomic models.
Syllabus	**Module 1 (40 marks)** **Overview of AD-AS Model** Overview of AD-AS Model, interest rate targeting and Keynesian economics without the LM curve: an alternative approach. **Financial Markets and the Real sector** a) Role of credit in macro economy; Asset- Liability structure of commercial banks; term structure of interest rates; effective demand and monetary policy- money view and credit view. b) The stock market, Tobin's q and output. **Patinkin'sfull employment model.** Balance sheet effect of central bank, commercial banks, firms and households; determination of wealth; AD and wealth effect; price flexibility and full employment; neutrality of money. **Module 2 (40 marks)** **Expectation and the macro economy** Adaptive expectation; the Friedman-Phelps model of policy analysis; hyperinflation and seigniorage; rational expectation: the Barro-Lucas model of equilibrium business cycle and monetary policy; overlapping wage contracts and non-neutrality of money. **Open Economy Macroeconomics** Balance of Payment accounting, Mundell-Flemming model, Dornbusch model of exchange rate over shooting. **New Keynesian Macroeconomics: Microfoundation for unemployment** a) Menu cost, Aggregate demand externality and Non-neutrality of money b) Wage price staggering, Efficiency wage theory.
Readings	• David Romer: Advanced Macroeconomics, McGraw-Hill. • Blanchard & Fischer: Lectures on Macroeconomics, MIT Press. • Errol D'Souza: Macroeconomics, Pearson Education India • Barro (1976): Rational expectations and the role of monetary Policy, *Journal of Monetary Economics*, 1976, vol. 2, issue 1, 1-3 • Krugman, Obstfeld&Melitz: International Economics: Theory & Policy, Pearson • RudigerDornbusch: Open Economy Macroeconomics, New York • Barro, R. J. (1976). Rational expectations and the role of monetary policy. Journal of Monetary economics, 2(1), 1-32. • Bernanke, S., & Blinder, A. S. (1988). Credit, money and

<table>
<tr><td></td><td>aggregate demand. In American Economic Review, 78(2), 435-439.
• Calvo and Rodriguez (1977)A Model of Exchange Rate Determination under Currency Substitution and Rational Expectations. Journal of Political Economy, vol. 85, issue 3, 617-25
• Blanchard(1981), Output, the Stock Market, and Interest Rates, American Economic Review, 1981, vol. 71, issue 1, 132-43.
• Ben Heijdra(2017): Foundations of Modern Macroeconomics, Oxford University Press
• Patinkin(1965): Money Interest and Prices,Harper & Row, Publisher.</td></tr>
<tr><td>Evaluation</td><td>Continuous Internal Assessment: 20 marks
End- Semester Theory Examination: 80 marks</td></tr>
<tr><td>Paper Structure for End Sem Theory</td><td>
<table>
<tr><th>Module</th><th>No. of Questions to be Answered</th><th>No. of Alternatives</th><th>Marks</th></tr>
<tr><td rowspan="2">Module 1</td><td>2</td><td>3</td><td>5 x 2 = 10</td></tr>
<tr><td>2</td><td>3</td><td>15 x 2 = 30</td></tr>
<tr><td rowspan="2">Module 2</td><td>2</td><td>3</td><td>5 x 2 = 10</td></tr>
<tr><td>2</td><td>3</td><td>15 x 2 = 30</td></tr>
<tr><td colspan="3">Total Marks</td><td>80</td></tr>
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Semester	I
Paper Number	
Paper Title	Quantitative Economic Analysis I
No. of Credits	6
Theory/Composite	Theory
No. of periods assigned	6 Theory
Course description/objective	1. Traditional advanced calculus is a course with topics in calculus emphasizing problem solving method. This course emphasizes on theory. 2. To provide an accessible, reasonably paced course in fundamental concepts and techniques of real analysis. 3. The course intends to go beyond the routine manipulations of formulas to solve standard problems and to develop the ability to think deductively and analyse mathematical situations. 4. The objective is to give a thorough treatment of sequences in R and the associated limit concept. 5. To understand the importance of linear mathematical models in economics. 6. The use of differential equations to study simultaneous system.
Syllabus	**Module 1: Real Analysis (50 Marks)** Unit 1 : Sets and functions- Subsets, Algebric Operations on Sets- Cartesian Product of sets- Relation on a set- order relation on a set- Function- equipotent sets – eumerable sets. Unit 2 :The Real Numbers- Natural numbers, Integers- rational numbers, Real Numbers(extended set) Unit 3 : Sets in R – Interval, Neighborhood, Interior Point, Open Set, Limit Point, Isolated Point, Bolzano-Weierstrass Theorem, Derived Set, Closed Set. Unit 4 : Sequence – Real Sequence, Bounded sequence, Limit of a sequence, convergent sequence, Limit theorems, divergent sequence, some important limits, monotone sequence, sub sequence, subsequential limit, characterization of a compact set, Cauchy Criteria. Unit 5: Series: Infinite series, series of positive terms, tests for convergence, conditionally convergent series. Unit 6 : Limits- Limits of a function, one-sided limits, infinite limits, limits at infinity ,infinite limits at infinity, limits of monotone function. Unit 7 : Continuity – Continuity of some important functions, discontinuity, properties of Continuous functions- intermediate value theorem , uniform continuity-continuity on a compact set. **Module 2: Linear Algebra and Programming (30 marks)** Unit 1: Introduction to Matrices and Vectors: Matrix, Determinant, Inverse Matrix, Special Matrix Unit 2: Eigenvalues and Eigenvector- Vector spaces, Rank of a matrix, The Eigen problem, The DiagonlisationOf a Square Matrix, Quadratic Forms. Unit 3: Concave Programming and the Kuhn-Tucker conditions-Optimisation over an Interval, Direct Restrictions on Variables, The Concave Programming Problem, Many variables and Constraints. Unit 4: Simultaneous Systems of Differential Equations-Linear Differential Equation System, Stability Analysis and Phase Diagrams.

