महात्मा गाँधी केन्द्रीय विश्वविद्यालय
MAHATMA GANDHI CENTRAL UNIVERSITY
(Established by an Act of Parliament)

Gandhi Bhawan, Bankat, Motihari, District: East Champaran, Bihar – 845401

www.mgcub.ac.in

DEPARTMENT OF ECONOMICS
SCHOOL OF SOCIAL SCIENCES

POSTGRADUATE PROGRAMME
__M.A.Economics__

PROGRAMME STRUCTURE [as per Choice Based Credit System]

SEMESTER	CORE COURSE (13) 52 Credits	Elective: Discipline Specific DSE (5) 20 Credits	Elective: Open Electives (OE) (2) 08 Credits
I	ECON4001: Microeconomics-I		
	ECON4002: Macroeconomics-I		
	ECON4003: Mathematics for Economics		
	ECON4004: Classical Political Economy		
	ECON4005: Indian Economy		
II	ECON4006: Microeconomics-II		
	ECON4007: Macroeconomics-II		
	ECON4008: Statistics for Economics		
	ECON4009: Public Finance		
	ECON4010: Monetary Economics		
III	ECON4011: Economics of Growth and Development	DSE-1	Open Elective-I
	ECON4012: Basic Econometrics	DSE-II	
IV	ECON4020: International Economics	DSE-III	Open Elective-II
		DSE-IV	
		DSE-V	

Discipline Specific Elective (DSE) Courses
Semester-III (DSE-I & DSE-II)
(i) ECON4013: ENVIRONMENTAL ECONOMICS
(ii) ECON4014: FINANCIAL INSTITUTIONS AND MARKETS
(iii) ECON4015: GAME THEORY
(iii) ECON4016: OPTIMIZATION TECHNIQUES

Discipline Specific Elective (DSE) Courses
Semester-IV (DSE-III, DSE-IV, DSE-V)
(i)   ECON4021: ADVANCE ECONOMETRICS
(ii)   ECON4022: INTERNATIONAL FINANCE
(iii) ECON4023: HEALTH ECONOMICS
(iv) ECON4024: INDIAN PUBLIC FINANCE
(v)   ECON4025: INDUSTRIAL ECONOMICS
(vi) ECON4026: EDUCATION ECONOMICS

Open Elective (OE) Courses
Semester-III (OE-1)
(ANY ONE FROM THE FOLLOWING COURSES OR ANY OTHER COURSE
FROM OTHER DEPARTMENTS OF THE UNIVERSITY)
(i)   ECON4017: AGRICULTURAL ECONOMICS
(ii)   ECON4018: INSTITUTIONAL ECONOMICS
(iii)   ECON4019: FINANCIAL ECONOMETRICS

Open Elective (OE) Courses
Semester-IV (OE-II)
(ANY ONE FROM THE FOLLOWING COURSES OR ANY OTHER COURSE
FROM OTHER DEPARTMENTS OF THE UNIVERSITY)
(i)   ECON4027: FINANCIAL ECONOMICS
(ii)   ECON4028: APPLIED ECONOMETRICS
(iii) ECON4029: LABOUR ECONOMICS

List of Courses for M. A. Economics

Details of Course Codes, Course Titles and Credits

Semester	Course Code	Course Title	Credit
I	ECON4001	Microeconomics-I	4
	ECON4002	Macroeconomics-I	4
	ECON4003	Mathematics for Economics	4
	ECON4004	Classical Political Economy	4
	ECON4005	Indian Economy	4
		Total Credits	**20**
II	ECON4006	Microeconomics-II	4
	ECON4007	Macroeconomics-II	4
	ECON4008	Statistics for Economics	4
	ECON4009	Public Finance	4
	ECON4010	Monetary Economics	4
		Total Credits	**20**
III	ECON4011	Economics of Growth and Development	4
	ECON4012	Basic Econometrics	4
		DSE-I	4
		DSE-II	4
		OE-I	4
		Total Credits	**20**
IV	ECON4020	International Economics	4
		DSE-III	4
		DSE-IV	4
		DSE-V	4
		OE-II	4
		Total Credits	**20**
		Total Credits for M.A. Economics	**80**

LIST OF DISCIPLINE SPECIFIC ELECTIVES (DSE)

Semester	Course Code	Course Title	Credit
III	ECON4013	Environmental Economics	4
	ECON4014	Financial Institutions and Markets	4
	ECON4015	Game Theory	4
	ECON4016	Optimization Techniques	4
IV	ECON4021	Advance Econometrics	4
	ECON4022	International Finance	4
	ECON4023	Health Economics	4
	ECON4024	Indian Public Finance	4
	ECON4025	Industrial Economics	4
	ECON4026	Education Economics	4

LIST OF OPEN ELECTIVES (OE) (OPEN FOR OTHER DEPARTMENTS ALSO)

Semester	Course Code	Course Title	Credit
III	ECON4017	Agricultural Economics	4
	ECON4018	Institutional Economics	4
	ECON4019	Financial Econometrics	4
IV	ECON4027	Financial Economics	4
	ECON4028	Applied Econometrics	4
	ECON4029	Labour Economics	4

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DEPARTMENT OF ECONOMICS
SCHOOL OF SOCIAL SCIENCES

POSTGRADUATE PROGRAMME
M.A. ECONOMICS
Detailed Course Structure

ECON4001: Microeconomics-I   (4 Credits)

Course Code: ECON4001
Course Title: Microeconomics-I
Credits Equivalent: **4 Credits**: (One credit is equivalent to 1 hour of lecture per week)

Learning Outcomes:
The course is designed to introduce microeconomics to undergraduate students with focus on the core areas of microeconomics, namely, consumer preferences, demand theory and production.

Attendance Requirements:
Students are expected to attend all lectures in order to be able to fully benefit from the course.
A minimum of 75% attendance is a must failing which a student may not be permitted to appear in examination

Evaluation Criteria:
1. Mid Term Examination: 20%
2. End Term Examination: 60%
3. Continuous Internal Assessment (CIA): 20%
   a. Attendance : 5%
   b. Comprehensive Continuous Assessment (CCA): 15%

COURSE CONTENTS:

MODULE-I: THEORY OF COSUMPTION   (6 Hours)
Cardinal Utility Approach - Law of Diminishing Marginal Utility, Equi-Marginal Utility, Ordinal Utility Approach - Indifference curve properties, Consumer's equilibrium, Price, income & substitution effects, Derivation of Demand Curve.

MODULE-II: REVEALED PREFERENCE AND CONSUMPTION   (6 Hours)
Revealed Preference Theory of Demand. Recent Development in Demand Theory - Hicksian Revised Theory, Consumer's Choice under Risk and Uncertainty. Consumer Surplus, Marshall's

Measurement of Consumer Surplus, Measurement of Consumer Surplus through indifference Curve analysis.Elasticity of Demand.

MODULE-III: THEORY OF PRODUCTION, COST AND REVENUE   (10 Hours)
Economies of Scale; Internal Economies and Diseconomies, External Economies and Diseconomies.Production Possibility Curve. Production Function, Law of Variable Proportions, Returns to Scale. Isoquants - Properties, Producer's equilibrium, Expansion Path, Elasticity of substitution, Euler's theorem, Linear Homogenous Production Function, Cobb-Douglas & CES production functions; Concepts & Derivations of Short Run and Long Run Cost Curves. AC & MC Relationship, Revenue Concepts-AR, MR and TR, Revenue and cost relationships.

MODULE-IV: THEORY OF DISTRIBUTION   (8 Hours)
Theory of Wage: Marginal Productivity Theory, Modern Theory, Wage Determination under Collective Bargaining. Theory of Rent: Classical and Modern Theory. Theory of Profit: Dynamic Theory, Innovation Theory, Risk and Uncertainty Theory. Theory of Interest: Classical, Loanable Fund Theory, and Liquidity Preference Approach.

MODULE-V: PERFECT COMPETITION, MONOPOLY   (10 Hours)
Perfect Competition; Price Determination, Equilibrium of the Firm and Industry.Monopoly - Price and Output Determination.Comparison between Monopoly equilibrium and Perfect Competition Equilibrium, Discriminating Monopoly–Price Discrimination, Equilibrium under Discriminating Monopoly.Bilateral Monopoly and Monopsony. Sources of Monopoly, Regulation of Monopoly–Through Taxation, and Price Regulation

BASIC READING LIST
1. Koutsoyiannis, A. (1979), Modern Microeconomics, (2nd Edition), Macmillan Press, London.
2. Varian, H. (2000) Microeconomic Analysis, W.W. Norton
3. Pyndyck, R.S. & D.L. Rubinfeld (1999), Microeconomics, (3rd Edition) Pentice Hall of India.
4. Ahuja, H.L. (2017), Advanced Economic Theory, S.Chand Publication.
5. Layard, P.R.G. and A.W. Walters (1979), Microeconomic Theory, McGraw Hill.
6. James M. Henderson and Richard E. Quandt, Microeconomic Theory- A Mathematical Approach, McGraw Hill Book Co.
7. Baumol, W. J. (1982), Economic Theory and Operations Analysis, Prentice Hall of India, Delhi.
8. Roychowudhury, K.C. (1980), Microeconomics, Tata McGraw Hill, New Delhi.
9. Hugh Gravelle, Ray Rees, Microeconomics, Pearson Education Ltd
10. Jehle and Reny, AdvancedMicroeconomic Theory, Pearson India.
11. Kreps, David M. (1990), A Course in Microeconomic Theory, Princeton University Press, Princeton.
12. Stigler, G. (1996), Theory of Price, (4th Edition), Prentice Hall of India, New Delhi.

ECON4002: Macroeconomics-I   (4 Credits)

Course Code: ECON4002
Course Title: Macroeconomics
Credits Equivalent: 4 Credits (One credit is equivalent to 1 hour of lecture per day)

Learning Outcomes:
The objective of the course is to familiarize the students about the contributions of various schools of thought in macro economics. The course will help to develop aptitude to relate concepts with research and policy.

Attendance Requirements:
Students are expected to attend all lectures in order to be able to fully benefit from the course.
A minimum of 75% attendance is a must failing which a student may not be permitted to appear in examination

Evaluation Criteria:
1. Mid Term Examination: 20%
2. End Term Examination: 60%
3. Continuous Internal Assessment (CIA): 20%
    a. Attendance : 5%
    b. Comprehensive Continuous Assessment (CCA): 15%

COURSE CONTENT:
Unit-I

Measuring the value of Economic Activity   (6 Hours)

An overview of National Income Accounting, Conventions about National Accounting, Concepts of value added by production, National product at market prices and factor cost, Gross and Net Production; the circular flow of income, methods of income estimation- the product approach, the expenditure approach, and the income approach; Real and nominal GDP, the GDP deflator, accounting for environmental and social dimensions, Environmentally Adjusted Net Domestic Product

Unit-II

Classical and Keynesian Approaches to Income and Employment Determination (10 Hours)

The Classical system- Say's Law, Quantity theory of money, wage-price flexibility and full employment

Main constituents of the Keynesian framework, effective demand, determination of equilibrium level of income and employment

Unit-III

The IS-LM/ AD-AS Model   (8 Hours)

The IS curve and equilibrium in the Goods market, the LM curve and equilibrium in the money market, General equilibrium in the complete IS-LM Model

Aggregate demand and aggregate supply, equilibrium in the AD-AS Model, monetary neutrality in the AD-AS Model

Unit-IV

Behavioural Foundations of Macro Economics **(10 Hours)**

Consumption Function- Keynes Psychological law and Kuznet's consumption puzzle, Fisher's inter-temporal Choice Model, Permanent Income Hypothesis, Life Cycle Hypothesis, and Relative Income Hypothesis

Investment Function- Neo-Classical theory of Investment, Stock Market and Tobin's q-ratio, Accelerator theory of Investment

Unit-V

Open Economy Macro Economics **(6 Hours)**

International flows of goods and capital, capital mobility and the balance of payments, the Mundell-Fleming Model, monetary and fiscal policies under flexible exchange rates and fixed exchange rates

READING LIST
1. Ackley, G (1978), Macroeconomics: Theory and Policy, Macmillan, New York

2. Blackhouse, R. and Salansi, A (Eds.) (2000), Macroeconomics and the Real World (2 Vols.), Oxford University Press, London

3. Branson, W.A. (1989), Macroeconomic Theory and Policy, (3rd Edition), Harper and Row,New York

4. Dornbusch, R. and Stanley, F (1997), Macroeconomics, McGraw Hill, Inc., New York

5. Heijdra, B.J. and V.P. Fredericck (2001), Foundations of Modern Macroeconomics, OxfordUniversity Press, New Delhi

6. Jha, R. (1991), Contemporary Macroeconomic Theory and Policy, Wiley Eastern Ltd., NewDelhi

7. Mankiw, N. G, Macroeconomics, Worth Publishers, 7th edition, 2010

8. Romer, D.L. (1996), Advanced Macroeconomics, McGraw Hill Company Ltd., New York. Scarfe, B.L. (1977), Cycles, Growth and Inflation, McGraw Hill, New York

9. Shapiro, E. (1996), Macroeconomic Analysis, Galgotia Publications, New Delhi

10. Surrey, M.J.C. (Ed.) (1976), Macroeconomic Themes, Oxford University Press, Oxford.

ECON4003: Mathematics for Economics   (4 Credits)

Course Code: ECON4003
Course Title: Mathematics for Economics
Credits Equivalent: 4 Credits (One credit is equivalent to 1 hour of lecture per week)

Learning Outcomes:
The objective of the course is to familiarize the students about the use of mathematical tools in the economic theory. The course will help to develop aptitude to relate concepts with research and policy.

