CENTRAL UNIVERSITY OF ANDHRA PRADESH
ANANTHAPURAMU

Vidya Dadati Vinayam
(Education Gives Humility)

M.Sc. Economics

"Economics is a study of mankind in the ordinary business of life"

- Alfred Marshall (1890)

Structure and Syllabus
(2021-2022 Batch)

CONTENTS

CENTRAL UNIVERSITY OF ANDHRA PRADESH
M.Sc. Economics

Important Information to Students

I.   Programme: M.Sc. Economics

II. Eligibility: A Bachelor's degree in Economics with at least 50% marks in aggregate and at least 50% marks in Economics; Or Bachelor's degree with at least 60% marks in any of the allied subjects viz. Commerce, Statistics, Mathematics, Engineering or any of the Social Sciences subjects.

III. The minimum duration for completion of the programme is four semesters (two academic years) and the maximum duration is eight semesters (four academic years) or as per amendments made by the regulatory bodies from time to time.

A student should attend at least 75% of the classes, seminars, practicals in each course of study.

IV. All theory courses in the programme carry a Continuous Internal Assessment (CIA) component to a maximum of 40 marks and End Semester Examination (ESE) for a maximum of 60 marks. The minimum pass marks for a course is 40%.

All lab components carry a Continuous Internal Assessment (CIA) component to a maximum of 60 marks and End Semester Practical Examination (ESE) for maximum of 40 marks. The minimum pass marks for a course in 40%

V.   A student should pass separately in both CIA and the ESE, i.e., a student should secure 16 (40% of 40) out of 40 marks for theory and 24 (40% of 60) out of 60 marks for lab components in the CIA. Therefore, a student should secure 24 (40% of 60) out of 60 marks for theory and 16 (40% of 40) out of 40 marks for lab components in the end semester examination.

VI. A student failing to secure the minimum pass marks in the CIA is not allowed to take the end semester examination of that course. S/he has to

redo the course by attending special classes for that course and get the pass percentage in the internal tests to become eligible to take the end semester examination.

VII. Students failing a course due to lack of attendance should redo the course.

VIII. Re-evaluation is applicable only for theory papers and shall not be entertained for other components such as practicals/ thesis/dissertation/ internship, etc.

IX. An on-campus elective course is offered only if a minimum of ten or 40% of the students registered, whichever is higher, exercise their option for that course.

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Introduction to the Programme

M.Sc. Economics is one of the new postgraduate programmes being offered by CUAP in 2021-22 academic year. This programme provides the students with great opportunity in job seeking, higher education and research. While preparing the syllabus of the core courses and the basket of elective courses one has to take into account to provide the following points.

a) The core courses should help the students to write the competitive examinations (like CSIR - UGC NET) to pursue Economics at the later years.

b) The course quantitative techniques, statistics and econometrics should contain deeper analysis for economic modelling and research.

c) Computer applications in economics provide ability to plot the graphs, tabulation and data analysis.

d) The elective courses should facilitate the student to seek jobs or for the specialization in research.

e) This programme additionally provide freedom to the students to choose elective courses that are inter-disciplinary.

f) The student-centric approach of the curriculum has been designed to equip learners with appropriate knowledge, skills and values of the discipline.

Objectives of the Programme:

Upon completion of the M.Sc. Economics seek to:

➢ Prepare students to improve critical thinking and pragmatic investigation about several economic and also socio-economic issues quantitative and qualitatively.

➢ Train the students to acquire the ability to associate the gap between theory and practice in the applied manner.

➢ Equip the student with skills to analyse problems, formulate and

hypothesis, evaluate and validate results and draw reasonable conclusions thereof.

➤ Prepare students innovatively to grab employment through entrepreneurship, research and other careers.

➤ Prepare students to gain knowledge, own thinking capacity, delivering opinions regarding contemporary national or international issues and policies.

Learning Outcomes of the Programme:

On successful completion of the programme students:

➤ Acquire the theoretical and practical training in core economic areas, i.e., microeconomics, macroeconomics, growth theories and also Mathematics, statistics and econometrics.

➤ Comprehend the basic hypothesis in distinct economic theories and augment capabilities of developing ideas based on them.