<table>
<tr><td>Readings</td><td>

Module 1

Bartle R.G &Sherbert D.R: Introduction to Real Analysis, John Wiley & Sons, 1982.
Goldberg R.R: Methods of Real Analysis, Oxford-IBH,1970
Apostol T.M.: Mathematical Analysis, Addison Wesley, 1974.
Proter M.H. &Morrey C.B.: A First Course in Real Analysis, Springer-Verlag, 1991.
Royden H.L.: Real Analysis, Macmillan, N.Y., 1988
Rudin W.: Principles of Mathematical Analysis, McGraw-Hill, 1964.
Parzinsky W.R. &Zupse P.W.: Introduction to Mathematical Analysis, McGraw-Hill, 1982.
White A.J.: Real Analysis, Addison Wesley, 1977.

Module 2

G. Hadley-Linear Algebra. Narosa Publishing House 1987.
K.SydsaeterandP.Hammond,*MathematicsforEconomicAnalysis*,Pearson Educational Asia: Delhi,2002.
M.D .Intrilligator-Mathematical Optimisation and Economic Theory, Prentice- Hall 1971.
Lawrence Blume and Carl Simon, *Mathematics for Economists*, W.W.Norton and Company, 1994.
Chiang&Wainwright(2017) Fundamental Methods of Mathematical Economics Paperback, McGraw Hill

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<tr><td>Evaluation</td><td>Continuous Internal Assessment: 20 marks
End- Semester Theory Examination: 80 marks</td></tr>
<tr><td>Paper Structure for End Sem Theory</td><td>

<table>
<tr><th>Module</th><th>No. of Questions to be Answered</th><th>No. of Alternatives</th><th>Marks</th></tr>
<tr><td rowspan="2">Module 1</td><td>4</td><td>5</td><td>5 x 4 = 20</td></tr>
<tr><td>3</td><td>4</td><td>10 x 3 = 30</td></tr>
<tr><td rowspan="2">Module 2</td><td>2</td><td>3</td><td>5 x 2 = 10</td></tr>
<tr><td>2</td><td>3</td><td>10 x 2 = 20</td></tr>
<tr><td colspan="3">Total Marks</td><td>80</td></tr>
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Semester	I
Paper Number	
Paper Title	Development Economics
No. of Credits	6
Theory/Composite	Theory
No. of periods assigned	6 Theory
Course description/objective	To analyse and describe the features of less developed economies and the macroeconomic and microeconomic development challenges they face.To explain and apply key development economic growth theories, international trade development theories, and related economic development theories . To analyse and describe significant policy options available to government and international organisation to address economic development challenges.
Syllabus	**Module 1 (30 marks)** **Roots of development theory** Underdevelopment as a historical process and underdevelopment structures; production, growth and development; capability and functioning and freedom; market and the state, HDI; Gender related issues **Poverty and Inequality:** Conceptual framework and measurement **Module 2 (20 marks)** **Coordination Failure and Big Push:** External Economies and multiple equilibria; Vicious circle of poverty and industrialization. Technological complementarities, coordination failure and recession. **Module 3 (30 marks)** **Dual Economy Models-** Ranis Fei, Jorgenson, Cardoso, Rakshit-Taylor Models **Trade and Development-** Neo-Ricardian, Neoclassical, Structuralist Models
Readings	• PranabBardhan: Alternative Approaches to Development Economics in Handbook of Development Economics, Vol.1, Ed by HolisChenery and T.N. Srinivasan • Amartya Sen(1999) Commodities & Capabilities, Oxford University Press, New Delhi. • Paul Krugman: History versus Expectations Murphy, K.M., Shelfer, A., and Vishny, R. (1989). Industrialization and the big push. Journal of political economy 97:1003-26 KaushikBasu: Analytical Development Economics • Russell W. Cooper, *Coordination Games – Complementarities and Macroeconomics*, Cambridge University Press • Bacha E(1978): An Interpretation of unequal exchange from Prebisch-Singer to Emmanuel, JDE • MihirRakshit, The Labour Surplus Economy: A Neo-Keynesian

<table>
<tr><td></td><td>Approach, Macmillan.
MihirRakshit, Studies in the Macroeconomics of Developing Countries, OUP.
Jorgenson, Dale (1967) Surplus Agricultural Labour & Development of Rural Economy, Oxford University Press 19(3) 288-312.
RajatAcharyya and SaibalKar(2014): International Trade & Economic Development
SarbajitChaudhuri and Ujjaini Mukhopadhyay(2014): Foreign Direct Investment in Developing Countries</td></tr>
<tr><td>Evaluation</td><td>Continuous Internal Assessment: 20 marks
End- Semester Theory Examination: 80 marks</td></tr>
<tr><td>Paper Structure for End Sem Theory</td><td>
<table>
<tr><th>Module</th><th>No. of Questions to be Answered</th><th>No. of Alternatives</th><th>Marks</th></tr>
<tr><td>Module 1</td><td>2</td><td>3</td><td>15 x 2 = 30</td></tr>
<tr><td>Module 2</td><td>2</td><td>3</td><td>10 x 2 = 20</td></tr>
<tr><td>Module 3</td><td>2</td><td>3</td><td>15 x 2 = 30</td></tr>
<tr><td colspan="3">Total Marks</td><td>80</td></tr>
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Semester	II
Paper Number	
Paper Title	Micro Economics-II
No. of Credits	6
Theory/Composite	Theory
No. of periods assigned	6 Theory
Course description/objective	To expose students to the various aspects of game theory and its applications.
Syllabus	**Module 1 (20 marks)** The Theory of firm The nature of the Firm, Critique of the Classical Theory of the Firm, Firms' Objectives and Alternative Hypotheses. **Module 2(40 marks)** Game Theory: A) Strategic Form Games: Strategic Form Games and Dominant Strategies; Dominance Solvability, Nash Equilibrium, Mixed Strategies. B) Extensive Form Games: Backward Induction; Subgame Perfect Equilibrium, Finitely Repeated Games, Infinitely Repeated Games. Nash Bargaining. **Module 3(20 marks)** Oligopoly and Strategic Interactions: Entry Deterrence,and Dynamic Price Competition and Tacit Collusion. Information Economics: A) Adverse Selection- Signalling and Screening. B) Moral Hazard and Principal Agent Problem- Symmetric information and Asymmetric information.
Readings	• Drew Fudenberg and Jean Tirole, *Game Theory*, The MIT Press. • Geoffrey A. Jehle and Philip J. Reny,*Advanced Microeconomic Theory*, The Addison-Wesley Series in Economics. • Martin J. Osborne, *An Introduction to Game Theory*, OUP. • Oz Shy, *Industrial Organization: Theory and Application*, The MIT Press. • Robert Gibbons(1992): Game Theory for Applied Economists Princeton University Press • Mas-Colell, Whinston and Green (2012): Microeconomics Theory, Oxford University Press. • Robert Gibbons(1992): A Primer in Game Theory, Pearson Higher Education
Evaluation	Continuous Internal Assessment: 20 marks End- Semester Theory Examination: 80 marks