Attendance Requirements:
Students are expected to attend all lectures in order to be able to fully benefit from the course.
A minimum of 75% attendance is a must failing which a student may not be permitted to appear in examination

Evaluation Criteria:
4. Mid Term Examination: 20%
5. End Term Examination: 60%
6. Continuous Internal Assessment (CIA): 20%
    a.   Attendance : 5%
    b.   Comprehensive Continuous Assessment (CCA): 15%

COURSE CONTENT:

Unit I: Introduction and Review   (6 Hours)

Introduction and importance of mathematics for economics, Review of the number system, elementary co-ordinate geometry (graph theory), theory of sets, relations and functions, solution of linear and quadratic equations

Unit II: Matrix Algebra and Determinant   (6 Hours)

Basic of matrix, Matrices Elementary operations, types, Rank of matrix; matrix inversion; Solution of simultaneous equations; Crammer's rule and inverse matrix, the evaluation and properties of determinants.

Unit III: Differential Calculus   (10 Hours)

Principles of differentiation; rules of differentiation; differentiation of implicit functions; Partial and total differentiation; application of optimization-- maxima and minima without constraints; maxima and minima subject to constraints, Economic application of differentiation, partial differentiation.

Unit IV: Anti-differential Calculus and Constrained Optimization   (10 Hours)

Concepts of integration; Principles of integration; Indefinite and definite integrals; Application of integrals in economics, Consumer surplus and producer surplus. Concept of Constrained Optimization. Use of Lagrange multiplier; Deriving the condition for consumer equilibrium and producer equilibrium, Homogenous functions and theorem. Cobb-Douglas production function.

Unit V: Difference Equations   (8 Hours)

Solving first-order difference equations, Application of first-order difference equations, The cobweb model, Second-order difference equations, Economic applications of second-order difference equations, Growth models and lagged market equilibrium models.

Reading List

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. Carl P Simun and LawrencesBlume (2006), Mathematics for Economists, Viva Book PL
4. Chiang, A.C. (2005), Fundamental Methods of Mathematical Economics, McGraw Hill, ND.
5. Dorfman, Samuelson and Solow (1958), Linear Programming and Economic Analysis, McGraw Hill,
6. Dowing, Edward T: Introduction to Mathematical Economics, (2/ed.), Schaum's Outlines, McGraw Hill, 1980.
7. Henderson (2003), Microeconomic Theory- A Mathematical Approach (3e), McGraw Hill.
8. Hoy, Livernois, Mckenna, Rees and Stengos (2004), Mathematics for Economics, Prentice Hall, ND.
9. Mehta, BC and Madanani GMK: Mathematics for Economists, Sultan Chand and Sons, Delhi.
10. Nicholson, R.H. (1986), Mathematics for Business and Economics, McGraw Hill, NY.

ECON4004: Classical Political Economy   (4 Credits)

Course Code: ECON4004
Course Title: Classical Political Economy
Credits Equivalent: 4 Credits (One credit is equivalent to 1 hour of lecture per day)

Learning Outcomes:
The objective of the course is to familiarize the students about the contributions of various schools of thought in macroeconomics. The course will help to develop aptitude to relate concepts with research and policy.

Attendance Requirements:
Students are expected to attend all lectures in order to be able to fully benefit from the course.

A minimum of 75% attendance is a must failing which a student may not be permitted to appear in examination

Evaluation Criteria:
7. Mid Term Examination: 20%
8. End Term Examination: 60%
9. Continuous Internal Assessment (CIA): 20%
    a. Attendance : 5%
    b. Comprehensive Continuous Assessment (CCA): 15%

COURSE CONTENT:

Unit- I (10 Hours)

Political Economy- Concept and Subject matter: Economic Theory and the class Question, Class conflict and Classical Political Economy. The Rise of Classical Political Economy: The Institutional and Historical Background. Predecessors of Classical School (Basic Doctrines of Mercantilists and Physiocrats)

Unit- II (10 Hours)

The Classical Theories of Value (including Labour Theory of Value): Smith and Ricardo. Classical Theories of Distribution: Smith, Ricardo, Malthus and Mill. Classical theories of Development: Smith and Mill.

Unit-III (10 Hours)

Classical Theories: Their relevance to Contemporary conditions (with special reference to developing economies). Neoclassical Economics: Marginalist Economics- Marginalism and Classical Political Economy. Marxian Political Economy: A synoptic View. Sraffa Revolution and Neo- supply side Economics

Unit- IV (10 Hours)

Centerist Politics, Class politics and Indian states: Class politics, Confessional Politics, Minority Politics, Bullock Capitalists and Backward Classes, The constraints of Social Pluralism and Federalism. Types of Politics and Economic Performance: Demand Polity and Command Polity.

References:

1. Blaug, Mark (1978): Economic Theory in Retrospect, Cambridge University Press, U.K.
2. Bhardwaj, Krishna (1979): Classical Political Economy and Rise to Dominance of Supply and Demand Theories, Centre for Studies in Social Sciences, Bangalore.
3. Bhardwaj, Krishna (1971): Value through Exogenous Distribution. In G.C Harcourt and N.F Laing (Eds.). Capital and Growth, Peguin Books, U.K.
4. Dobb, Maurice (1975): Theories of Value and Distribution since Adam Smith- Ideology and Economic Theory, Cambridge University Press, U.K.

5. Gide, Charles and Rist Charles (1915): A History of Economic Doctrines, D.C. Heath & Company, Boston.
6. Perelman, Michael (2013) : Classical Political Economy, Bloomsbury Academic, London
7. Perelman, Michael (2010): The Intervention of Capitalism: Classical Political Economy and the secret History of Primitive Accumulation, Duke University Press, London
8. Roll Eric (1956): A History of Economic Thought, Prentice Hall, Englewood Cliffs, NJ
9. Rudolph, L.I. and Rudolph, S. H. (1987): In Pursuit of Lakshmi, Orient Longman Limited, Hyderabad.
10. Sraffa, Piero (1975): Production of Commodities by means of commodities: Prelude to a critique of Economic Theory, Cambridge University Press, U.K

ECON4005: Indian Economy (4 Credits)

Course Code: ECON4005

Course Name: Indian Economy

Credits Equivalent: 4 Credits(One credit is equivalent to 1 hour of lecture per day)

Learning Outcomes:
The Course presents a comprehensive account of different aspects of the Indian economy. The objective of this course is to provide the students an analytical framework within which the Indian Economic Policy is formulated and implemented.

Attendance Requirements:

Students are expected to attend all lectures in order to be able to fully benefit from the course.
A minimum of 75% attendance is a must failing which a student may not be permitted to appear in End-Semester Examinations.

Evaluation Criteria:

10. Mid Term Examination: 20%
11. End Term Examination: 60%
12. Continuous Internal Assessment (CIA): 20%
    a.   Attendance : 5%
    b.   Comprehensive Continuous Assessment (CCA): 15%

COURSE CONTENTS:

Unit-I
Indian Economic Development: An Overview (8 Hours)

Growth and Structure of Indian Economy- Meaning and measurement of Economic Development, Structural Changes in Indian Economy

Human Resource and Economic Development, Demographic Profile of India, National Population Policy, Nature of Population Problems in India

Natural Resources- Land, Water, Forest, Mineral Resources, and Biodiversity

Physical Infrastructure- Meaning and Significance, Infrastructure Development in India and its role in Economic Development

Unit-II
Development Strategies in India   (6 Hours)

Economic Planning in India, Strategy of the Plans, New Economic Policy and Planning, Role of the State and Economic Planning, State vs. Markets Debate

Economic Reforms in India

Major developments in Post Economic Reforms Period, NITI Aayog

Unit-III
Sectoral Developments   (14 Hours)

An Overview of Growth of Indian Agriculture, Strategy of reforms in Agriculture, Persistence of Crisis in Indian Agriculture and issues regarding future growth of agriculture

An Overview of Industrial Development in India, Pattern of Industrialisation, Sources of Industrial Growth, Suggestions for Rapid Industrial Growth

Concept and Meaning of Service Sector, Composition of Service Sector in India, an Overview of Performance of Service Sector in India, Causes of rapid growth of Tertiary Sector in India, Prospects and Opportunities for future growth.

External Sector- Composition and Direction of India's Foreign Trade, Issues related to Balance of Payment, Importance of Foreign Capital, Foreign Investment in India

Impact of Covid-19 on Indian Agriculture, Industry, Service and External Sector

Unit-IV
Issues Confronting Indian Economic Policy   (8 Hours)

Poverty- Concept and Measurement, Concept and Measurement of Inequality, Meaning of Inclusive Growth, Policy Agenda for Inclusive Growth

Employment and Unemployment- Labour Force and Work Force Participation Rates, Dimensions of Unemployment, Employment Policy Framework, Covid-19 and employment challenges.

Regional Disparity- Concept, Regional Disparity in agricultural, industrial and infrastructural development, Causes of regional disparity and measures to remove regional disparities, suggestions for balanced regional development

Unit-V
Political Economy of Indian Development   **(4 Hours)**

Concept of Political Economy, Underdevelopment at the time of Independence, Development thinking, Development Planning, the Regime of Economic Liberalisation, Post Economic Liberalisation Regime

Governance- Meaning, Characteristics of Functionaries involved in Governance, Ingredients of Good Governance

READING LIST

1. Ahluwalia, I.J. and I.M.D. Little (Eds.) (1999), India's Economic Reforms and Development (Essays in honour of Manmohan Singh), Oxford University Press, New Delhi

2. Datt, R. (Ed.) (2001), Second Generation Economic Reforms in India, Deep & Deep Publications, New Delhi.

3. Datt, R. and K.P.M. Sundharam , "Indian Economy", S. Chand & Company Ltd., New Delhi

4. Government of India, Economic Survey (Annual), Economic Division, Ministry of Finance,New Delhi.

5. Kapila U, "Indian economy since independence", Academic foundation, New Delhi

6. Misra, S.K. and V.K. Puri, "Indian Economy — Its Development Experience", Himalaya Publishing House, Mumbai

7. Reserve bank of India Bulletin

8. Reserve Bank of India, Report on Currency and Finance, (Annual).

9. Sen, R.K. and B. Chatterjee (2001), Indian Economy: Agenda for 21st
Century (Essays in honour of Prof. P.R. Brahmananda), Deep & Deep Publications, New Delhi

ECON4006: MICROECONOMICS-II   **(4 Credits)**

Course Code: ECON4006
Course Title: Microeconomics-II
Credits Equivalent: 4 Credits (One credit is equivalent to 1 hour of lecture per week)

Learning Outcomes: The course is designed to introduce advanced level microeconomics to postgraduate students with focus on the core areas of microeconomics.

Attendance Requirements:
Students are expected to attend all lectures in order to be able to fully benefit from the course.
A minimum of 75% attendance is a must failing which a student may not be permitted to appear in examination

Evaluation Criteria:
13. Mid Term Examination: 20%
14. End Term Examination: 60%
15. Continuous Internal Assessment (CIA): 20%
    a.   Attendance : 5%
    b.   Comprehensive Continuous Assessment (CCA): 15%

COURSE CONTENTS:

UNIT-1: MONOPOLISTIC COMPETITION ANDOLIGOPOLY   (10 Hours)

Monopolistic Competition – Price and Output Determination. Critique of Chamberlin's Theory of Monopolistic Competition. Excess Capacity under Monopolistic Competition. Oligopoly– Price and Output Determination; Non-collusive oligopoly; Homogeneous ProductCournot, Stackelberg, Bertrand & Edgeworth model; Non-homogeneous Product; Chamberlin's model & the kinked demand curve model. Collusive Ologopoly; Cartels, mergers, and price leadership.

UNIT-1I: A MATHEMATICAL APPROACH TO MARKET   (06 Hours)
Cost conditions for the existence of perfect competition, solving the price and output for perfect competition and monopoly; Cournot equilibrium as a Nash Equilibrium, Stackleberg Model; comparing price and output under different market conditions.

UNIT-III: ALTERNATIVE THEORIES OF THE FIR   (06   Hours)
Critical evaluation of marginal analysis; Baumol's Model of Sales Revenue Maximization. Williamson's Managerial Model managerial discretion. Full cost pricing rule. Bain's limit pricing
theory and its recent developments.

UNIT-IV: WELFARE ECONOMICS   (10   Hours)
Pigovian welfare economics; Pareto optimal conditions; Value judgement; Social welfare function; Compensation principle; Inability to obtain optimum welfare–Imperfections, market failure, externalities, decreasing costs, uncertainty and non–existent and incomplete markets; Theory of second best–Arrow's impossibility theorem.

UNIT-V: GENERAL EQUILIBRIUM   (08   Hours)
Partial and General Equilibrium, Input-output approaches to general equilibrium, General Equilibrium of consumption, production and exchange, Existence, Stability and uniqueness of equilibrium and general equilibrium.

READING LIST

1. Walter Nicholson, Christopher M. Snyder, Microeconomic Theory: Basic Principles and Extensions, Cengage Learning.
2. Jehle and Reny, Advanced Microeconomic Theory, Pearson India.
3. Layard, P.R.G. and A.W. Walters (1979), Microeconomic Theory, McGraw Hill.
4. Varian, H. (2000) Microeconomic Analysis, W.W. Norton.
5. James M. Henderson and Richard E. Quandt, Microeconomic Theory- A Mathematical Approach, McGraw Hill Book Co.
6. Koutsoyiannis, A. (1979), Modern Microeconomics, (2nd Edition), Macmillan Press, London.
7. Pyndyck, R.S. & D.L. Rubinfeld (1999), Microeconomics, (3rd Edition) Pentice Hall of India.
8. Sen, A.K. (1970), Collective Choice and Social Welfare, Holden Day Inc.

9. San Fransico. Stigler, G. (1996), Theory of Price, (4th Edition), Prentice Hall of India, New Delhi.
10. Weintrub, E.R. (1974), General Equilibrium Theory, Macmillan, London.

ECON4007: MACROECONOMICS-II   (4 Credits)

Course Code: ECON4007
Course Name: Macroeconomics-II

Credits Equivalent: 4 Credits (One credit is equivalent to 1 hour of lecture per week)

Learning Outcomes: The course is designed to introduce advanced macroeconomic models like rational expectation, open economic system and their importance in the transmission mechanism of the various economic instruments meant for stabilisation and economic development.