➤ Instruct, train and encourage in higher academics like research studies in economics specifically preparing questionnaire, data collection through various sources like secondary, primary (field) survey, research writings.

➤ Knowledge a wide range of econometric techniques using statistical software.

➤ Better furnished in policy formulation and economic administration.

➤ Motivate in preparing for various competitive examinations, NET, GATE, SET, Indian Economic Service etc., by developing or gaining value addition from current updates.

CENTRAL UNIVERSITY OF ANDHRA PRADESH
M.Sc. Economics : Semester and Course wise Credits

Semester	Discipline Core (DSC) (L+T+P)	Discipline Elective (DSE) / Elective (EL)	Skill Enhancement Compulsory Courses (SEC)	Internship	Project Work / Dissertation	Lab	Total Credits
I	DSC 1 (4) DSC 2 (4) DSC 3 (4) DSC 4 (3)	EL 1 (4) EL 2 by MOOC (4)				DSC 4 (1)	24
II	DSC 5 (4) DSC 6 (4) DSC 7 (4) DSC 8 (3)	EL 3 (4) EL 4 by MOOC (4)				DSC 8 (1)	24
III	DSC 9 (4) DSC 10 (4) DSC 11 (3)	EL 5 (4) EL 6 by MOOC (4)	SEC 1 (1)	SEC 2 (Internship (2))		SEC 1 (1) DSC 11 (1)	24
IV	DSC 12 (4)	EL7 by MOOC (2)			DSC 13 (6) Dissertation		12
Total	45	26	1	2	6	4	84
Percentage	53.57	30.95	1.19	2.38	7.14	4.76	-

CENTRAL UNIVERSITY OF ANDHRA PRADESH
M.Sc. Economics
Programme Structure

S. No.	Course Code	Title of the Course	Number of Credits	Contact Hours		
				L	T/L	P/S
Semester – I						
1	MEC101	Microeconomic Theory-I	4	48	6	6
2	MEC102	Macroeconomic Theory-I	4	48	6	6
3	MEC103	Mathematical Methods	4	48	6	6
4	MEC104	Statistical Methods	3	39	-	6
		Lab: Statistical Methods	1	-	23	-
5	MEC105	MOOC-I/Online/Elective	4	-	-	-
6	MEC106	Add on Course	-	20	-	10
7	**Elective-I** **(any one of the paper from below list)**		4	48	6	6
	MEC115	Public Economics				
	MEC116	Industrial Economics				
	MEC117	Financial Economics				
		Total	24	251	47	40

S. No.	Course Code	Title of the Course	Number of Credits	Contact Hours		
				L	T/L	P/S
Semester – II						
1	MEC201	Microeconomic Theory-II	4	48	6	6
2	MEC202	Macroeconomic Theory-II	4	48	6	6
3	MEC203	Economics of Development & Growth	4	48	6	6
4	MEC204	Econometrics-I	3	39	-	6
		Lab: Econometrics-I	1	-	23	-
5	MEC205	MOOC-II/Online/Elective *	4	-	-	-
6	MEC206	Add on Course	-	20	-	10
7	**Elective-II** **(any one of the paper from below list)**		4	48	6	6
	MEC215	Energy Economics				
	MEC216	Game Theory and Information				
	MEC217	Monetary Economics				
		Total	24	251	47	40

S. No.	Course Code	Title of the Course	Number of Credits	Contact Hours L	Contact Hours T/L	Contact Hours P/S
Semester – III						
1	MEC301	International Economics	4	48	6	6
2	MEC302	Research Methodology	4	48	6	6
3	MEC303	Econometrics-II	3	39	-	6
		Lab: Econometrics-II	1	-	23	-
4	MEC304	Computer Applications in Economics-I	1	15	-	-
		Lab: Computer Applications in Economics-I	1	-	23	-
5	MEC305	Internship	2	-	-	-
6	MEC306	MOOC-III/Online/Elective *	4	-	-	-
7		**Elective-III (any one of the paper from below list)**	4	48	6	6
	MEC315	Environmental Economics				
	MEC316	Labour Economics				
	MEC317	Time Series Applications				
		Total	**24**	**198**	**64**	**24**