Paper Structure for End Sem Theory	Module	No. of Questions to be Answered	No. of Alternatives	Marks
	Modules 1&3	1	2	5 x 1 = 5
		1	2	15 x 1 = 15
	Module 2	2	3	5 x 2 = 10
		2	3	15 x 2 = 30
	Total Marks			80

<table>
<tr><td>Semester</td><td>II</td></tr>
<tr><td>Paper Number</td><td></td></tr>
<tr><td>Paper Title</td><td>Macroeconomics II</td></tr>
<tr><td>No. of Credits</td><td>6</td></tr>
<tr><td>Theory/Composite</td><td>Theory</td></tr>
<tr><td>No. of periods assigned</td><td>6 Theory</td></tr>
<tr><td>Course description/objective</td><td>To provide a glimpse of the recent advancement in Macroeconomics and to develop the advanced analytical skill.
The aim is to understand and analyze the issues like business cycles and growth theory.</td></tr>
<tr><td>Syllabus</td><td>Module 1 (40 marks)
Solow Model: Steady state and golden rule of capital accumulation, Technological progress, dynamic inefficiency, Convergence, Role of fiscal policy
Optimal growth: Ramsey-Cass-Koopmans model
Endogeneous Growth model: AK Model, Romer Model, Lucas Model.

Module 2 (40 marks)
Overlapping Generation Model
Real Business cycle: Some facts about economic fluctuations, Behaviour of household and firm, A baseline real business cycle mode – technology shock and fiscal shock</td></tr>
<tr><td>Readings</td><td>• Blanchard & Fischer, Lectures on Macroeconomics, MIT Press.
• Carlin & Soskice, Macroeconomics: Institutions, Instability, and the Financial System, OUP.
• David Romer,Advanced Macroeconomics, McGraw-Hill.
• Philippe Aghion and Peter W. Howitt, Endogenous Growth Theory, MIT Press
• Solow(2000), Growth Theory : An Exposition. Oxford University Press</td></tr>
<tr><td>Evaluation</td><td>Continuous Internal Assessment: 20 marks
End- Semester Theory Examination: 80 marks</td></tr>
<tr><td>Paper Structure for End Sem Theory</td><td>
<table>
<tr><td>Module</td><td>No. of Questions to be Answered</td><td>No. of Alternatives</td><td>Marks</td></tr>
<tr><td rowspan="2">Module 1</td><td>2</td><td>3</td><td>5 x 2 = 10</td></tr>
<tr><td>2</td><td>3</td><td>15 x 2 = 30</td></tr>
<tr><td rowspan="2">Module 2</td><td>2</td><td>3</td><td>5 x 2 = 10</td></tr>
<tr><td>2</td><td>3</td><td>15 x 2 = 30</td></tr>
<tr><td colspan="3">Total Marks</td><td>80</td></tr>
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Semester	II
Paper Number	
Paper Title	Quantitative Economic Analysis II
No. of Credits	6
Theory/Composite	Composite
No. of periods assigned	4 Theory 2 Practical
Course description/objective	1) The objective is to provide students with a working introduction of statistical methods. 2) To provide students with insight into statistical inference. 3) The objective is to provide a fairly self-contained development and explanation of econometric methods. 4) The course will serve as a foundation for further formal study of econometrics. 5) The objective is to make students feel comfortable in working the methods on computers. 6) Understanding of empirical research technique.
Syllabus	**Module 1 (20 marks)** Unit 1: Statistical Estimation: Methods Of Point Estimation, The Method Of Moments, The Method Of Maximum Likelihood, Properties Of Estimators (Cramer-Rao Inequality), Interval Estimation. Unit 2: Tests Of Statistical Hypothesis: Statistical And Non-Statistical Hypothesis, Type 1 And Type 2 Errors, The Critical Region, The Power Of A Test, The Best Test (Neyman-Pearson Lemma). **Module 2 (30 marks)** Unit 3: Two Variable CLRM: Estimation and Properties, Violation of Assumption and Consequences. Unit 4: General Linear Model: Assumptions, Least Square Estimators, Significance Tests And Confidence Intervals, Prediction, Linear Restrictions, Multicollinearity, Specification Error. Unit 5: Generalized Least Squares: Aitken's Generalized Least Square Estimation, Prediction, Heteroskcadastic Disturbances, Autocorrelated Disturbances. **Practical (30 marks)**
Readings	• George Casella and Roger L. Berger- Statistical Inference, Cleanage Learning,2002. • A. M. Goon, M.K. Gupta and B. Dasgupta, Fundamentals of Statistics Vol1, World Press Private Limited Kolkata 1979. • Jack Johnston and John Dinardo, *Econometric Methods*, McGraw Hill Higher Education; 4th edition • Jack Johnston*Econometric Methods*, McGraw Hill Higher Education; 2nd edition • D. N. Gujarati and D.C.Porter, *Essentials of Econometrics,*