Attendance Requirements:
Students are expected to attend all lectures in order to be able to fully benefit from the course.
A minimum of 75% attendance is a must failing which a student may not be permitted to appear in examination

Evaluation Criteria:

1. Mid Term Examination: 20%
2. End Term Examination: 60%
3. Continuous Internal Assessment (CIA): 20%
    (a) Attendance : 5%
    (b) Comprehensive Continuous Assessment (CCA): 15%

Unit I: Aggregate demand and aggregate supply curves   (8Hours)
Introduction to aggregate demand and aggregate supply curves; factors affecting aggregate demand and aggregate supply; derivation of aggregate demand and aggregate supply; interaction of aggregate demand and aggregate supply.

Unit II: Inflation, unemployment and expectations   (10hours)
Inflation – Unemployment Trade off and the Phillips Curve – Short run and Longrun Analysis; Adaptive and Rational Expectations; The Policy Ineffectiveness Debate; Meaning and Characteristics of Trade Cycles.

Unit III: IS-LM Model in the closed economy   (12 hours)
Derivation of Aggregate Demand and Aggregate Supply Curves in the IS-LMFramework;
Nature and Shape of IS and LM curves; Interaction of IS and LMcurves and Determination of Employment, Output, Prices and Investment;Changes in IS and LM curves and their Implications for Equilibrium

Unit IV: Open Economy Models **(10hours)**

Short-run open economy models; Mundell-Fleming model; exchange rate determination; purchasing power parity; assets market approach; Dornbusch's overshooting model

Unit V: A Mathematical Approach to the IS-LM Model **(10 Hours)**

Income determination in two sector, three sector and open economy. Determining the slope of IS and LM curves.

Reading List:

1. N. Gregory Mankiw (2010): Macroeconomics, 7th edition, Cengage Learning India Private Limited, New Delhi
2. Richard T. Froyen (2005): Macroeconomics, 2nd Edition, Pearson Education Asia, New Delhi.
3. Errol D'Souza (2009): Macroeconomics, Pearson Education Asia, New Delhi.
4. Snowdon, Brain and Vane, Howard, R. (2005), Modern Macroeconomics: Its Origins, Development and Current State, Edward Elgar Publishing Limited, Northampton.
5. Dornbusch, Fischer and Startz, Macroeconomics, McGraw Hill, 11th edition, 2010.
6. Olivier Blanchard, Macroeconomics, Pearson Education, Inc., 5th edition, 2009. 4.
7. Richard T. Froyen, Macroeconomics, Pearson Education Asia, 2nd edition, 2005. 5.
8. Andrew B. Abel and Ben S. Bernanke, Macroeconomics, Pearson Education, Inc., 7th edition, 2011. 6.
9. Paul R. Krugman, Maurice Obstfeld and Marc Melitz, International Economics, Pearson Education Asia, 9th edition, 2012.

ECON4008: Statistics for Economics (4 Credits)

Course Code: ECON4008
Course Title: Statistics for Economics
Credits Equivalent: **4 Credits** (One credit is equivalent to 1 hour of lecture per week)

Learning Outcomes:
The objective of this course is to familiarize students with statistical theory and its application as the foundations for data analysis. This course tends to equip the students with the fundamental concepts of statistical tools and techniques. Further the course will be taught in exercise based manner.

Attendance Requirements:
Students are expected to attend all lectures in order to be able to fully benefit from the course.
A minimum of 75% attendance is a must failing which a student may not be permitted to appear in examination

Evaluation Criteria:

1. Mid Term Examination: 20%
2. End Term Examination: 60%
3. Continuous Internal Assessment (CIA): 20%

a. Attendance : 5%
b. Comprehensive Continuous Assessment (CCA): 15%

COURSE CONTENT:

Unit I: Basic Statistics (06 Hours)

Measures of Central Tendency, Measures of Dispersion, Skewness, Moments and Kurtosis, Correlation and Regression.

Unit II: Random variable, Probability distributions and Mathematical Expectation (10 Hours)

Fundamentals of probability, Random variable, Probability function of discrete Random Variable (Probability Mass Function), Probability function of Continuous Random Variable (Probability Density Function), Cumulative Distribution function, Moments, Mathematical Expectation, Theorems on Mathematical Expectation, Variance and Covariance.

Unit III: Theoretical Distribution (06 Hours)

Discrete theoretical distribution: Binomial Distribution and Poisson distribution. Continuous theoretical Distribution: Normal Distribution and Standard Normal Variate (Z distribution). Other Theoretical Distribution: Students "t" Distribution, Chi-Square ($\chi 2$) Distribution and F-Distribution.

Unit IV: Sampling Theory (08 Hours)

Population and sample, Parameter and statistic, Census method and sampling method of Data collection, Methods of Sampling, Estimations of Sample size, Central limit theorem, Meaning and concept of an Estimation, Concept of an Estimator, Types of Estimation, Point and Interval Estimation, Properties of an Estimator, Standard error of Estimator, Confidence intervals for population parameters.

Unit V: Hypothesis Testing (10 Hours)

Testing of Hypothesis, Basic concepts, Null Hypothesis and Alternative Hypothesis, Type I error and Type II error, Two tailed test and one-Tailed Test, Computation of Test statistic and significance Test, Concept of degrees of freedom, Small sample test: t Test- $\chi 2$ test, F test, Large sample test: Z test. Non-parametric tests, Analysis of Variance.

<u>**Reading List**</u>

1. Gupta, S. C. (2015), *Fundamentals of Statistics*, Himalaya Publishing House.
2. Gupta. S.C. and Kapoor V.K. (2000), *Fundamentals of Applied Statistics*, S.Chand, New Delhi.
3. Larsen, Richard J., and Morris L. Marx. (2001), *An Introduction to Mathematical Statistics and its Applications*, 3rd ed. Upper Saddle River, NJ: Prentice Hall.
4. Lewis Margaret (2011), *Applied Statistics for Economists*, Routledge.

5. Monga, .S.(2003), *Mathematics and Statistics for Economists*, Vikas Publications, New Delhi.
6. Speigal. M. R. (2000), *Theory and problems of Statistics*, McGraw Hill, London.

ECON4009: Public Finance (4 Credits)

Course Code: ECON4009
Course Title: Public Finance
Credits Equivalent: 4 Credits (One credit is equivalent to 1 hour of lecture per week)

Learning Outcomes:
The objective of the course is to familiarize the students about the concepts of functioning of modern public finance, argue the theoretical basis of public finance and analyse the economic effects of public policy. After successful completion of the course students will be able to critically assess the mechanism of functioning of modern public finance.

Attendance Requirements:
Students are expected to attend all lectures in order to be able to fully benefit from the course.
A minimum of 75% attendance is a must failing which a student may not be permitted to appear in examination

Evaluation Criteria:
1. Mid Term Examination: 20%
2. End Term Examination: 60%
3. Continuous Internal Assessment (CIA): 20%
     a. Attendance : 5%
     b. Comprehensive Continuous Assessment (CCA): 15%

COURSE CONTENT:

Unit I: Economic Rationale of Government Activity   (8 Hours)
Individuals, Society and Government, Allocation of resources between government and private use, The role of state in Allocation, Distribution, Regulation and Stabilisation; Government, Efficiency and Equity, trade off between equity and efficiency; market failure and the government intervention, production, provision and privatization, Efficiency and Inefficiency in the public sector

Unit II: Theoretical Foundations   (10 Hours)
Public goods, private goods, and goods with externalities, Provision of private goods and public goods, Efficient output of a Pure Public Good, Public Choice and the Political Process, the Concept of Political Equilibrium, Normative Social Choice Theory - Arrow's theorem, majority voting, the median voter model; Positive Social Choice Theory - the Leviathan Hypothesis; Classes and interest groups

Unit III: Theory of Taxation (10 Hours)

Introduction to taxation, Canons of taxation; Approaches to tax equity - Benefit Principle and Ability to Pay, Shifting and Incidence of Tax - the Partial and the General Equilibrium Analysis Efficiency Issues in Tax Design

Unit IV: Public Expenditure (6 Hours)

Pure theory of Public Expenditure, Public Sector Pricing, Principles of Evaluation of Expenditure - Benefits and Costs Analysis, Balanced Budgets, Deficits and Debt

Unit V: Fiscal Federalism (6 Hours)

Patterns of Federalism, Centralised and Decentralised Government, Principles of Federal Finance, Principles of Multiunit Finance

Reading List

1. Alan Peacock (1979), The Economic Analysis of Governments, St. Martin Press, New York.
2. Atkinson, A. and Stiglitz, J. (1980), Lectures in Public Economics, McGraw Hill, London.
3. Auerbach, A., and M. Feldstein (1987), Handbook of Public Economics, Vol. 1 &2. North Holland, Amsterdam.
4. Boadway, R. (1984), Public Sector Economics, 2nd Sub edition, Scott Foresman & Co., London.
5. Due, John F. and Friedlander, Ann F. (1977), Government finance: Economics of the public sector, 6th Edition, Richard D. Irwin Inc., Homewood.
6. Helpman, E., Razin, A. and Sadka, E. (1988) Editors, Economic Effects of the Government Budget, MIT Press, Cambridge, Mass.
7. Jha, Raghbendra (1999), Modern Public Economics, Routledge, London and New York.
8. Johansen, Leif, (1965), Public economics, North - Holland Publishing Company, Amsterdam.
9. Laffont, Jean-Jacques (1994), Fundamentals of Public Economics, MIT Press Cambridge, Mass.
10. Myles, Gareth D. (1995), Public Economics, Cambridge University Press, Cambridge.
11. Rosen, Harvey S. (1995), Public Finance 4th Edition, Richard D. Irwin, Chicago.
12. Stiglitz, J.E. (1989) Economics of the Public Sector, W.W. Norton & Company, London.
13. Thompson, F. And Green, M. T. (1998), Handbook of Public Finance, Marcel Dekker, New York.
14. World Bank (1996), From Plan to Market, World Development Report, The World Bank, Washington DC.
15. World Bank (1997), The State in a Changing World, World Development Report, The World Bank, Washington DC.

ECON4010: Monetary Economics   (4 Credits)

Course Code: ECON4010
Course Title: Monetary Economics
Credits Equivalent: 4 Credits (One credit is equivalent to 1 hour of lecture per week)

Learning Outcomes:
This course covers the developments in monetary theory with special reference to the existence of general equilibrium in a monetary economy. The questions of monetary and credit policies and the workings of monetary policies will be analyzed.

Attendance Requirements:
Students are expected to attend all lectures in order to be able to fully benefit from the course.
A minimum of 75% attendance is a must failing which a student may not be permitted to appear in examination

Evaluation Criteria:
1. Mid Term Examination: 20%
2. End Term Examination: 60%
3. Continuous Internal Assessment (CIA): 20%
        a. Attendance : 5%
        b. Comprehensive Continuous Assessment (CCA): 15%

COURSE CONTENT:

Unit-I: Introduction   (5 Hours)
Definition of Money, Nature and functions of money, Nominal versus the real value of money, Money in Modern Economy, Gurley and Shaw Hypothesis, Alternative Measures of Money Supply in India

Unit-II: Demand for Money   (10 Hours)
The Classical Quantity Theory of Money, The Cambridge Cash Balance Approach, Keynesian Theory of Demand for Money, Milton Friedmans Modern Quantity Theoty of Money, The Post-Keynesian Theories of Demand for Money - Portfolio Theories of Demand for Money, Baumol-Tobin Approach to Transaction Demand for Money

Unit-III: Supply of Money   (8 Hours)
Introduction, Sources of Money Supply, The H Theory of Money Supply, The Money-Multiplier Process, Issues regarding endogenous and exogenous supply of money, Financial intermediaries and the creation of financial assets, Theory of Bank Credit and Bank Deposits

Unit-IV: Money in the Economy: General Equilibrium Analysis   (8 Hours)
Money in the utility function, The individual's demand for and supply of money and other goods, The firm's demand and supply functions for money and other goods, Aggregate demand and supply functions for money and other goods in the economy, Supply of nominal and real balances, General equilibrium in the economy, Neutrality and super-neutrality of money

Unit-V: Monetary Policy and Central Banking   **(9 Hours)**

Goals and targets of Monetary Policy, Monetary aggregates versus interest rates as operating targets, The price level and inflation rate as targets, Inflation targeting and the Taylor rule, Instruments of Monetary Policy - Open market operations, reserve requirements, discount rate, moral suasion, and selective control, Administered interest rates and economic performance, Autonomy of Central Bank, Monetary Transmission Mechanism, Monetarist vs Non-Monetarist Debate, Co-ordination of fiscal and monetary policy in closed and open economy

Reading List

1. Mishkin, Frederic (2007), *The Economics of Money Banking and Financial Markets, 8th ed* Addison Wesley Longman Publishers.
2. Bain, Keith & Howells,Peter (2009), *Monetary Economics: Policy and Its Theoretical Basis,* Palgrave.
3. Friedman, Ben & Hahn F.H. (Eds.) (1990), *Handbook of Monetary Economics,* Vols. 1, 2, & 3, North Holland Publishers.
4. Gupta, S. B. (2006), *Monetary Economics: Institutions, Theory and Policy,* S. Chand & Company Ltd.
5. Vaish, M. C. (2010), *Monetary Theory,* Vikas Publishing House Pvt Ltd.
6. Handa, Jagdish (2009), *Monetary Economics,* Routledge, London & New York.

ECON4011: Economics of Growth and Development   (4 Credits)

Course Code: ECON4011

Course Title: Economics of Growth and Development

Credits Equivalent: 4 Credits (One credit is equivalent to 1 hour of lecture per week)

Learning Outcomes:

The course begins with a discussion of alternative conceptions of development and their justification. It then proceeds to models of development and growth. The course ends with reflections on development and environment linkage, growth and inequality, and discussing the concept of Sustainable Development and the role of state in economic development.