S. No.	Course Code	Title of the Course	Number of Credits	Contact Hours L	Contact Hours T/L	Contact Hours P/S
Semester – IV						
1	MEC401	Indian Economic Development and Policy	4	48	6	6
2	MEC402	Dissertation/Project	6	85	-	5
3	MEC403	MOOC-IV/Online/Elective*	2	-	-	-
		Total	**12**	**133**	**6**	**11**

Note :   *As per the choice of the students and the instructor

      L: Lectures; S: Seminars; P: Presentations; L: Lab; T: Tutorials

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Credit Distribution

Semester	Total Credits	Cumulative Credit at the end of the Semester
Semester-I	24	24
Semester-II	24	48
Semester-III	24	72
Semester-IV	12	84

Required Credit : The minimum required credit to be earned by the student to award the degree is 84. However, they can earn credits in excess of 84 by taking other courses. The upper limit will be 88 credits.

Assessment Pattern:

Theory Course: 40% of internal [formative evaluation -- two best out of three tests (for a maximum of 15 marks each = 30marks) -- and seminar/ assignments/ attendance (10 marks)] and 60% (summative evaluation -- end of semester examination)

Lab components: 60% of internal exam/lab and 40% (summative evaluation -- end of semester examination)

End Semester Examination

Maximum Marks: 60　　　　Time: 3 Hours

Dissertation

Dissertation/Project report:　Evaluation - 60 marks

Viva-Voce　- 40 marks

SEMESTER-WISE DETAILED SYLLABUS

SEMESTER-I

Course Code : **MEC101** Core/ Elective : **Core** No. of Credits : **4.00**	Course Title **Microeconomic Theory-I**

Course Objectives:

The aim of this course is:

- To familiarize the students with the economic behaviour of individuals, firms and markets.
- To analyse the various aspects of consumer behaviour, theory of production, price and output determination and theory of general equilibrium.

Course Learning Outcomes:

By the end of the course, students are expected;

- To understand economic behaviour of individuals, firms and markets.
- To apply mathematical tools and techniques to study behaviour of economic agents.

Course Outline:

Unit-I:

Theory of Consumer Behaviour: Consumption Decision - Optimisation under alternative preference structures - Duality - Utility, indifference curves and revealed preference; Comparative statics of the consumer's decision - Slutsky equation, normal versus inferior goods, derivation of demand curves; demand elasticity; Welfare evaluation - Consumer surplus, equivalent variation and compensating variation. Utility theory under Uncertainty - Expected utility function, measures of risks.

Unit-II:

Production and Cost: Production functions, types of production functions (Cobb-Douglas, CES, Duality etc.), marginal products, rate of technical substitution, technical progress, cost functions, average and marginal costs, short run versus long run costs, economies of scale and scope, profit maximization, cost minimization, derivation of input demand, Traditional and modern theories of Costs - Derivation of cost curve from production function.

Unit-III:

Competitive Markets: Assumptions of perfect market, competitive markets - Demand and supply, demand and supply curves of individual firms, short-run versus long-run, competitive market equilibrium, tax incidence analysis, price-controls and shortages.

Unit-IV:

Imperfect Competition: Imperfect markets, sources of monopoly power, monopoly market equilibrium, price discrimination - First, second and third degree, tax incidence; Monopolistic Competition; Oligopoly-non collusive (Cournot, Kinked demand curve and Stackelberg's solution); Bertrand Oligopoly Model and collusive (cartels and mergers, price leadership and basic point price system) models.

Unit-V:

Pricing Principle: Pricing principle - Break-even Analysis - Average or full cost pricing - Mark up pricing - Limit pricing theory - Bains version - Silos - Labini model of limit pricing.

References:

Varian, H. R., *Microeconomic Analysis*. Indian edition, W.W. Norton and Co., 2009.

Mas-collel, Whinston and Green, *Microeconomic Theory*. OUP, 1995.

Gravelle, H and R. Rees, *Microeconomics*. Pearson Education, 3rd Edition, 2004

Henderson, M. and R.E. *Quandt, Microeconomic Theory: Mathematical Approach*. McGraw Hill, 3rd edition,1980

Koutsoyiannes. A, *Modern Microeconomics*. Macmillan Press Limited, New York, 2000.

Varian, H. R., *Intermediate Microeconomics: A Modern Approach*. 3rd edition, 2010.