<table>
<tr><td></td><td>McGraw Hill, 4th edition, InternationalEdition, 2009.
• Maddala, IntroductiontoEconometrics, Wiley,2001
• Mood, A.M., F.A.Graybill and D.C. Boes: Introduction to The Theory of Statistics, McGraw Hill, 1974.
• Greene(2018): Econometric Analysis, Pearson
• Kementa(1997): Elements of Econometrics,The University of Michigan Press</td></tr>
<tr><td>Evaluation</td><td>Continuous Internal Assessment: 20 marks (Theory + Practical)
End- Semester Theory Examination: 50 marks
End-Semester Practical: 30 marks</td></tr>
<tr><td>Paper Structure for End Sem Theory</td><td>
<table>
<tr><td>Module</td><td>No. of Questions to be Answered</td><td>No. of Alternatives</td><td>Marks</td></tr>
<tr><td rowspan="2">Module 1</td><td>2</td><td>3</td><td>5x2=10</td></tr>
<tr><td>1</td><td>2</td><td>10x1=10</td></tr>
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<tr><td colspan="3">Practical</td><td>30</td></tr>
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Semester	II
Paper Number	
Paper Title	Contemporary Issues In Indian Economy
No. of Credits	6
Theory/Composite	Theory
No. of periods assigned	6 Theory
Course description/objective	The main objective of this course is to provide a macroeconomic understanding of the Indian Economy since Independence. The aim is to develop basic knowledge of factors governing Indian economy and its growth and Understanding the role of the Indian economy in the global context.
Syllabus	**Module 1 (20 marks)** Pre-reform development experience Indian Economy at Independence; Food crisis; Industrial stagnation since mid-60s; Macroeconomic crisis of 1980s: causes and dimensions – Rationale of Economic reforms in India – Issues related to interpersonal and interregional inequalities – the convergence debate. **Module 2(30 marks)** Growth and Sectoral Performance in the Post Reform Aggregate GDP growth – Structural changes and Productivity growth during reform era – Reforms in Agriculture sector and rural indebtedness – Agriculture growth and Distribution – Manufacturing growth and productivity issues – Disinvestment and Privatization – Service led growth. Inclusive Growth in India and its Various Dimensions. **Module 3 (30 marks)** Trade Reforms Trade and Payments reform in India – Merchandise trade performance and determinants – Trade in services – Balance of Payments – Issues related to Foreign Exchange Reserves and Capital account convertibility. Fiscal Reforms Outline and Dimensions of Fiscal reforms – FRBM Act and fiscal prudence – Fiscal Federalism Financial Sector Reforms Monetary policy reforms and their implication – Issues related to NPAs and Financial sector Reforms
Readings	• Uma Kapila(ed),*Indian Economy Since Independence*, Academic Foundation, New Delhi • Economic Survey, Different Volumes. • Isher Judge Ahluwalia and I.M.D. Little. India's Economic Reforms and Development Essays for Manmohan Singh, Oxford University Press. • Isher Judge Ahluwalia (1987). Industrial Growth in India stagnation since the Mid-Sixties, Oxford University Press. • John Felix Raj, *Disinvestment in India: Trends, Problems, and Prospects*, Regal Publications. • John Felix Raj, *Indian Economy: A Visionary Perspective*, Regal

<table>
<tr><td></td><td>Publications.
Joshi, V., & Little, I. M. D. (1993). Macro-economic stabilization in India, 1991-1993 and beyond. Economic and Political weekly, 2659-2665.
Jean Dreze and Amartya Sen, India Development and Participation, Oxford University Press.
Kaushik Basu, The Oxford Companion to Economics in India, Oxford University Press.
T. N. Srinivasan, Indian economic reforms: background, rationale, achievements, and prospects in Economic Policy and state intervention Edited by N. S. S. Narayanan, Oxford University Press.</td></tr>
<tr><td>Evaluation</td><td>Continuous Internal Assessment: 20 marks
End- Semester Theory Examination: 80 marks</td></tr>
<tr><td>Paper Structure for End Sem Theory</td><td><table>
<tr><td>Module</td><td>No. of Questions to be Answered</td><td>No. of Alternatives</td><td>Marks</td></tr>
<tr><td>Module 1</td><td>2</td><td>3</td><td>10 x 2 = 20</td></tr>
<tr><td>Module 2&3</td><td>2</td><td>3</td><td>15 x 2 = 30</td></tr>
<tr><td colspan="3">Total Marks</td><td>80</td></tr>
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Semester	III
Paper Number	
Paper Title	International Economics
No. of Credits	6
Theory/Composite	Theory
No. of periods assigned	6
Course description/objective	This paper concentrates on some of the vital dimensions of international trade theory under perfect and imperfect competition. It also focuses on the commercial policies in trade and tries to understand the role of regional trading blocks. The students will be made conversant on theories of balance of payments and monetary theory.
Syllabus	**Module 1: Trade Theory & Policy under Perfect Competition (40 marks)** A. Basis of Trade: Absolute vs Comparative Advantage, Gains from Trade B. Ricardian Model of trade- Derivation of World Supply Curve; Multi-country extension, world PPF, Multi-good extension of Ricardian Model-; Dornbusch- Fisher- Samuelson model of continuum of goods C. Specific Factor Model:Output and income distribution, growth in factor endowments, the Dutch disease. D. Heckscher- Ohlin Model ; Rybczynski Theorem; Stolper Samuelson Theorem; Factor Price Equalization; Empirical Tests of H-O Theorem E. Trade Practices: F. Commercial Policy in Trade; Effects of Tariff: Welfare effects; Theory of Optimal Tariff; Metzler's Paradox; Quota and other non-tariff barriers. G. Regional Trading Blocks: Trade creation and Diversion effects **Trade under Imperfect Competition**`: International Trade, Imperfect competition and Increasing Returns to Scale : IRS and Monopolistic Competition- Intra-industry Trade ; Horizontal Product Differentiation; Vertical Product Differentiation : strategic trade theory and policy. **Module 2: Balance of Payments and Monetary Theory (40 marks)** A. Intermediate goods, non-traded goods and employment. B. Dependent economy and dynamics of real exchange rate. C Current account and exchange rate dynamics D. Growth , Balance of payments and exchange rate. E. New open economy macroeconomics. F. Speculative attack and currency crisis.
Readings	• Giancarlo Gondolfo:International trade theory and policy, Springer • Jagdish N. Bhagwati, T. N. Srinivasan and Arvind Panagariya, Lectures on International Trade, MIT Press, 1998 • Kierzkowski (ed.): Monopolistic Competition and International