Attendance Requirements:

Students are expected to attend all lectures in order to be able to fully benefit from the course.
A minimum of 75% attendance is a must failing which a student may not be permitted to appear in examination

Evaluation Criteria:

1. Mid Term Examination: 20%
2. End Term Examination: 60%
3. Continuous Internal Assessment (CIA): 20%
       a. Attendance: 5%
       b. Comprehensive Continuous Assessment (CCA): 15%

COURSE CONTENT:

Unit-I: Economic Development: an Overview (10 Hours)

Introduction, meaning and measurement of development, Human development and deprivation, the Characteristics of underdevelopment, Goals and challenges of development, Obstacles to development - dualism and regional inequalities

Classical theories of economic development - Adam Smith, Ricardo, and Marx

The labour surplus economy and the Lewis Model

Initiating economic development - Big Push Theory and Critical Minimum Effort Thesis

Balanced and Unbalanced Growth Strategies for economic development,

Rural-Urban Migration: Basic Model, Harris-Todaro Equilibrium

Political economy of development and underdevelopment

Dependency school and its critique

Unit-II: Concepts and Methods of Growth Theory (6 Hours)

Economic Growth: Introduction, Theories and models, Variables and Aggregation, Technology of the Economy: Capital- and Labour- saving Technical Progress, Endogenous Technical Progress, Some Stylized Facts of Economic Development and Growth, The concept of the Steady State, The Production Function Approach to the Analysis of Growth, Growth Accounting

Unit-III: Growth Theories (12 Hours)

Classical Growth Theory - The Harrod-Domar Growth Model

Growth Model with Exogenous Saving Rate: The Solow-Swan Model, Solow Model with Technical Progress, Solow Model with Human Capital, Understanding Difference in Growth Rates and the Idea of Convergence: Conditional and Unconditional Convergence

Growth Model with Endogenous Saving Rate and Consumer Optimisation: The Ramsey Model

New Growth Theories: Human Capital and Growth, Model of Endogenous Growth: The AK Model

Growth Model with Externalities: The Romer Model

Growth through Creative Destruction: The Schumpeterian Model

Unit -IV: Growth, Inequality and Poverty (6 Hours)

Measuring economic inequality, Inequality and development - the inverted-U hypothesis, Income and inequality - uneven and compensatory changes; Inequality, savings, income, and growth; Inequality, capital markets, and development

Poverty measures, the Geography of Poverty, the Vicious Circle of poverty - Low Level Equilibrium Trap Theories, the Functional impact of poverty

Unit - V: Political Economy of Development (6 Hours)

The role of the state in less developed countries, rent seeking and government failure, the State as problem and solution, the Washington Consensus

Reading List

1. Ray, Debraj, (2009), Development Economics, Oxford University Press.
2. Mukherjee, A. and Chakrabarti, S., (2016), Development Economics: A Critical Perspective, PHI Learning Private Ltd.
3. Myint, Hla, (1965), The Economics of Underdeveloped Countries, Preager, New York.
4. Sen, Amartya, (2000), Development as Freedom, Oxford University Press.
5. Meier, G. M. and J. E.Rauch, (2008), Leading Issues in Economic Development, OUP.
6. Higgins ,B. (1959), Economic Development, Norton, New York.
7. Kindleberger, C.P., (1977), Economic Development, McGraw Hill, New York.
8. Thirlwall, A. P., (2011), Economics of Development, Palgrave Macmillan.
9. Taneja, M. L. and Myer, R. M., (2017), Economics of Development & Planning, Vishal Publishing Co.
10. Todaro, M. P. and Smith, S. C., (2018), Economic Development, Pearson.
11. Y Hayami and Y Godo: Development Economics, From the Poverty to the Wealth of Nations(3rd Edition), OUP.

ECON4012: Basic Econometrics (4 Credits)

Course Code: ECON4012
Course Title: Basic Econometrics
Credits Equivalent: 4 Credits (One credit is equivalent to 1 hour of lecture per week)

Learning Outcomes:
The objective of this paper is to introduce basic econometric techniques that the course will equip the students with tools of econometrics for empirical work in economics and other related disciplines.

Attendance Requirements:
Students are expected to attend all lectures in order to be able to fully benefit from the course.
A minimum of 75% attendance is a must failing which a student may not be permitted to appear in examination

Evaluation Criteria:

1. Mid Term Examination: 20%
2. End Term Examination: 60%
3. Continuous Internal Assessment (CIA): 20%
    a. Attendance : 5%
    b. Comprehensive Continuous Assessment (CCA): 15%

COURSE CONTENT:

Unit I: Introduction to Econometrics (06 Hours)
Definition and Scope of Econometrics, Methodology of Econometrics, Types of Econometrics, The nature of Regression Analysis - Interpretation, Causality & Notation, The structure of

Economic Data, Concept of Population Regression Function (PRF), Sample Regression Function (SRF).

Unit II: The Classical Linear Regression Model (10 Hours)

Ordinary least squares (OLS) estimation, the Classical assumptions, the Gauss-Markov theorem and properties of the OLS estimators, Hypothesis Testing, Goodness of Fit, Regression through Origin, Scaling and Units of Measurement, Functional Forms of Regression Model, Interpreting regression results, Maximum Likelihood techniques.

Unit III: Extension to Multivariate Linear Regression Model (06 Hours)

Model Specification, Interpretation Multiple Regression Equation, Testing Hypothesis: Individual Partial Regression Coefficient and Overall Significance, Goodness of Fit – F-tests, R-squared and Adjusted R-squared. CLRM in Matrix Formulation.

Unit IV: Relaxing Assumptions of Classical Linear Regression Model (10 Hours)

Heteroscedasticity: Meaning and Consequences for OLS estimator, Tests for heteroscedasticity, Remedial Measures; Multicollinearity: Meaning and Consequences for OLS estimator, Tests for multicolliearity, Remedial Measures; Autocorrelation: Meaning and Consequences for OLS estimator, Tests for autocorrelation, Remedial Measures; Types of Specification Errors and Testing Model Specification, Errors of Measurement.

Unit V: Dummy Variable Regression Models (08 Hours)

Concept of dummy variable, Dummy independent variable, Dummy dependent variable: LPM, Logit, Probit, Multinomial Logit, Multinomial Probit and Tobit models.

Note: The students will be taught software packages for performing econometric applications. Computer exercises will be given to students.

Reading List

1. Gujarati, D (1995), *Basic Econometrics*, 4th Edition, New York: McGraw Hill
2. Johnston, J (1991), *Econometric Methods*, 3rd edition, New York: McGraw Hill.
3. Koutsoyiannis, A. (2001), *Theory of Econometrics*, 2nd edition, Palgrave Macmillan.
4. Pindyck, Robert S. and Daniel L. Rubinfeld (1995), *Econometric Models and Economic Forecasts*, 4th Edition, Irwin McGraw-Hill, New York.
5. Wooldridge, J. (2009), *Introductory Econometrics*, 4th Edition, South-Western College Pub.

ECON4013: Environmental Economics (4 Credits)

Course Code: ECON4013
Course Title: Environmental Economics
Credits Equivalent: 4 Credits (One credit is equivalent to 1 hour of lecture per week)

Learning Outcomes:
The course is meant to define the field of environmental economics and provide insights into the application of economic theory in the design of public policy related to the management of environmental issues and problems.

Attendance Requirements:
Students are expected to attend all lectures in order to be able to fully benefit from the course.
A minimum of 75% attendance is a must failing which a student may not be permitted to appear in examination

Evaluation Criteria:

1. Mid Term Examination: 20%
2. End Term Examination: 60%
3. Continuous Internal Assessment (CIA): 20%
    a. Attendance : 5%
    b. Comprehensive Continuous Assessment (CCA): 15%

COURSE CONTENT:

Unit-I: Introduction (6 Hours)

The natural environment and the human economy - The neoclassical economic perspective and the ecological perspective, the Material Balance Model, Trade-offs - Economic versus environmental quality, Externalities in consumption and production, Public goods, The anatomy of market failure, Institutional arrangements addressing market failure, The absence of property rights and the Coase Theorem

Unit-II: Environmental Values (8 Hours)

Meaning of environmental values, User and Non-user values, Option value, Valuation Methods - Revealed preference and Stated preference valuation methods

Unit-III: Policy Instruments (8 Hours)

The economic theory of pollution control - The optimal level of pollution; Economic solutions to environmental problems - Pollution taxes, Environmental subsidies, Deposit and Refund systems, Pollution permit trading systems; Conventional solutions to environmental problems -

Command-and-Control approach; Economic appraisal of environmental projects - Cost-Benefit Analysis

Unit-IV: Environmental Planning (8 Hours)

Environmental risk analysis - Defining environmental risk, Classifying risk - voluntary and involuntary risk, Risk assessment and risk management; Environmental costs - explicit and implicit environmental costs, estimation methods for measuring explicit costs; Economic appraisal of environmental projects - Cost-Benefit analysis, Environment Impact Assessment

Unit-V: Limits to Growth and Sustainability Debate (10 Hours)

Climate change - ecological impacts, Stern Review, The economics of global warming and policy implications; The economics rationale for biodiversity conservation, Biophysical limits to growth - Malthusian and the Neoclassical perspective; Economic growth and the environment - the environmental Kuznets curve; Economics of sustainability, The neoclassical and ecological economics approach to sustainability; Green accounting and alternative indicators of sustainability

Reading List

1. Bhattacharya, R. N. (Ed.) (2001), Environmental Economics: An Indian Perspective, Oxford University Press, New Delhi.
2. Hanley, N., J. Shogren, and B. White (1997), Environmental Economics in Theory and Practice, Macmillan Press.
3. Kolstad, C. D. (1999), Environmental Economics, Oxford University Press, New Delhi.
4. Perman, R. Y. Ma, J. McGilvray, and M. S. Common (1999), Natural Resources and Environmental Economics, Longman.
5. Sankar, U. (Ed.) (2001), Environmental Economics, Oxford University Press, New Delhi.
6. Titenberg, T. (1994), Environmental Economics and Policy, Harper Collins, New York.

ECON4014: Financial Institutions and Markets (4 Credits)
Course Code: ECON4014

Course Title: Financial Institutions and Markets

Credits Equivalent: 4 Credits (One credit is equivalent to 1 hour of lecture per week)

Learning Outcomes:

The course on Financial Economics is designed to familiarize students with the financial system and its components viz. financial instruments, financial institutions, financial markets and financial regulations. The course covers contemporary theories of different financial markets including money market, capital markets (bonds, stocks and hybrids) and derivative markets.

Attendance Requirements:

Students are expected to attend all lectures in order to be able to fully benefit from the course.

A minimum of 75% attendance is a must failing which a student may not be permitted to appear in examination

Evaluation Criteria:

1**.** Mid Term Examination: 20%

2. End Term Examination: 60%

3. Continuous Internal Assessment (CIA): 20%

      a. Attendance : 5%

      b. Comprehensive Continuous Assessment (CCA): 15%

COURSE CONTENT:

Unit-I: Introduction   **(06 hours)**
The Financial System, Structure of Financial System, Functions of Financial System, Financial System and Economic Development, An overview of financial markets - primary markets versus secondary markets, money markets versus capital markets, Foreign Exchange markets, Derivative Security markets.

Financial Intermediaries and indirect financing, Types of Financial Intermediaries - Depository institutions, Contractual Savings Institutions, and Investment Intermediaries

Unit-II: Central Banking and the Conduct of Monetary Policy   **(06 hours)**
Origins of the Central Banking System, Variations in the structure and functions of the Central Bank, Central Banks and Independence, The Reserve Bank of India.
Conventional and non-conventional monetary policy tools, The price stability goal and the nominal anchor, Other goals of monetary policy, Inflation Targeting

Unit-III: The Securities Markets   **(12 hours)**
Money Markets: Definition, purpose, and participants of the money market, Yield on money market securities, instruments of the money market - Treasury Bills, Repurchase Agreements, Commercial Paper, and Certificates of Deposits, Call money market

Bond Markets: Definition, purpose and participants of the Capital Market, Types of bonds, treasury notes and bonds, corporate bonds, Current Yield Calculation, Finding the value of Coupon bonds

The Stock Market: Stock Market Securities, The Primary and the Secondary Stock Markets, Stock Market Participants, Issues pertaining the Stock Markets - Regulation of the Stock Market, The Securities and Exchange Board of India (SEBI)

The Mortgage Market: Definition and Characteristics of Mortgage, Primary and Secondary Mortgage Markets, Participants in the Mortgage Markets, Types of Mortgage Loans, Mortgage-Lending Institutions.

Unit-IV: The Financial Institutions Industry   **(10 hours)**

The Banking Industry: Structure and Competition, Definition of a Commercial Bank, The Bank Balance Sheet, Basic Banking, General Principles of Bank Management - Liquidity Management, Asset Management, Liability Management, Capital Adequacy Management, The BASEL norms.
Financial Innovation and the Shadow Banking System, Bank Consolidation.
Banking crises throughout the world in recent years

The Mutual Fund Industry: Benefits of Mutual Funds, Structure of Mutual Funds, Investment Objective Classes - Equity Funds, Bond Funds, Hybrid Funds, Money market Funds, and Index Funds, Regulation of Mutual Funds.

Insurance Companies and Pension Funds: Fundamentals and Types of Insurance, Types of Pensions and Regulation of Pension Plans

Investment Banking: The Relationship between Investment Banking and Commercial Banking, Primary Services of an Investment Bank

Risk Management of Financial Institutions, Hedging with Financial Derivatives

Financial Regulation - Asymmetric Information as a rationale for Financial Regulation, Types of Financial Regulation

Unit-V: The Foreign Exchange Market   **(06 hours)**
Foreign Exchange Market, Exchange Rates in the Long Run and the Short Run, Explaining changes in Exchange Rate in the Long Run and the Short Run.

The International Financial System, Intervention in the Foreign Exchange Market, Exchange Rate Regimes in the International Financial System

Capital Controls - Controls on Capital outflows and inflows, The Role of IMF, The Foreign Exchange Crisis of the early 1990's.