Nicholson, W., *Microeconomic Theory: Basic Principles and Extensions*. eighth edition, South Western Thomson Learning, 2002

Salvatore, Dominick, *Micro Economics Theory & Applications*, Oxford University Press, Inc. 198 Madison Avenue. New York, 2003.

Sen, Anindya, *Micro Economic Theory and Applications*, Oxford University Press, New Delhi, 1999.

Stigler. G, Theory of Price, *Prentice Hall of India*. 4th Edition, New Delhi, 1996.

Roy Choudhary. K, *Microeconomics*. Vol 1. Khosla Publishing House, 2003.

Course Code : **MEC102**	Course Title
Core/ Elective : **Core**	**Macroeconomic Theory-I**
No. of Credits : **4.00**	

Course Objectives:

- This course attempts to build the theoretical understanding of students from classical to contemporary macroeconomics.
- It aims to improve the macroeconomic analytical skills that are applied in different branches of economics.

Course Learning Outcomes:

By the end of the course, students are expected to:

- Understand how critical macroeconomic variables like income, employment, and prices are determined. What are the factors that influence these variables.

Course Outline:

Unit-I:

National Income Accounting: Accounting structure, key concepts in accounting for both closed and open economies - Gross national product, gross domestic product, net national product, national income, savings and investment, balance of payments, circular flow of income, computational problems - Expenditure approach, income approach and value added approach for measurement, input-output tables; Measuring the Cost of Living (consumer and whole sale price indices).

Unit-II:

Theories of Consumption: Difference between Potential Output and Actual Output- Classical Approach, Determination of output and employment Effects of change in Aggregate Demand and Supply Curves - The Psychological Law of Consumption - Kuznets's Consumption Puzzle - Fisher's Inter-temporal Choice Model - Permanent Income Hypothesis - Life Cycle Hypothesis.

Unit-III:

Theories of Investment: The Neoclassical Theory of Investment - Capital Theory and Theory of the Firm - Finance and the Cost of Capital - The Accelerator Theory of Investment - The Stock Market and Tobin's Q Theory - Inflation and Investment - Policies affecting Investment.

Unit-IV:

Theories of Money Demand and Money Supply: Baumol Inventory Theory Approach - Liquidity Preference as Behavior towards - Risk (James Tobin) - A Restatement of Quantity Theory of Money (Milton Friedman) the Buffer Stock Notion (David Laidler) - Partial Adjustment Mechanism. The Concept and Measurement of High Powered Money - Sources of Variation in High Powered Money - The Money Multiplier Model - Factors affecting Money Multiplier - Behavioural Model of Money Supply - The Portfolio Model of Money Supply.

Unit-V:

Neoclassical and Keynesian Macroeconomic Models: The Neoclassical and Keynesian version of IS-LM Model - Fiscal and Monetary Policy in ISLM Model - Fiscal Policy and Crowding out - Ricardian Equivalence - The Relative Efficacy of Fiscal and Monetary Policy - The Aggregate Supply in the Short and Long Run - Aggregate Demand and Price Determination - Pigou Effect and Real Balance Effect in the IS-LM Model - Aggregate Demand in the Open Economy - The Mundell-Fleming Model - The Fiscal and Monetary Policy Operation under Fixed and Floating Exchange Rate Regime.

References:

D'souza Errol, *Macroeconomics*. Person Publication, New Delhi, 2008.

David Romer, *Advanced Macroeconomics*. 4th edition, McGraw-Hill Irwin, 2012.

Brian Snowdon and Howard R. Vane, *Modern Macroeconomics: It's Origins, Development and Current State*. Edward Elgar, UK, 2005.

Mankiw, N. Gregory, *Principals of Macroeconomics*. Seventh edition, Cengage Learning, 2014.

Blanchard, O., and S. Fischer, *Lectures on Macroeconomics*. Cambridge, MA: MIT Press, 1989.

Taylor, Lance, *Reconstructing Macroeconomics - Structuralist Proposals and Critiques of the Mainstream*, Harvard University Press, Cambridge, Massachusetts, 2004.

Obstfeld, M., and K. Rogoff, *Foundations of International Macroeconomics*. Cambridge, MA: MIT Press, 1996.