<table>
<tr><td></td><td>Trade, 1984,
• Paul Krugman, Rethinking International Trade, 1994, MIT press.
• P.KrugmanandM.Obstfeld-InternationalEconomics(8thEdition);PearsonEducation
• Luis A. Rivera-Batiz, Mario-Angels Oliva: International Trade: Theory,Strategies & Evidence
• RajatAcharyya-InternationalEconomics;OxfordUniversityPress
• RajatAcharyya, SugataMarjit: Globalisation and Inequality, Economic & Political Weekly(Vol. 35, Issue No 39, 23 Sep, 20000)
• R. Jones, R. Caves and J. Frenkel (CJF), World Trade and Payments, 4th edition,
• R. Jones, International Trade: Essays in Theory, North Holland,1979.
• Dornbusch, Rudiger: Open Economy Macroeconomics
• Savno, Lucio and Taylor M P: The economics of exchange rate.
• Terra Christina: Principles of international finance and open economy macroeconomics.</td></tr>
<tr><td>Evaluation</td><td>Continuous Internal Assessment: 20 marks
End- Semester Theory Examination: 80 marks</td></tr>
<tr><td>Paper Structure for End Sem Theory</td><td>
<table>
<tr><th>Module</th><th>No. of Questions to be Answered</th><th>No. of Alternatives</th><th>Marks</th></tr>
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<tr><td>2</td><td>3</td><td>15 x 2 = 30</td></tr>
<tr><td rowspan="2">Module 2</td><td>2</td><td>3</td><td>5 x 2 = 10</td></tr>
<tr><td>2</td><td>3</td><td>15 x 2 = 30</td></tr>
<tr><td colspan="3">Total Marks</td><td>80</td></tr>
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Semester	III
Paper Number	
Paper Title	Financial Economics
No. of Credits	6
Theory/Composite	Theory
No. of periods assigned	6
Course description/objective	This paper will enable students to study various dimensions of financial economics like capital structure, corporate financing, industrial organization, capital budgeting, capital asset pricing model and derivative market
Syllabus	**Module 1(40 marks)** 1. **Capital Structure and basic concepts** – Modigliani-Miller theorem and the financial structure puzzle; Corporate tax and personal tax; Limits to debt and cost of financial distress; Pecking order theory. 2. **Corporate financing and Agency cost** – The role of net worth and credit rationing; Debt overhang; Borrowing capacity; The equity multiplier. 3. **The Industrial organization approach to banking** – A model of perfect competition; The Klein-Monti model of monopolistic bank. 4. **Capital budgeting -** Net Present value approach; Payback period method; Discounted payback period method; Internal rate of return; Profitability index; Financial statement and Ratio analysis; term structure of Interest rate, spot rate and Yield to maturity; Weighted average cost of capital and dividend growth model **Module 2 (40 marks)** 5. **Capital Asset Pricing Model** – Market Equilibrium; Capital market line; The Pricing model; The Security market line; Investment Implications; Performance Evaluation; CAPM as a Pricing Formula 6. **Derivative market: Forwards, Futures, Options and Swap**
Readings	1. J. C. Hull. Options, Futures and Other Derivatives, Pearson Education, 2014. 2. J. Tirole, The theory of Corporate finance, Princeton University Press. 3. R.A. Brealey and S.C. Myers.Principles of Corporate Finance. McGraw Hill/ Irwin,2007. 4. S. Kevin. Portfolio Management; Prentice Hall India, 2006. 5. S.A. Ross, R.W. Westerfield and B.D. Jordon, Fundamentals of Corporate Finance.McGraw Hill/ Irwin, 2012. 6. X. Freixas and J. C. Rochet, Microeconomics of Banking, The MIT Press.
Evaluation	Continuous Internal Assessment: 20 marks End- Semester Theory Examination: 80 marks

Paper Structure for End Sem Theory	Module	No. of Questions to be Answered	No. of Alternatives	Marks
	Module 1	2	3	5 x 2 = 10
		2	3	15 x 2 = 30
	Module 2	2	3	5 x 2 = 10
		2	3	15 x 2 = 30
	Total Marks			80