Reading List

1. M.Y. Khan, Indian Financial System, Tata Mc Graw Hill, New Delhi.
2. L.M.Bhole, Financial Institutions and Markets, Tata Mc Graw Hill, New Delhi.
3. V.A.Avadhani, Indian Capital Market, Himalaya Publishing House, Bombay.
4. H.R.Machiraju, International Financial Markets and India, Wheeler Publishing Company, New Delhi.
5. Vasant Desai, Indian Financial System, Himalaya Publications, Bombay.
6. Peter.S. Rose, Money and Capital Market: Financial Institutions and Instruments, Tata McGraw Hill, London.
7. S.C.Kucchal, Corporation Finance, Chaitanya Publishing, Allahabad.
8. S.L.N.Sinha, Capital Market in India, Vora & Co, Bombay.
9. Hendrik.S. Houthakker, The Economics of Financial Markets, Oxford University Press, New Delhi.

ECON4015: GAME THEORY   (4 Credits)

Course Code: ECON4015
Course Title: GAME THEORY
Credits Equivalent: 4 Credits (One credit is equivalent to 1 hour of lecture per week)

Learning Outcomes: The course is designed to introduce Theory of Games to postgraduate students with focus on the core areas like different kinds of games, Nash Equilibrium, application in microeconomics and future scope in experimental economics.

Attendance Requirements:
Students are expected to attend all lectures in order to be able to fully benefit from the course.
A minimum of 75% attendance is a must failing which a student may not be permitted to appear in examination

Evaluation Criteria:
16. Mid Term Examination: 20%
17. End Term Examination: 60%
18. Continuous Internal Assessment (CIA): 20%
   a.   Attendance : 5%
   b.   Comprehensive Continuous Assessment (CCA): 15%

COURSE CONTENTS:

Unit I: Introduction   (06 Hours)
What is Game Theory; History of Game Theory; Basic concepts of Game Theory: Game, Player, Strategy, Payoff, Payoff Matrix.

Models: Certainty and Uncertainty Model, Zero-sum game and Non-zero-sum Game; Two-person Zero-sum Game: Concept, Assumptions, Choice of strategies, Maxmin and Minimax principle, Two-person Zero-sum game: Uncertainty model. Non-zero-sum Game: concept, assumptions.

Unit II: Games With Perfect Information   (06 Hours)
Games with perfect information: The Prisoners Dilemma, Bach or Stravinsky, Matching Pennies, Stag Hunt. Nash equilibrium in different kinds of games; Pure strategy Nash Equilibrium. Application of Nash equilibrium Cournot's and Betrand's model of oligopoly.

Unit III: Mixed Strategy Equilibrium   (10 Hours)
Mixed strategy Nash equilibrium in different kinds of games; Expected Payoff functions; Dominated actions; pure equilibria when randomization when randomization is allowed; Symmetric mixed strategy Nash equilibrium; Reporting of Crime: Social psychology and Game Theory. Finding all mixed strategy Nash Equilibrium.

Unit IV: Extensive Games With Perfect Information   (06 Hours)
Extensive Games with perfect information: Theory; Introduction; Strategies and Outcome; Nash Equilibrium; Subgame perfect equilibrium; Finding subgame perfect equilibrium of finite horizon games; Backward induction. Stackleberg's model of Duopoly and Buying Votes. Games with imperfect information: Introduction and Examples.

Unit V: Repeated Games   (12 Hours)

The main idea; Preferences; Infinitely repeated games; Strategies; Some Nash equilibria of the infinitely repeated Prisoner's Dilemma; Nash equilibrium payoffs of the infinitely repeated Prisoner's Dilemma when the players are patient; Subgame perfect equilibria and the one-deviation property;Some subgame perfect equilibria of the infinitely repeated Prisoner's Dilemma.

Nash equilibria of general infinitely repeated games; Subgame perfect equilibria of general infinitely repeated games; Axelrod's experiments; Reciprocal altruism among sticklebacks; Finitely repeated games.

References:

1. Osborne, J. Martin(2000), An Introduction to Game Theory, OUP.

2. Koutsoyiannis, A. (2003), Modern Microeconomics (2nd ed.), Palgrave Macmillan.

3. Varian, Hal R. (2010), Intermediate Microeconomics, Affiliated East-West Press Pvt. Ltd.

4. Datta, Prajit K. (1999), Strategies and Games, The MIT Press (February 16, 1999).

ECON4016: Optimization Techniques   (4 Credits)

Course Code: ECON4016
Course Title: Optimization Techniques
Credits Equivalent: **4 Credits** (One credit is equivalent to 1 hour of lecture per week)

Learning Outcomes:
The students will able to understand how to apply basic concepts of mathematics to formulate an optimization problem. The course will illustrate how these techniques are useful in various applications drawing on many economic examples.

Attendance Requirements:
Students are expected to attend all lectures in order to be able to fully benefit from the course.
A minimum of 75% attendance is a must failing which a student may not be permitted to appear in examination

Evaluation Criteria:
1. Mid Term Examination: 20%
2. End Term Examination: 60%
3. Continuous Internal Assessment (CIA): 20%
        a. Attendance: 5%
        b. Comprehensive Continuous Assessment (CCA): 15%

COURSE CONTENT:

Unit I: Unconstrained & Constrained Optimizations and Dynamics and Integration (06 Hours)
Unconstrained and constrained optimizations, Optimum values and relative maximum and minimum – First derivative test – Second derivative test – Second and higher order derivatives. Dynamics and integration – Indefinite integrals – Definite integrals –Improper integrals –Domar growth model.

Unit II: Linear Programming (10 Hours)
Basic concept, formulation of a linear programming problem Its structure and variables – Nature of feasible, basic and optimal solution – Solution of linear programming through graphical – Formulation of the dual of a programme and its interpretation – Concept of duality and statement of duality theorems. Simplex method – Statement of basic theorems of linear programming – Shadow prices and their uses

Unit III: Non-Linear Programming (10 Hours)
Non-linear programming – its nature - Kuhn-Tucker conditions - Constrained qualification, Kuhn-Tucker sufficiency theorem – Economic applications.

Unit IV: Input-Output Analysis (06 Hours)
Assumptions - Technological Co-efficient Matrix – Closed and open Model – Solution of Open Model – Hawkins-Simon Conditions – Dynamic Input-Output Model – Production Function Approach to Input Output Model.

Unit V: Game Theory (08 Hours)
Game Theory: Basic concepts -Two–person Zero Sum Games - The Maximum Minimax Principle – Games without Saddle Points – Mixed Strategies – Graphical solution of 2 x n and m x 2 Games – Dominance property – The Modified Dominance Property – Reducing the Game Problem as a Linear Programming Problem.

<u>**Reading List**</u>

1. Allen, R.G.D (2008). - Mathematical Analysis for Economists, Macmillan Press, New Delhi.
2. Chiang, A.C (2005)- Fundamental Methods of Mathematical Economics, McGraw Hill, New York.
3. Handry, A.T (1995). - Operations Research, PHI, New Delhi.
4. Mehta, BC and Madanani GMK: Mathematics for Economists, Sultan Chand and Sons, Delhi.
5. Sydsaeter, Knut and Peter Hammond (2002) - Essential Mathematics for Economic Analysis, Prentice Hall: Harlow, England.
6. Yamane, Taro (1962) - Mathematics for Economists, Prentice Hall,

ECON4017: Agricultural Economics   (4 Credits)

Course Code: ECON4017
Course Title: Agricultural Economics
Credits Equivalent: 4 Credits (One credit is equivalent to 1 hour of lecture per week)

Learning Outcomes:
The objective of this course is to provide orientation to the students regarding concepts of agricultural economics. This course also attempts to make familiarise the students with the development of agriculture in India.

Attendance Requirements:
Students are expected to attend all lectures in order to be able to fully benefit from the course.
A minimum of 75% attendance is a must failing which a student may not be permitted to appear in examination

Evaluation Criteria:

1. Mid Term Examination: 20%
2. End Term Examination: 60%
3. Continuous Internal Assessment (CIA): 20%
        a. Attendance : 5%
        b. Comprehensive Continuous Assessment (CCA): 15%

COURSE CONTENT:

Unit-I: Introduction   (12 Hours)
Scope and subject matter of Agricultural Economics, Nature and utility of Agricultural Economics, Role and Importance of agriculture in economy - source of livelihood, employment, industrial development and trade

Agriculture production processes, Measuring efficiency in agricultural production, yield-gap analysis

Understanding the Supply chain in agriculture, drivers and metrics, distribution networks and application to e-business

Demand forecasting in a supply chain, planning and managing inventories in a supply chain, designing and planning transportation in a supply chain, information technology in a supply chain

Unit-II: Agricultural Finance and Agricultural Risk   (6 Hours)
Importance of agricultural finance, Role of credit in agricultural development, Economic principles applied to financial management of the farm, Economic feasibility test of credit

Types of risk in agriculture - climate risk, production risk; Risk management through agricultural insurance, Crop insurance - benefits and constraints, Insurance and credit linkage

Agriculture insurance-support services - scope for using satellite imagery, Delivery strategies

Unit-III: International Trade in Agriculture   (8 Hours)

Globalisation and case for free trade and for protectionism in agriculture, Instruments of trade policy

GATT-provisions relating to agri trade, WTO agreement on agriculture - main provisions - market access, domestic support, export subsidies, special and differential treatment, sanitary and phytosanitary provisions, Doha impasse, Emergence of various groups or alliances and their participation in negotiations, Issues for further negotiations

World agricultural trade - changing structure and pattern, status of developing economies, multilateralism and regionalism, factors affecting international trade

Unit-IV: Indian Agricultural Economics   (6 Hours)

National resource base of Indian agriculture, Factors responsible for agricultural development in India, Land utilisation pattern, Changes in agrarian structure in India, Capital formation in Indian agriculture

Credit in Indian agriculture, Sources of agricultural finance, Factors determining demand for credit

Agricultural wages in India

Characteristics of primary agricultural markets in India, Regulated markets and market intervention

Unit-V: Agricultural Policy Framework in India   (8 Hours)

Land reforms

National seed policy, Biodiversity Act, WTO and seed policy, Protection of plant varieties and Farmers' Right Act

Fertiliser policy, New pricing scheme, Fertilizer subsidy

National Water Policy, water and electricity subsidy

Agriculture Price Policy

Agriculture marketing, Agricultural Produce Marketing Committee Act, eNAM

Scheme for crop insurance in India

WTO and Indian agriculture

Reading List
1. Acharya and Agarwal, 1992, Agricultural Marketing in India, Oxford & IBH Publishing Company.
2. Agricultural Research Data Book 2009, Indian Agricultural Statistics Research Institute, Pusa, New Delhi 110 012.

3. Agricultural Statistics at a Glance 2010, Directorate of Economics and Statistics, Ministry of Agriculture, Government of India, New Delhi.

4. Bhalla, G. S. and Singh G., 2001, Indian Agriculture: Four Decades of Development, Sage Publications.

5. Bhalla, G.S., 2007, Indian Agriculture since Independence, National Book Trust, India.

6. Chadha, G.K.; S. Sen and H.R. Sharma, 2004, Land Resources, State of the Indian Farmer, Vol. 2, Academic Foundation, New Delhi.

7. Chakaravathi, R. M. (1986), Under Development and Choices in Agriculture, Heritage Publication, New Delhi.

8. Dantwala, M. L. and Others, 1991, Indian Agricultural Development since Independence: A Collection of Essays, Oxford & IBH Publishing Co., New Delhi.

9. Datta Samar K. and Satish Y. Deodhar (2001), Implications of WTO Agreements for Indian Agriculture, Oxford and IBH Pub. Co., New Delhi.

10. Dhawan, B. D., 1988, Irrigation in India's Agricultural Development, Sage Publications Pvt. Ltd.

11. Dhondyal, S.P. "Farm Management -An Economic Analyst", Friends Publications. Meerut.

12. Doll, J.P. and O. Frank (1978), Production Economics - Theory &Applications, John Wiley and Sons.

13. Eicher K.C. and J. M. Staatz (1998), International Agricultural Development, Johns Hopkins Univ. Press.

14. Gardner, B.L. and G.C. Rausser (2001), Handbook of Agricultural Economics, Vol. I., Elsevier.

15. *GOI (2007), Report of The Working Group on Risk Management in Agriculture for the Eleventh Five Year Plan (2007-2012)* , GOI, New Delhi.

16. Heady, E.O. (1968), Economics of Agricultural Production and Resource Use, Prentice- Hall.

17. Hooda and Gulati (2007),WTO Negotiations on Agriculture and Developing Countries, Oxford University Press, New Delhi.

18. Ramaswami, Bharat ; Shamika Ravi And S.D. Chopra (2004), *Risk Management*, State of the Indian Farmer- A Millennium Study, Volume 22, Academic Foundation, New Delhi.

19. Reddy, Subba S. and R. Raghu Ram (1996), Agricultural Finance and Management, Oxford and IBH Publishing Co. Pvt. Ltd., New Delhi.

20. Report of the Working Group on Agricultural Marketing Infrastructure, Secondary Agriculture and Policy Required for Internal and External Trade for the XII Five Year Plan 2012-17, 2011, Agriculture Division, Planning Commission, GOI.

21. Sankayan, P.L. (1983), Introduction to Farm Management, Tata McGraw Hill.

22. Singh, Surjit and Vidya Sagar (2004), Agricultural Credit in India, State of the Indian Framers, Vol. 7, Academic Foundation, New Delhi.

23. Vaidyanathan, A., 1988, India's Agricultural Development in a Regional Perspective, Longman Limited.

ECON4018: INSTITUTIONAL ECONOMICS   (4 Credits)

Course Code: ECON4018
Course Name: Institutional Economics
Credits Equivalent: 4 Credits (One credit is equivalent to 1 hour of lecture per week)

Learning Outcomes: The course is designed to introduce institutional economics to the postgraduate students. The course focuses on the role of institutional arrangement in economic performance and various institutional failures that needs intervention.