Semester	III
Paper Number	
Paper Title	Econometric Methods -1(Elective Paper 1)
No. of Credits	6
Theory/Composite	Composite
No. of periods assigned	4 Theory 2 Practical
Course description/objective	The objective is to 1. Focus on probability and probability distributions. 2. The use of probability distribution in studying measures of inequality. 3. To develop tools for analyzing time series data in economics. 4. Introducing students to co-integration analysis. 5. Introducing students to binary choice models. 6. Using computers to analyze time series and cross sectional data.
Syllabus	**Module 1 (20 marks)** Probability & Distributions - Pareto Distribution, Log normal distribution, Bivariate Distribution – Multivariate – Normal Distribution, Factor Analysis **Module 2: Time SeriesAnalysis (20 marks)** Autocorrelation - ACF and PACF - Some Useful Processes (White Noise, Random Walks, MA Processes, AR Processes, ARMA Processes and ARIMA Processes) – Analysis of Time Series and Box-Jenkins Method Unit root and structural break; Vector Auto Regression Model - (Impulse Response Function, variance decomposition; vector error Corrections; Cointegration **Module3**: **Cross Section Analysis (10 marks)** Limited Dependent Variable Model- Binary Choice Models - Linear Probability Model, Probit and Logit Models. **Practical (30 marks)**
Readings	1. Goon, Gupta, Dasgupta (1973) : An Outline of Statistical Theory Vol 1, World Press Private Limited. 2. Feller. W (1957): An Introduction to Probability Theory and its Applications, John Wiley & Sons, Inc 3rd Edition. 3. N. L Johnson and S Kotz (1970) : Distribution in Statistics , Vol I, II,III& IV, John Wiley & Sons, 2nd Edition. 4. Anderson (2003):An Introduction to Multivariate Statistical Analysis, Wiley & Sons, 3rd Edition. 5. C.R. Rao (1984): Linear Statistical Inference and its Application, Wiley Eastern Limited. 6. Poverty and Inequality- edby S.M.RaviKanbur, Stanford University Papers. 7. Maddala, G.S : Introduction to Econometrics, 3rd Edition, John Wiley and sons. 8. Johnston and Dinardo: Econometric Methods,4th Edition, The McGraw Hill Companies Inc. 9. James H Stock and Mark W. Watson: Introduction to Econometrics, Pearson Education. 10. Maddala, G.S (1986) : Limited Dependent and Qualitative Variables in

Semester	III
Paper Number	
Paper Title	Environment Economics 1 (Elective Paper 2)
No. of Credits	6
Theory/Composite	Theory
No. of periods assigned	6
Course description/objective	Being an elective paper this paper introduces to a very important topic of Environment Economics. This is the first of the two papers to give an idea to the students about the various issues of study and concern in this area.It deals with environmental policy instruments, valuing the environment trade and the environment.
Syllabus	**Module 1(40 marks)** Introduction to environmental economics : key concepts, Pareto-optimality, externalities and public goods, market failure – environment as a public good. Environmental policy instruments and implementation: command and control policies in different areas e.g. water; policy design and implementation, market based instruments. **Module 2 (40 marks)** Valuing the environment: accounting, environmental ethics, cost-benefit analysis and the environment, growth and sustainable development. The theory of environmental policy :William J. Baumol Wallace E. Oates / Cambridge University Press Trade and the environment – Free trade and environment,Pollution Haven Hypothesis, Trade- Growth- and the Environment, Green Economy and Trade: Trends, Challenges and Opportunities.
Readings	1.Nathaniel O. Keohane, Sheila M. Olmstead: Markets and the environment, Island Press 2.Joseph E. Stiglitz and W. W. Norton : Economics of the public sector 3.Richard L. Revesz& Michael A. Livermore :Retaking rationality: how cost-benefit analysis can better protect the environment and our health, Oxford University Press 4.Gene M. Grossman, Alan B. Krueger Economic Growth and the Environment ,NBER Working Paper No. 4634 5.Werner Antweiler, Brian R. Copeland, M. Scott 6.Taylor(2001):Trade, growth and Environment, AER. 7.Brian R. Copeland, M. Scott Taylor(1994): Trade and Environment" Quarterly Journal of Economics. 8.UNEP document, 2013 9. Bhattacharya R: Environmental economics: An Indian Perspective. Oxford India Paperbacks. 10.TEXT:KOLSTAD: (a) Intermediate environment economics (b) Environment economics
Evaluation	Continuous Internal Assessment: 20 marks End- Semester Theory Examination: 80 marks

Paper Structure for End Sem Theory	Module	No. of Questions to be Answered	No. of Alternatives	Marks
	Module 1	2	3	5 x 2 = 10
		2	3	15 x 2 = 30
	Module 2	2	3	5 x 2 = 10
		2	3	15 x 2 = 30
	Total Marks			80

Semester	III
Paper Number	
Paper Title	Economics of Money, Banking and Financial Markets I (Elective Paper 2)
No. of Credits	6
Theory/Composite	Theory
No. of periods assigned	6
Course description/objective	Being an elective paper this paper introduces to a very important topic of money and banking. This is the first of the two papers to give an idea to the students about the various issues of study and concern in this area. It concentrates on overview of money and the financial system; interest rate, discounting and risk; the central bank and monetary policy and the foreign exchange market, monetary policy in open economy
Syllabus	**Module 1(40 marks)** **1. Overview of Money and the financial system** Functions and the structure of financial markets – Financial instruments – Financial intermediaries – Money, its measurement, functions & how banks create money. **2. Interest rate, Discounting and Risk** Measuring interest rate & yield to maturity – Loanable funds framework: the bond market & equilibrium interest rate determination – Departures from the equilibrium: shifts in demand and supply in the bond market – Liquidity preference: money market & changes in equilibrium interest rate – Risk and term structure of interest rates. **Module 2(40 marks)** **3. The Central Bank and Monetary Policy** Structure of Central Banks – Balance sheet & the monetary base – Money supply – Instruments & goals of monetary policy – Taylor's rule and Inflation targeting – Channels of transmission mechanisms of monetary policy **4. The Foreign Exchange Market, Monetary Policy in Open Economy** Foreign exchange market and exchange rate determination – Intervention in foreign exchange market – Balance of Payment – Capital controls –purchasing power parity, interest rate parity, Monetary approach to Balance of Payment
Readings	1. Mishkin, F. S. *The Economics of Money, Banking and Financial Markets.* Addison Wesely. 2. Mishkin, F. S., Eakins, S. G., Jayakumar, T., & Pattnaik, R. K. (2017, 8 TH Edition). *Financial Markets and Institutions.* Pearson. 3. Walsh, C. E. (1998). *Monetary Theory and Policy.* The MIT Press. 4. Levin Ross (1997): Financial Development and Economic Growth: Views and Agenda, Journal of Economic Literature
Evaluation	Continuous Internal Assessment: 20 marks End- Semester Theory Examination: 80 marks

Paper Structure for End Sem Theory	Module	No. of Questions to be Answered	No. of Alternatives	Marks	
	Module 1	2	3	5 x 2 = 10	
		2	3	15 x 2 = 30	
	Module 2	2	3	5 x 2 = 10	
		2	3	15 x 2 = 30	
	Total Marks			80	

Semester	IV
Paper Number	
Paper Title	Public Economics and Policy
No. of Credits	6
Theory/Composite	Theory
No. of periods assigned	6
Course description/objective	This paper will expose students to major areas of public economics which include nature of public, club and merit goods, the economics of public expenditure, of taxation to pay for that expenditure, and of policy and programs broadly-defined.
Syllabus	**Module 1(40 marks)** 1. Equilibrium and Efficiency The exchange economy; The production and exchange; The efficiency of competition 2. Public good Definition; Private provision; Efficient provision; Publicly provided private good; Voting; Mechanism design 3. Club good Definition; Single product clubs – Fixed utilization, Variable utilization, Two-part tariff 4. Externalities and Merit goods Market inefficiency; Externality examples – River pollution, The tragedy of commons; Pigouvian taxation; Internalization; Coase theorem **Module 2(40 marks)** 5. Tax incidence: Canons of taxation, Simple competitive equilibrium model Static Two-sector model; Incidence of corporation tax; General tax incidence 6. Effects of tax on labour supply, Savings and Risk taking – comparison between Income tax and Expenditure tax 7. Public debt – Barro-Ricardo equivalence theorem; Debt and growth in Solow model 8. Fiscal policy and the macroeconomy; Macroeconomics of budget deficit – Sustainability, Solvency and Optimality.
Readings	1.Anthony B. Atkinson and Joseph E. Stiglitz, Lectures on Public Economics, Princeton University Press. 2. Blinder, A. S., & Solow, R. M. (1972). Does fiscal policy matter? (Vol. 144). Econometric Research Program, Princeton University. 3. Jean Hindriks and Gareth D. Myles, Intermediate Public Economics, MIT Press. 4. John Cullis, Philip Jones and Philip R. Jones, Public Finance and Public Choice: Analytical Perspectives, OUP. 5. Rakshit, M. (2005). Budget Deficit: Sustainability, Solvency and Optimality. Readings in Public Finance, Oxford University Press, New Delhi, 143-164. 6.Errol D'Souza: Macroeconomics, Pearson Education India
Evaluation	Continuous Internal Assessment: 20 marks End- Semester Theory Examination: 80 marks

Paper Structure for End Sem Theory	Module	No. of Questions to be Answered	No. of Alternatives	Marks
	Module 1	2	3	5 x 2 = 10
		2	3	15 x 2 = 30
	Module 2	2	3	5 x 2 = 10
		2	3	15 x 2 = 30
	Total Marks			80

Semester	IV
Paper Number	
Paper Title	Econometric Methods –II(Elective Paper 3)
No. of Credits	6
Theory/Composite	Composite
No. of periods assigned	4 Theory 2 Practical
Course description/objective	1. Formulation and emperical testing of economic hypothesis. 2. The objective is to understand the interplay of economic theory and economic applications. 3. The emphasis is on the rationale of the various methods. 4. Introducing students to simultaneous stochastic equations. 5. Developing the tools for estimating simultaneous equation model by single equation. 6. Introducing students to system estimators
Syllabus	**Module –I: Applied Econometrics (25 Marks)** Exploratory Data Analysis -Factor Analysis using Principal Component method of estimation. Applications of Cross Series Techniques in EconomicsDemand Estimation - Estimation of Production Function. Applications of Time Series Techniques in Economics **Module –II: Simultaneous Equation Model (25 Marks)** Specification, Identification & Estimation. Rank &Order Condition – Linear Homogeneous Restriction - Zero Restriction (Special case). Single Equation Modelling- OLS, ILS, Instrumental Variable Estimator, 2 SLS, K- class, LIML, LIGRV- Asymptotic properties & relation between estimators. System Estimation Method- 3SLS, FIML, FILGRV- Comparison with Single Equation. **Practical Sessions(30 marks)**
Readings	1. Johnson, R. A, and Wichern, D. W (2013).: Applied Multivariate Statistical Analysis, Pearson Education, 6th Edition. 2. Johnston J: Econometric Methods(2nd& 3rd edition), Student Edition, McGraw Hill. 3. Johnston and Dinardo: Econometric Methods,4th Edition, The McGraw Hill Companies Inc. 4. Judge. et.al. (1993) :Theory and Practice of Econometrics, Wiley Publications. 5. Deaton &Muellbauer: Economics and Consumer Behaviour,Cambridge University Press. 6.Kenneth F. Wallis.(1980)Topics in Applied Econometrics 7. MeghnadDesai(1977): Applied Econometrics Paperback 8. Richard Harris and Robert Sollis, Wiley Student Edition 9. Bridge J.L.: Applied Econometrics, North Holland Publishing Company. 10. Theil (1971) : Principles of Econometrics. Wiley 11. Maddala, G.S (1988) : Econometrics, Mcgraw hill 13. G.C. Chow: Econometrics (1984) 14 .Dhrymes, Phoebus: Introductory Econometrics (2017)