Attendance Requirements:
Students are expected to attend all lectures in order to be able to fully benefit from the course.
A minimum of 75% attendance is a must failing which a student may not be permitted to appear in examination

Evaluation Criteria:
1. Mid Term Examination: 20%
2. End Term Examination: 60%
3. Continuous Internal Assessment (CIA): 20%
a. Attendance: 5%
b. Comprehensive Continuous Assessment (CCA): 15%

UNIT-I: BASIC INTRODUCTION TO INSTITUTIONAL ECONOMICS   (10 Hours)

Institutional Economics as a departure from Neo-Classical and Marxian Economics, Historic development of Institutional Economics, Old and New Institutional Economics, Core issues in New Institutional Economics

UNIT-II: PROBLEMS OF INFORMATION ASYMMETRY   (10 Hours)

Prisoner's dilemma and Nash equilibrium, Assurance problem, Principal-Agent Problem, Problem
of Adverse Selection, Problem of Moral Hazard, Market for Lemons, Market Signalling.

UNIT-III: PROPERTY RIGHTS ISSUES   (10 Hours)

Concepts of Property and defining Property Rights, Problems of Ill-defined Property rights, Externalities-Market failure and property rights, Issues relating to ill-defined property rights, Social vis-à-vis Individual Choices, Neo-classical Maximisation vis-à-vis Methodological Individualism, Prisoner's Dilemma, Hardin's Tragedy of Commons, Collective Action, and Assurance Problem.

UNIT-IV: TRANSACTION COSTS AND BOUNDED RATIONALITY   (10 Hours)

Issues relating to transaction costs, Social cost vis-à-vis individual costs, Identification and measurements of transaction costs, Coase Theorem, Bounded Rationality, Public Policy, Insurance
Sector, Social issues, Ecological and Environmental Issues.

READING LIST
1. Furburton & Richter, 'Institutions and Economic Theory', Dryden Press.

2. Pindyck, Robert S., Rubinfeld, Daniell L., & Mehta, Prem L., "Microeconomics", 7th Edition, (2009), Pearson.

3. Frank, Robert H., "Micro Economics and Behaviour", McGraw Hill International Editions, (1991).

4. Eggertson, Thrainn, "Economic Behaviour and Institutions", Cambridge University Press, (1999).

5. North, Douglas C., "Institutional Change and Economic Performance", Cambridge University Press, (2004).

6. Olson Mancur (1965), The Logic of Collective Action, Harvard University Press, Cambridge.

7. Shaw, M E. (1971). Group Dynamics: The Psychology of Small Group Behaviour**,** McGraw Hill, New York.

8. Ahuja H. L., "Advanced Economic Theory – Microeconomic Analysis", 17th Revised Edition, (2008), S. Chand & Company Ltd.

ECON4019: Financial Econometrics   (4 Credits)

Course Code: ECON4019
Course Title: Financial Econometrics
Credits Equivalent: 4 Credits (One credit is equivalent to 1 hour of lecture per week)

Learning Outcomes:

The objective of this course is to provide a comprehensive and systematic account of financial econometric models and their applications to modeling and prediction of financial time series data. It covers the main parts of the spectrum of quantitative financial economics, discusses important results in the empirical finance literature, and provides a comprehensive knowledge to do empirical work in financial practice.

Attendance Requirements:

Students are expected to attend all lectures in order to be able to fully benefit from the course.
A minimum of 75% attendance is a must failing which a student may not be permitted to appear in examination

Evaluation Criteria:

1**.** Mid Term Examination: 20%
2. End Term Examination: 60%
3. Continuous Internal Assessment (CIA): 20%
      a. Attendance : 5%
      b. Comprehensive Continuous Assessment (CCA): 15%

COURSE CONTENT:

Unit I: Predicting Financial Return   **(06 Hours)**

Financial time series, asset returns, distributional properties of financial returns, Market efficiency, Principle component analysis, factor analysis

Unit II: Models of Volatility (06 Hours)

Modeling volatility, ARCH, GARCH and various versions of GARCH. Long-memory and stochastic volatility models, Recent developments in volatility estimation using high frequency data, Markov Switching Model.

Unit III: Risk and Return Models for Multiple Assets (10 Hours)

Multivariate time series analysis, Weak stationarity and cross correlations, Vector auto regressive models- VAR, Vector moving average models-VMA, ARMA and Model evaluation Vector models for mean, Time varying variance-covariance matrix and the dynamic conditional correlation models.

Unit IV: Random Walks, Cointegration and Markov Chain Simulation (10 Hours)

Pitfalls-Spurious regression, Cointegration and error correction models, Threshold cointegration and arbitrage models, Markov Chain Monte Carlo Methods with applications.

Unit V: Value at Risk (VaR) Models (08 Hours)

Value at risk-VaR, An econometric approach to VaR calculations, Quantile estimation, Extreme value theory, An extreme value approach to VaR, A new approach based on the extreme value theory.

Reading List

1. Pattersan Kerry (2000), An Introduction to Applied Econometrics: A Time Series Approach, Palgrave Macmillan
2. Tsay, Ruey S (2001), Analysis of Financial Time Series, John Wiley and Sons, Macmillan Press.
3. Cochrane, John (2005), Asset Pricing, Princeton University Press, Princeton

ECON4020: INTERNATION ECONOMICS (4 Credits)

Course Code: ECON4020
Course Name: International Economics
Credits Equivalent: 4 Credits (One credit is equivalent to 1 hour of lecture per week)

Learning Outcomes: The course is designed to introduce international economics to the postgraduate students. The course focuses on the concepts of trade theories, importance of international economics in macroeconomic policy making, exchange rate determination and its implications.
Attendance Requirements:
Students are expected to attend all lectures in order to be able to fully benefit from the course.

A minimum of 75% attendance is a must failing which a student may not be permitted to appear in examination

Evaluation Criteria:

1. Mid Term Examination: 20%
2. End Term Examination: 60%
3. Continuous Internal Assessment (CIA): 20%
a. Attendance : 5%
b. Comprehensive Continuous Assessment (CCA): 15%

UNIT-I: THE PURE THEORY OF INTERNATIONAL TRADE   (10 Hours)

Introduction to the international economics; Trade based on absolute advantage, comparative advantage and opportunity costs; Factor endowment and Heckscher – Ohlin model, theorem of factor price equalization, Leontief paradox; Standard trade model; demand and supply, Offer curves. Trade as an engine to growth; Terms of trade and economic growth-secular deterioration of terms of trade hypothesis- a critical review

UNIT-II: NEW THEORIES OF INTERNATIONAL TRADE   (10 Hours)

New Theories: Economies of scale, Imperfect competition -trade based on product differentiation and intra-industry trade, dynamic technological differences-product cycle model. Economic growth and international trade: Growth of factors of production- Rybczynski theorem, Technical progress; Growth and trade-small country and large country; Immiserzing growth; changes in taste

UNIT-III: THEORIES OF INTERVENTIONS AND ECONOMIC INTEGRATION (10 Hours)

Theory of intervention- Free trade and protection; Trade restriction-Tariffs (Partial and general equilibrium analysis), Stolper-Samuelson theorem; optimum tariff and effective rate of protection; Non – tariff barriers: Quotas, Voluntary export restraints, international cartels, dumping, export subsidies. Free Trade Areas versus Customs Union, custom union-Trade Creation and Trade Diversion; Static and dynamic benefit from custom unions Trade policy and reforms in India.

UNIT-IV: FOREIGN EXCHANGE   (05 Hours)

The Market for Foreign Exchange: demand and supply of foreign exchange; the case for fixed vs flexible exchange rate; theories of exchange rate determination; spot and forward markets; flexible exchange rate and uncertainty; flexible exchange rate and inflation; speculation and the stability of the exchange rate; optimum currency areas

UNIT-V: BALANCE OF PAYMENT   (05 Hours)

The Balance of Payments: the balance of trade, the balance of current and capital account, balance of payment; equilibrium and disequilibrium in BoP; autonomous and accommodating capital flows; BoP and economic policy.

Adjustment in BoP: automatic adjustment; expenditure reducing and switching policy; devaluation and the trade balance, the absorption approach; the monetary approach to the BoP adjustment

References:

1. Salvatore D (1998), International Economics, Prentice Hall.
2. Sodersten, Bo (1991). International Economics, The Macmillan Press

3. Paul, R. K &Obstfeld, M (1999), International Economics: Theory and Policy, Addison-Wesley
4. Bhagwati, J. (Ed.) (1981), International Trade, Selected Readings, Cambridge, University Press Massachusetts
5. Chacholiades, M (1990), The Pure Theory of International Trade, McGraw Hill.
6. Cherunilam F, International Economics, Fifth Edition, the Tata McGraw-Hill Companies, 2011
7. Dunn, R.M. and.Mutti, J.H (2000), International Economics, Routledge Publishers, London
8. Kindleberger, C.P. (1973), International Economics, R.D. Irwin, Homewood.
9. King, P.G. (1995), International Economics and International Economic Policy: A Reader, McGraw Hill International, Singapore.

ECON4021: Advanced Econometrics (4 Credits)

Course Code: ECON4021
Course Title: Advanced Econometrics
Credits Equivalent: 4 Credits (One credit is equivalent to 1 hour of lecture per week)

Learning Outcomes:
This course is designed with additional econometrics tools that are often used in the analysis of economic research. Students shall learn about use of simultaneous equations, analysis of cross section, time series and panel data, the role of time or lag in economic relationship, principal component analysis, non-linear regression, etc.

Attendance Requirements:
Students are expected to attend all lectures in order to be able to fully benefit from the course.
A minimum of 75% attendance is a must failing which a student may not be permitted to appear in examination

Evaluation Criteria:

1. Mid Term Examination: 20%
2. End Term Examination: 60%
3. Continuous Internal Assessment (CIA): 20%
        a. Attendance : 5%
        b. Comprehensive Continuous Assessment (CCA): 15%

COURSE CONTENT:

Unit I: Simultaneous-Equation Models   (10 Hours)

Introduction, Structural, reduced form and final form model, Rational behind the use of SEM - simultaneous bias and inconsistency of the OLS estimator, Problem of Identification: Rank and Orders conditions, Methods of estimation: ILS, 2SLS, Instrumental Variable, LIML, Mixed estimation Method, 3 SLS and FIML methods.

Unit II: Time Series Analysis   (10 Hours)

Basic Concepts in Time Series Econometrics, Stochastic Time Series Models, Stationarity and Testing for Unit Root, Co-integration, ARIMA Models, Stationarity, The Autocorrelation Function, The Partial Autocorrelation Function, Box–Jenkins Model Selection, Properties of Forecasts, ARCH and GARCH models.

Unit III: Dynamic Econometric Models (10 Hours)

Autoregressive and Distributed Lag models: Role of Lag in Economics – Estimation of Distributed Lag Models: Koyck Apparoch, adaptive Expectation and partial Adjustment Models, Causality in Economics, Vector Auto-Regression (VAR) Models, Cointegration and Error-correction Models, Impulse Response Function, Variance Decomposition.

Unit IV: Panel Data Regression Models (05 Hours)

Introduction, The Fixed Effects Model, The Random Effects Model, Fixed vs Random, Maximum Likelihood Estimation, Prediction, Hausman's Specification Test, Panel Unit Root and Co-integration, GMM Estimation of Linear Panel Models.

Unit V: Other Topics (05 Hours)

Seemingly Unrelated Regression (SURE): Estimation by OLS, GLS and FGLS, testing for structural change and aggregation bias, case of autoregressive errors; The Method of Principal Component Analysis; Nonlinear Regression Functions; Estimation of Nonlinear Regression.

Note: The students will be taught software packages for performing econometric applications. Computer exercises will be given to students.

Reading List

1. Baltagi, B.H. (2008), *Econometric Analysis of Panel Data*, 4th Edition, Wiley.
2. Gujarati, D (1995), *Basic Econometrics*, 4th Edition, New York: McGraw Hill.
3. Hamilton, JD (1994), *Time Series Analysis*, Princeton University Press, New Jersey.
4. Hsiao, C. (2003), *Analysis of Panel Data*, Cambridge University Press, Cambridge.
5. Johnston, J (1991), *Econometric Methods*, 3rd edition, New York: McGraw Hill.
6. Koutsoyiannis, A. (2001), *Theory of Econometrics*, 2nd edition, Palgrave Macmillan.
7. Lutkepohl, Helmut (2007), *New Introduction to Multiple Time Series Analysis*, Springer, New York.
8. Pindyck, Robert S. and Daniel L. Rubinfeld (1995), *Econometric Models and Economic Forecasts*, 4th Edition, Irwin McGraw-Hill, New York.
9. Walter Enders (2008), *Applied Econometrics Time series*, Wiley India.
10. Wooldridge, J. (2009), *Introductory Econometrics*, 4th Edition, South-Western College Pub.

ECON4022: INTERNATIONAL FINANCE   (4 Credits)

Course Code: **ECON4022**
Course Name: **International Finance**
Credits Equivalent: **4 Credits** (One credit is equivalent to 1 hour of lecture per week)

Learning Outcomes: The aim of the course is to make students aware of the role of international finance in affecting the process of development and also its impact on market volatility.

Attendance Requirements:
Students are expected to attend all lectures in order to be able to fully benefit from the course.
A minimum of 75% attendance is a must failing which a student may not be permitted to appear in examination

Evaluation Criteria:
1. Mid Term Examination: 20%
2. End Term Examination: 60%
3. Continuous Internal Assessment (CIA): 20%
a. Attendance: 5%
b. Comprehensive Continuous Assessment (CCA): 15%

COURSE CONTENT:

UNIT-I: BALANCE OF PAYMENTS   **(10 Hours)**

Meaning and Components of balance of payments; Measurement of Balance of Payments, Surpluses and Deficits; General Theory of Balance of Payments-the types and causes for disequilibrium; The process of adjustment under Gold Standard, Fixed exchange rates and flexible
exchange rates, devaluation; Expenditure-reducing and Expenditure-switching policies and direct control for adjustment.

UNIT-II: FOREIGN EXCHANGE MARKET   **(10 Hours)**

Theories of exchange rate determination; Purchasing Power Parity theory, Monetary and Portfolio
balance approaches; Equilibrium exchange rates; Stability in the exchange market and market intervention policy. Exchange rates volatility; reasons and consequences.

UNIT-III: INTERNATIONAL CAPITAL MOVEMENTS   **(10 Hours)**

International Capital movements; The transfer problem-The Euro currency market-International Development Agencies; Theory of Short term capital movements and East Asian crisis and lessons for developing countries. FDIs and FIIs roles in international capital mobility. Currency crises, Foreign exchange reserve in India.

UNIT-IV: INTERNATIONAL MONETARY SYSTEM (10 Hours)

Rise and fall of gold standard and Bretton-Woods system; Need, adequacy and determinants of International reserves; Conditionality clause of IMF; Role of International Finance agencies (IMF, World and ADB) in solving International liquidity problem; Reforms in International Monetary System, Emerging International monetary system with special reference to post Maastricht development and developing countries.

READING LIST:

1. Bhagwati. J. (Ed.) (1981), International Trade, Selected Readings, Cambridge, University Press, Massachusetts.
2. Carbough, R.J. (1999), International Economics, International Thompson Publishing, New York.
3. Chacholiadas, M. (1990), International Trade: Theory and Policy, McGraw Hill, Kogkusha, Japan.
4. Dana, M.S. (2000), International Economics: Study Guide and Work Book (5th Edition) Toutledge Publishers, London,
5. Kenen, P.B. (1994), The International economy, Cambridge University Pres, London. Kindleberger, C.P. (1973), International economics, R.D.Irwin, Homewoor.
6. Kind, P.G. (1995), International Economics and International Economic Policy: A Reader, McGraw Hill International, Singapore.
7. Krugman, P.R and M.Obstfeld (1994), International Economics: Theory and Policy, Glenview,
Foresman.
8. Salvatore, D. (1997), International Economics, Prentice Hall, Upper Saddle River, N.J. New York.
9. Soderston, BN.O (1991), International Economics, the Macmillan Press Ltd., London.
10. Tirole, Jean (2002), Financial Crises, Liquidity and the International Monetary System, New Jersey: Princeton University Press.

ECON4023: Health Economics (4 Credits)
Course Code: ECON4023
Course Title: Health Economics
Credits Equivalent: 4 Credits (One credit is equivalent to 1 hour of lecture per week)

Learning Outcomes:
The objective of this course is to familiarize students with the health economics theory and methods and how they could be applied to analyse the functioning of the health system. The course also focuses on the determinants of health and use of health services.

Attendance Requirements:
Students are expected to attend all lectures in order to be able to fully benefit from the course.

A minimum of 75% attendance is a must failing which a student may not be permitted to appear in examination

Evaluation Criteria:

1**.** Mid Term Examination: 20%
2. End Term Examination: 60%
3. Continuous Internal Assessment (CIA): 20%
      a. Attendance : 5%
      b. Comprehensive Continuous Assessment (CCA): 15%

COURSE CONTENT:

Unit-I: Introduction, Demand for Health and Health Care   **(8 Hours)**
Welfare economics of medical care, production of health, demand for health and health care, equity, efficiency and the need, link between development and health, investing in health for economic development, public-private partnership and the role of state

Unit-II: Health Production Function   **(10 Hours)**
Nature of production function, different types of production function and their applications, national and international perspective, distributional inequities in opportunity and commercialization of medical and para-medical education, cost escalation in the health care system, easy access and availability to appropriate technology, need for regulation and control

Unit-III: Health Care Incentives and Financing   **(8 Hours)**
Goals of health care provision and financing, competitive health insurance and risk adjustment, demand and supply of health insurance, asymmetric information and agency, market insurance, self-insurance and protection, employment based insurance, health insurance in India

Unit-IV: Measuring and Valuing Health Outcomes   **(6 Hours)**
Measurement of health state utilities, QALYs and its alternatives- different approaches of valuing health, multi-attribute utility instruments and their development

Unit-V: Health Care in India   **(8 Hours)**
Various health indicators and its recent trend, health care expenditures, target of health care and achievements, different options for financing healthcare, taxation, user fees, health insurance, role of urban and rural local bodies, role of non-governmental organizations, economic impact of HIV/AIDS in India and gender issues

Reading List

1. Anthony J. Cuyler and Joseph P.(ed) (2000), *Handbook of Health Economics,* Newhouse, North-Holland, Elsevier Science.
2. CII-Mckinsey Report**,** *Healthcare in India: The Road Ahead*, 2004.
3. Clewar, Ann, and David Perkins, (1998), *Economics for Health Care Management*, London: Prentice Hall.

4. Culyer, A. J. and J.P. Newhouse (eds.), (2000), *Handbook of Health Economics*, Volumes 1A & B, North-Holland.

5. Folland, S., A.C. Goodman and M. Stano, (2006), *Economics of Health and Health Care*, fifth edition, Pearson Prentice Hall.

6. Jack William, (1999), *Principles of Health Economics for Developing Countries,* World Bank Institute Development Studies.

7. Rice, Thomas, (1998), *The Economics of Health Reconsidered*. Chicago: Health Administration Press.

8. Santerre and Neun, (2004), *Health Economics: Theories, Insights, and Industry Studies*, Thomson/South Western.

9. Sherman Folland, Allen C. Goodman, and Miron Stano, (2004), *The Economics of Health and Health Care*, *4th Edition*, Prentice Hall.

10. World Development Report, *Investing in Health,* The World Bank, 1993.

11. Zweifel, P., (1997), *Health Economics*, Oxford University Press.

ECON4024: INDIAN PUBLIC FINANCE   (4 Credits)

Course Code: ECON4024

Course Name: Indian Public Finance

Credits Equivalent: **4 Credits** (One credit is equivalent to 10 hours of lectures / organised classroom activity / contact hours; 5 hours of laboratory work / practical / field work / Tutorial / teacher-led activity and 15 hours of other workload such as independent individual/ group work; obligatory/ optional work placement; literature survey/ library work; data collection/ field work; writing of papers/ projects/dissertation/thesis; seminars, etc.)

Learning Outcomes: The course is designed to make the postgraduate students enable to apply the knowledge of the public finance in the Indian financial system. The students will be able to analyse the Indian tax system and its role in the process of economic development.

Attendance Requirements:

Students are expected to attend all lectures in order to be able to fully benefit from the course.
A minimum of 75% attendance is a must failing which a student may not be permitted to appear in End-Semester Examinations.

Evaluation Criteria:
1. Mid Term Examination: 20%
2. End Term Examination: 60%
3. Continuous Internal Assessment (CIA): 20%
a. Attendance : 5%
b. Comprehensive Continuous Assessment (CCA): 15%

COURSE CONTENTS:

UNIT-I: THE INDIAN TAX SYSTEM **(10 Hours)**

Constitutional Assignment of Expenditures-Union, States and Concurrent: 73rd and 74th Amendments, Role of Local Governments; Assignment of Taxes to Various levels of Governments; The Indian Tax System: Centre-Personal Income and Corporate Profit Taxes, Wealth Tax, CENVAT, Import Duties (Customs), Service Tax; States: Sales Tax, State Excise, Motor Vehicle Tax, Stamps and Registration, Land Revenue, Agricultural Income Tax

UNIT-II: GOVERNMENT EXPENDITURE, DEFICIT AND PUBLIC DEBT **(10 Hours)**

Growth of Expenditure: Changing Composition, functional, Capital and Revenue heads; Evaluation of Structure of Government Expenditure: Centre and States. Deficit: Fiscal Deficit, Primary Deficit, Revenue Deficit-States and Centre and Combined States and Centre; Public Enterprises and the Budget; Public Debt: Internal and External Debts, Debt Dynamics in India.

UNIT-III: INTER-GOVERNMENTAL TRANSFERS **(10 Hours)**

Aspects of Fiscal Federalism, Theory, Vertical Fiscal Gap, Theory of Grant, Matching and NonMatching, Conditional and Unconditional grants; Finance and Planning Commissions, Pattern of Transfers, Equity and Efficiency Aspects, Possible lines of Reforms.

UNIT-IV: TAX REFORMS **(10 Hours)**

Reforms in Personal Income Tax, Corporate Profit Tax, CENVAT, Sales Tax, Stamps and Registration Fees; Tax Reform-Assessment of Progress, fiscal crisis and fiscal sector reforms in India. Good and Service Tax (GST): Good or Bad.

READING LIST

1. Chelliah, R.J. (1989) - Towards Sustainable Growth: Essays in Fiscal and Financial Sector Reforms in India, Oxford University Press.
2. Chelliah, R.J.(1990) et al - Primer on Value Added Tax, NIPFP.
3. Government of India, Reports of the Tax Reforms Committee.
4. Government of India, Budget Documents (Various years).
5. Govinda Rao M. and Sen Tapas K(1994). - Fiscal Federalism in India: Theory and Practice
6. Ministry of Finance, Indian Public Finance Statistics (Various Issues).
7. Ministry of Finances, Economic Survey (Various Issues).
8. Mundle, Sudipto (ed.)(2000) - Public Finance-Policy Issues for India, Oxford Uni. Press.
9. Srivastava, D. K. (Ed.) (2000)- Fiscal Federalism in India: Contemporary Challenges and Issues before Eleventh Finance Commission.

ECON4025: Industrial Economics **(4 Credits)**

Course Code: ECON4025
Course Title: Industrial Economics
Credits Equivalent: 4 Credits (One credit is equivalent to 1 hour of lecture per week)

Learning Outcomes:
This course intends to provide knowledge to the students on the basic issues such as productivity, efficiency, capacity utilisation and debates involved in the industrial development. The objective is to provide a thorough knowledge about the economics of industry in a cogent and analytical manner.

Attendance Requirements:
Students are expected to attend all lectures in order to be able to fully benefit from the course.
A minimum of 75% attendance is a must failing which a student may not be permitted to appear in examination

Evaluation Criteria:

1**.** Mid Term Examination: 20%
2. End Term Examination: 60%
3. Continuous Internal Assessment (CIA): 20%
    a. Attendance: 5%
    b. Comprehensive Continuous Assessment (CCA): 15%

COURSE CONTENT:

Unit-I: Framework of Industrial Economics and Market Structure   **(8 Hours)**
Concept and organisation of a firm - ownership, control and objectives of the firm

Elements of market structure - seller's concentration, product differentiation, entry conditions, economies of scale, market structure and profitability

Measurement of market concentration and Monopoly Power

Determinants of Profitability

Growth of the firm - the need for growth, conceptual framework for the theory of the growth of the firm

Unit-II: Mergers, Antitrust, Research, Development and Advertising   **(8 Hours)**

Theories of mergers - Horizontal mergers with homogeneous goods, differentiated goods mergers, Vertical restraints, Incomplete contracts and the boundaries of the firm

Patents and R&D incentives, network effects and technology adoption

Views on advertising - persuasive view, informative view, and complementary view, direct and indirect effects of advertising, Monopoly advertising, advertising and quality, entry deterrence and firm conduct

Unit-III: Project Appraisal   **(6 Hours)**

Methods of Project evaluation, Cost-benefit Analysis - Net Present Value (NPV) and Internal Rate of Return (IRR) criteria, balancing private and social returns

Unit-IV: Indian Industrial Growth and Pattern   **(10 Hours)**

Classification of industries, Industrial policy in India, Role of public and private sectors

Recent trends in industrial growth in India, MNCs and transfer of technology

Liberalisation and privatisation

Regional industrial growth in India, Industrial economic concentration and remedial measures

Issues in industrial proliferation and environmental preservation

Structure of industrial labour, employment dimensions of Indian industry, Industrial legislation, Industrial relations, Exit policy and social security, Labour market reforms

Unit-V: Industrial Finance in India and Regulation of Industry   (8 Hours)

Role, nature, volume and types of institutional finance, Sources of institutional finance - IDBI, IFCI, SFCs, SIDC, and commercial banks

Theories of regulation, the Regulation of entry, Competition Act, 2002, Effects of privatisation and competitive pressure on firms' cost margins, Impact of liberalisation on market disciplines and productivity growth, Puzzle of jobless growth in Indian manufacturing

Reading List

1. Armstrong, M. and R. H. Porter (Eds.), Handbook of Industrial Organisation, North Holland Elsevier, Vol. 3, 2007.
2. Barthwall, R. R., Industrial Economics, New Age International Publishers, 2010.
3. Clarkton, D. W. and S. M. Perloff, Modern Industrial Organisation, N.Y., Harper-Collins Publishers, 1994.
4. Davies, J. R. and S. Hughes, Managerial Economics, Estover, Plymouth: Macdonald and Evans, 1977.
5. Hay, D. and D. J. Morris, Industrial Economics: Theory and Evidences, Oxford University Press, London, 1979.
6. Martin, S., Industrial Economics: Economic Analysis and Public Policy, London, Macmillan Pub Co., 1989.
7. Martin, S., Advanced Industrial Economics, Oxford, Blackwell, 2002.
8. Needham, D., Economic Analysis and Industrial Structure, Holt, Rinehart and Winston, New York, 1969.
9. Reekie, W. D., Industrial Economics, Edward Elger, 1989.
10. Shepherd, W. G., The Economics of Industrial Organisation, Prentice Hall Inc., Englewood Cliffs, 1979.
11. Speight, H., Economics and Industrial Efficiency, Macmillan & Co., London, 1970.

ECON4026: Education Economics   (4 Credits)

Course Code: ECON4026
Course Title: Education Economics
Credits Equivalent: 4 Credits (One credit is equivalent to 1 hour of lecture per week)

Learning Outcomes:

This Course provides an introduction to the economic analysis of the investment in and provision of education.