<table>
<tr><td>Evaluation</td><td colspan="4">Continuous Internal Assessment: 20 marks (Theory + Practical)
End- Semester Theory Examination: 50 marks
End-Semester Practical: 30 marks</td></tr>
<tr><td>Paper Structure for End Sem Theory</td><td colspan="4"><table>
<tr><td>Module</td><td>No. of Questions to be Answered</td><td>No. of Alternatives</td><td>Marks</td></tr>
<tr><td rowspan="2">Module 1</td><td>1</td><td>2</td><td>5 x 1 = 5</td></tr>
<tr><td>2</td><td>3</td><td>10 x 2 = 20</td></tr>
<tr><td rowspan="2">Module 2</td><td>1</td><td>2</td><td>5 x 1 = 5</td></tr>
<tr><td>2</td><td>3</td><td>10 x 2 = 20</td></tr>
<tr><td colspan="3">Total Marks</td><td>50</td></tr>
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Semester	IV
Paper Number	
Paper Title	Environment Economics II(Elective Paper 4)
No. of Credits	6
Theory/Composite	Theory
No. of periods assigned	6
Course description/objective	Being the second paper in the field of environment economics this paper leads to advanced issues in this field with specific reference to the Indian economy and the world economy.
Syllabus	**Module 1(40 marks)** **Environmental Regulation in India** (a) Evolution of environmental policy and institutions in India; CPCB and SPCB, Air, water, forest Acts; fiscal incentives; enforcement and implementation issues; emerging options – eco-taxes and eco-subsidies. (b) Scope of co-operation, case studies on environment improvement and pollution control in India. (c) **Module 2 (40 marks)** **International Environmental Issues** (a) Transboundary pollution; economics of global warming; different international Protocols; Causes and consequences of ozone depletion and climate change; Rio conference (Agenda 21); Protocols relating to climate change, Ozone depletion and biodiversity. (b) **Climate Change Negotiations and Equity** Criteria for distribution of emission reduction burden; distribution criteria for adaptation fund; inter and intra-generational equity issues; discounting in climate change context.
Readings	Module 1 (a) Website of The Indian Institute of Ecology and Environment for environmental legislations in India. (b) Chopra, K. and V. Dayal (ed.) (2009), *Handbook of Environmental Economics in India*, Oxford University Press. © Haque, A.K.E., M.N. Murty, and P. Shyamsundar (ed.) (2011), *Environmental Valuation in South Asia*, Cambridge University Press. (d) Dasgupta, C., 2012. Present at the creation: the making of the UN Framework Convention on Climate Change. In N. Dubash, ed. *Handbook of climate change and India: development, politics and governance* : Routledge. (e) Official websites of CPCB and SPCB. (f) Kadekodi, G.K. (ed) (2004), *Environmental Economics in Practice – Case Studies from India*, Oxford University Press, Delhi. (g) Bhattacharya R: Environmental economics: An Indian Perspective. Oxford India Paperbacks Module 2 (a) Nordhaus, W. (2008), A Question of Balance: Weighing the Options on Global Warming Policies, Yale University Press. (b) International Environmental Negotiations: The Current State of Empirical and Analytic Study by Edward A. Parson, Wiley (c) UN Report on SUSTAINABLE DEVELOPMENT SUMMIT,2015, UN Website

<table>
<tr><td></td><td colspan="5">(d) Bhattacharya R: Environmental economics: An Indian Perspective. Oxford India Paperbacks</td></tr>
<tr><td>Evaluation</td><td colspan="5">Continuous Internal Assessment: 20 marks
End- Semester Theory Examination: 80 marks</td></tr>
<tr><td>Paper Structure for End Sem Theory</td><td colspan="5"><table>
<tr><td>Module</td><td>No. of Questions to be Answered</td><td>No. of Alternatives</td><td>Marks</td><td></td></tr>
<tr><td rowspan="2">Module 1</td><td>2</td><td>3</td><td>5 x 2 = 10</td><td></td></tr>
<tr><td>2</td><td>3</td><td>15 x 2 = 30</td><td></td></tr>
<tr><td rowspan="2">Module 2</td><td>2</td><td>3</td><td>5 x 2 = 10</td><td></td></tr>
<tr><td>2</td><td>3</td><td>15 x 2 = 30</td><td></td></tr>
<tr><td colspan="3">Total Marks</td><td>80</td><td></td></tr>
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Semester	IV
Paper Number	
Paper Title	Economics of Money, Banking and Financial Markets II (Elective Paper 4)
No. of Credits	6
Theory/Composite	Theory
No. of periods assigned	6
Course description/objective	Being the second paper in the field of money and banking this paper leads to advanced issues in this field with respect to the relation between money, inflation and growth and an elaborate discussion of various issues of the banking sector.
Syllabus	**Module 1(40 marks)** **Money, Inflation and Growth** Quantity theory of money, money supply, inflation and seigniorage – Monetary growth and hyperinflation - Models of money and growth – Sidrauski's model, Tobin's model, and Stein's model **Module 2(40 marks)** **Banking Sector** Asymmetric information and credit rationing – Blinders model of credit rationing and effective supply failure Banking and financial crisis in developing countries Financial repression, financial liberalization and macroeconomic policies: Money, credit and Government finance in a developing economy
Readings	1. Arestis, P., & Sawyer, M. (2006). *A Handbook of Alternative Monetary Economics.* Edward Elgar. 2. Brancati, E. (2014). The Real Side of the Financial Crisis: Bank Vulnerability, Flight to Quality, and Firm Investment Rate. 3. Harris, L. (1985). *Monetary Theory.* McGRAW-Hill. 4. Mishkin, F. S. *The Economics of Money, Banking and Financial Markets.* Addison Wesely. 5. Mishkin, F. S., Eakins, S. G., Jayakumar, T., & Pattnaik, R. K. (2017, 8 TH Edition). *Financial Markets and Institutions.* Pearson. 6. Nonperforming Loans and Macrofinancial Vulnerabilities in Advanced Economies . (2011). *IMF Working Paper WP/11/161* . 7. Rakshit, M. (1997). Money, Credit and Government Finance in a Developing Economy. In A. Bose, M. Rakshit, & A. Sinha, *Issues in Economic Theory and Public Policy.* Oxford University Press. 8. Walsh, C. E. (1998). *Monetary Theory and Policy.* The MIT Press.
Evaluation	Continuous Internal Assessment: 20 marks End- Semester Theory Examination: 80 marks

Paper Structure for End Sem Theory	Module	No. of Questions to be Answered	No. of Alternatives	Marks	
	Module 1	2	3	5 x 2 = 10	
		2	3	15 x 2 = 30	
	Module 2	2	3	5 x 2 = 10	
		2	3	15 x 2 = 30	
	Total Marks			80	

Please read carefully:

The elective to be offered in semesters III and IV will be notified to students at the appropriate time.