Attendance Requirements:
Students are expected to attend all lectures in order to be able to fully benefit from the course.
A minimum of 75% attendance is a must failing which a student may not be permitted to appear in examination

Evaluation Criteria:

1. Mid Term Examination: 20%
2. End Term Examination: 60%
3. Continuous Internal Assessment (CIA): 20%
      a. Attendance : 5%
      b. Comprehensive Continuous Assessment (CCA): 15%

COURSE CONTENT:

Unit-I: Introduction   **(8 Hours)**
The economist's approach to the study of education and education policy, the organisation of educational markets, the economic rationale for government involvement in education, applying theoretical concepts and microeconomic models to the education sector

Measures of education attainment and achievement in India and abroad, Achievement gaps by race/ ethnicity, gender, immigrants, and socioeconomic background

Unit-II: Educational Production   **(8 Hours)**
Concepts of the production function in economics - inputs, outputs, input substitution, diminishing marginal returns, approaches to allocation of scarce resources in the production of education

Evidence on returns to class size, the Tennessee STAR experiment, Methodological challenges associated with evaluating the effects of peers and other educational inputs

Unit-III: Human Capital and the Return to Schooling   **(8 Hours)**
Human capital theory and the demand for education, the "signaling" model of schooling and wages, economists' measure of private returns to schooling and difficulties in measurement
Applications of economics to the study of higher education, Differences in college access by race, ethnicity, gender, and socioeconomic status, the role of primary and secondary schools, expectation and information, price, and financial aid in college access and success

Unit-IV: Financing Schools and School Accountability   **(8 Hours)**
An introduction to education finance in India and abroad, Federalism and the financing of public education, the impact of Right to Education (RTE) Act in India

The use of test outcomes to evaluate school performance and to promote the efficient use of school resources, Difficulties in measurement of school quality, and the unintended consequences of test-based accountability

Unit-V: Teacher Labour Markets and School Choice   (8 Hours)
Measuring teacher quality and teaching effectiveness, Correlation between different measurable attributes of teachers and student outcomes, Compensation to teachers, Factors that influence the demand for and supply of teachers, Teachers unions, Analysis of merit pay policies, Teacher labour markets in developing nations

The economic rationale for school choice, Framework for evaluating school choice policies, Market-based school choice policies, private schools versus public schools

Reading List
1. Becker G.S., (1964), Human Capital: A theoretical and empirical analysis with special reference to education, Columbia University Press, NY.
2. Belfield, C. R., (2000), Economic Principles for Education: Theory and Evidence, Edward Elgar Publishing Inc.
3. Brewer, D. J. and Patrick J. McEwan, (2010), Economics of Education, Elsevier.
4. Johnes, G. and J. Johnes, (2004), International Handbook on the Economics of Education, Edward Elgar Publishing Ltd, Cheltenham, UK.
5. Ladd, Helen F. and Margaret Goertz (eds.), (2015), Handbook of Research in Education Finance and Policy, 2nd edition, New York: Taylor & Francis.

ECON4027: Financial Economics   (4 Credits)

Course Code: ECON4027
Course Title: Financial Economics
Credits Equivalent: 4 Credits (One credit is equivalent to 1 hour of lecture per day)

Learning Outcomes:
The course on Financial Economics is designed to familiarize students with the financial system and its components viz. financial instruments, financial institutions, financial markets and financial regulations. The course covers contemporary theories of different financial markets including money market, capital markets (bonds, stocks and hybrids) and derivative markets.

Attendance Requirements:
Students are expected to attend all lectures in order to be able to fully benefit from the course.
A minimum of 75% attendance is a must failing which a student may not be permitted to appear in examination

Evaluation Criteria:

1. Mid Term Examination: 20%
2. End Term Examination: 60%
3. Continuous Internal Assessment (CIA): 20%

a. Attendance : 5%

b. Comprehensive Continuous Assessment (CCA): 15%

Unit I: The demand for securities and supply of securities (06 Hours)

The time dimension – Present value and duration – The calculation of yields on zero-coupon bonds – The term structure of interest rates – The risk dimension – Measurement of risk. Bivariate distributions–Conditional probabilities and expected values – Estimating the mean and variance of returns – Expected utility.

Regulations governing supply of securities – General characteristics of securities Government bonds – Index linked bonds – Corporate Securities – equities, bonds, convertible securities – Stock market operations – Money market funds – Claims on financial institutions.

Unit II: Securities markets and their efficiency (08 Hours)

Stock exchanges – The over the counter stock market – Operational efficiency and the Efficient Market Hypothesis(EMH) – The weak, semi-strong and the strong form of EMH. Shares as claims on future dividends and on corporate net worth – The Capital Asset Pricing Model (CAPM) – The simplest form – Estimating betas- Implications for portfolio management – Validity of CAPM – Arbitrage Pricing theory.

Unit III: Derivatives and Futures prices (10 Hours)

Uses of Derivatives – Futures contracts and futures markets – Forward contracts – The origins of Futures trading – Basic elements and organization of futures contracts. Relation among spot and futures prices – financial futures – commodity futures – Closing out with futures – Hedgers, speculators, market equilibrium – The role of expectations – Futures and portfolio management.

Unit IV: Options and Swaps (10 Hours)

Institutional aspects – Exchange traded stock options – The pay offs from buying and selling options – Boundary conditions on option prices – The put-call parity theorem – The Black-Scholes formula – Simple facts about the Merton Black-Scholes model – Brownian Motion process – Diffusion process. Pricing – What the hedge ratio ('Delta') – Gamma – Vega Theta – Rho means. Interest Rate Swaps – Swaptions – Other types of swaps – Currency, Equity and Commodity Swaps.

Unit V: Regulation of financial markets (06 Hours)

The ethics of finance and the economic function of financial markets – The purpose of regulation – levels of regulation – Securities Contract Regulation Act – Securities and Exchange Board of India (SEBI).

Reading List

1. Bruce Tuckman (2002), Fixed Income Securities, Willey Finance.

2. Chandra, Prasanna (2008), Investment Analysis and Portfolio Management, Tata McGraw Hills
3. David A. Dubofsky and Thomas W. Miller (2003), Derivatives: Valuation and Risk Management, OUP.
4. E. J. Elton and M.J. Gruber (1995), Modern Portfolio Theory and Investment Analysis, Wiley,London.
5. J. C. Hull (2004), Options, Futures and other Derivatives, Prentice- Hall, New Jersey
6. J. Cvitanic and Zapatero F (2004), Introduction to Economics and Mathematics of Financial Markets, MIT Press, Cambridge, London.
7. John Y. Campbell, Andrew W.Lo and A. Graig Mackinlay, (1997) The Econometrics of Financial Markets, Princeton University Press.
8. McGraw Hills, , Prentice-Hall of India
9. Shapiro, Alan C. (1999), 4th edition, Multinational Financial Management, International
10. Z. Bodie, A. Kane and A.J. Marcus (2004), Investments, Irwin McGraw – Hill, London.

ECON4028: Applied Econometrics   (4 Credits)

Course Code: ECON4028
Course Title: Applied Econometrics
Credits Equivalent: 4 Credits (One credit is equivalent to 1 hour of lecture per week)

Learning Outcomes:
The course on Applied Econometrics is designed to introduce the basic tools to analyze the relationships among economic and financial variables. Economic theory will be supported and complemented by empirical exercises.

Attendance Requirements:
Students are expected to attend all lectures in order to be able to fully benefit from the course.
A minimum of 75% attendance is a must failing which a student may not be permitted to appear in examination

Evaluation Criteria:

1. Mid Term Examination: 20%
2. End Term Examination: 60%
3. Continuous Internal Assessment (CIA): 20%
         a. Attendance : 5%
         b. Comprehensive Continuous Assessment (CCA): 15%

COURSE CONTENT:

Unit I: Demand Analysis and Consumption Function   **(06 Hours)**

Consumer Demand Analysis - Specification and Estimation of Demand Equations, Engel Functions and Curves, Linear Expenditure System, Review of Empirical Studies.

Estimates of the simple consumption function, Relative Income Hypothesis, Life Cycle Hypothesis, Permanent Income Hypothesis, Review of some empirical studies.

Unit II: Production and Cost Functions   (10 Hours)

Properties of the neoclassical production functions, Specification and Estimations of Production Function: Cobb-Douglas, CES, Trans-log, Review of Empirical studies, Functional forms and Estimation of Cost Functions, Estimation of Factor demand Equations, Estimation of productivity and efficiency, Review of Empirical Studies.

Unit III: Investment Function and Macro Econometric Models   (10 Hours)

Accelerator models, Distributed lag function, Macro Econometric Models, Forecasting, dynamic multipliers and policy analysis, Klein Model, Macro Econometric models for India, Review of some empirical studies.

Unit IV: Impact Evaluation   (06 Hours)

Introduction to Impact Evaluation, Causal Inference and Counterfactuals, Randomisation method, Regression Discontinuity Design, Propensity score matching (PSM) method, Differance-in-Differances (DD) Design, Instrumental Variable (IV) Method, Review of Empirical Studies.

Unit V: Other Topics   (08 Hours)

Models of Money Demand and Supply, Structure of Interest Rates, Phillips Curve, Review of Empirical Studies.

Missing Data and Imputation, Sample-selection Bias-Heckman correction: benefits, problems and alternatives; Median and Quantile Regression; Decomposition technique for linear regression models; Review of Empirical Studies.

Note: The students will be taught software packages for performing econometric applications. Computer exercises will be given to students.

Reading List

1. Colin Cameron, A. and Trivedi, Pavin K. (2003), *Microeconometrics: Methods and Applications*, Cambridge.
2. Deaton A. and John Muellbauer (1987), *Economics and Consumer Behaviour*, Cambridge University Press.
3. Kenneth F. Wallis (1979), *Topics in Applied Econometrics*, 2nd Edition, Blackwell Publisher, Oxford.
4. Paul Gertler, Christel M.J. Vermeersch, Laura B. Rawlings, Patrick Premand, Sebastian Martinez (2010), *Impact Evaluation in Practice*, The World Bank.
5. Pindyck, Robert S. and Daniel L. Rubinfeld (1997), *Econometric Models and Economic Forecasts*, 4th Edition, Irwin McGraw-Hill, New York.

6. Ramanathan, Ramu (2001), *Introductory Econometrics with Applications*, 5th Edition, Cengage Learning India Pvt. Ltd., New Delhi.
7. Thomas, R.L (1993), *Introductory Econometrics: Theory and Applications*, Longman, London.

ECON4029: Labour Economics   (4 Credits)

Course Code: ECON4029
Course Title: Labour Economics
Credits Equivalent: 4 Credits (One credit is equivalent to 1 hour of lecture per week)

Learning Outcomes:
This course provides an introduction to labour economics and applies economic analysis to understanding the functioning of labour markets. The course is both empirical and theoretical. It emphasises on labour market institutions and government policies that regulate the labour market.

 Attendance Requirements:
Students are expected to attend all lectures in order to be able to fully benefit from the course.
A minimum of 75% attendance is a must failing which a student may not be permitted to appear in examination

Evaluation Criteria:

1. Mid Term Examination: 20%
2. End Term Examination: 60%
3. Continuous Internal Assessment (CIA): 20%
      a. Attendance : 5%
      b. Comprehensive Continuous Assessment (CCA): 15%

COURSE CONTENT:

Unit-I: Supply of and Demand for Labour and Equilibrium   (12 Hours)
Static Labour-Leisure Choice, Effects of Social Programmes and Income Taxes, The Life-Cycle Model Investments in Human Capital, Collective Models of Household labour supply, Occupational Choice

Static cost, profit and labour demand functions, Elasticity of derived demand - the Hicks-Marshall rules, Adjustment costs and dynamic labour demand

Compensating differences, Evidence on premium for risky or nasty jobs, Efficiency wages, Segmented labour markets, migration

Unit-II: Macroeconomics of Labour Market   **(4 Hours)**
Classical analysis, Neoclassical analysis, Keynesian analysis, Dual and segmented labour market theory, Marxian alternative, Human capital theory, Flexibility and institutions in labour market

Unit-III: Wage Structure and Earnings   **(8 Hours)**
Industry wage differentials, Productivity and real wages, Returns to education, Signaling, Pensions and retirement, Training, Minimum wage laws

Economic effects of prejudice, Wage differentials by race and sex

Equilibrium models of employment fluctuations, real wages over the Business cycle

Earnings by size, The Roy model, Functional distribution, Intergenerational income mobility

Unit-IV: Unemployment and Labour Contracts   **(6 Hours)**
Definition and measurement of unemployment, variations over time and space, job search, effects of unemployment insurance

Employment determination, Allocation of risk, Compensation, Bonding, Incentive pay, Multi-tasking, Team production, Relational contracts, Career concerns, Wages and promotions

Unit-V: Unions, Regulations and International Labour Standards   **(10 Hours)**
Objectives and political structure, Bargaining theories, Relative wage effects, Strikes, Union growth and decline, Unions in the public sector, Union-Oligopoly models

Regulation of labour, Experience of India vis-s-vis other countries, Entry and product market

International labour standards, Comparative analysis, International trade and labour markets

Reading List

1. Ashenfelter, O. and Layard, R., (1999), The Handbook of Labor Economics, Volumes 1 & 2, North-Holland, 1986, Volume 3A, 3B & 3C, 1999.

2. Borjas, G., (1996), Labor Economics, McGraw-Hill Companies, New York.

3. Fine, Ben, (1998), Labour Market Theory: A Constructive Reassessment, Routledge, New York.

4. Kaufman, B. E. and Hotchkiss, J. L., (1999), The Economics of Labor Markets, Fort Worth: TX: Dryden Press.

5. Killingsworth, M., (1983): Labor Supply, Cambridge University Press, Chapters 1,2 & 7.

6. Hamermesh, D., (1993), Labor Demand, Princeton University Press.

7. Seth, V. K. and S. C. Aggarwal, (2004), The Economics of Labour Markets: Policy Regime Changes and The Process of Labour Adjustment in the Organised Industry in India, Ane Books, New Delhi.