Dornbusch et al, *Macroeconomics.* 10th ed, Tata McGraw Hill, New Delhi, 2008.

Samuelson, P. A and Nordhaus W. D, *Macroeconomics*, McGraw Hill, 2012.

Scarth, W. *Macroeconomics: An Introduction to Advanced Methods*, Titles on Demand, 2010.

R. T. Froyen, *Macroeconomics*, *Theory and policies*, Prentice Hall, 2008.

Course Code : **MEC103**	Course Title
Core/ Elective : **Core**	**Mathematical Methods**
No. of Credits : **4.00**	

Course Objectives:

The course aims at teaching the learners to:

- Understand the methods of representing data in graph and matrix.
- Understand the techniques of calculus, optimization, and their application in economics.
- To communicate economic ideas and make economic arguments with the help of mathematical equations.

Course Learning Outcomes:

By the end of the course, students are expected to;

- Familiar with differential calculus, Linear algebra, optimization, and dynamics.
- Apply quantitative techniques for economics analyse and research.

Course Outline:

Unit-I:

Differential Calculus: Introduction to Functions and Real Analysis; Derivatives - Partial and total, economic applications, marginal and elasticity concepts, functions of several variables, implicit function theorem, higher order derivatives and Young's theorem, Taylor's approximation, convex sets, convex and concave functions, properties of linear homogenous functions, Euler's theorem.

Unit-II:

Linear Algebra: Vectors, matrices, inverse, simultaneous linear equations, Cramer's rule for solving system of linear equations, input-output model, Hawkin - Simon condition, open and closed models quadratic equation, characteristic (eigen) roots and vectors.

Unit-III:

Classical Optimization and Applications: Introduction to quadratic forms, unconstrained optimization, constrained optimization with equality constraints, Lagrangian method, Hessian and Jacobian matrices, applications - utility maximization, cost minimization, profit - output maximization.

Unit-IV:

Linear and Non-linear Optimization: Duality theory, constrained optimization with inequality and non-negativity constraints, Kuhn- Tucker formulation, linear programming - Formulation, primal and dual, solutions using graphical and Simplex methods, applications from economics and finance.

Unit-V:

Dynamics: Definite and indefinite integrals, applications - Measuring consumer and producer surplus, continuous interest - Discount calculations, difference and differential equations, phase diagrams, Cobweb model, multiplier accelerator, Harrod-Domar and Solow model.

References:

Simon, C. and L. Blume, *Mathematics for Economists*. Norton, London, 1994.

Ok, E. A., *Real Analysis with Economic Applications*. Princeton University Press, 2007.

Sydsaeter, K., Hammond, P., Seierstad, A., & Strom, A. *Further mathematics for economic analysis*. Pearson education, 2008

Wainwright, K, *Fundamental methods of mathematical economics*/Alpha C. Chiang, 2005.

Bartle, R. G., & Sherbert, D. R, *Introduction to real analysis.* (Vol. 2). New York: Wiley, 2000.

Chiang, A. C., *Fundamental Methods of Mathematical Economics*. McGraw-Hill, 1984.

Knut Sydsaeter and Peter J. Hammond, *Mathematics for Economic Analysis*. Pearson Education Asia, 1995.

M.D. Intriligator, *Mathematical Optimization and Economic Theory*. Prentice-Hall,1971.

Roberts. B. and D. L. Schultze, *Modern Mathematics and Economic Analysis*. W.W. Norton and Company, 1973.

Course Code : **MEC104**	Course Title
Core/ Elective : **Core**	**Statistical Methods**
No. of Credits : **4.00**	

Course Objectives:

The course aims to:

▪ Make students thoroughly understand the different approaches to probability theory, calculation of probability in different situations, probability distribution, and process of testing hypothesis, estimation and inferential statistics.

Course Learning Outcomes:

By the end of the course, the students will understand:

▪ The functionality of probability distribution and testing of hypothesis in economic decision making.

Course Outline:

Unit-I:

Probability Theory: Concepts of probability, Addition and multiplication theorems of probability, conditional probability and Bayes' theorem; Random variables -discrete and continuous, Density and distribution functions.

Unit-II:

Probability Distributions: Discrete versus continuous distribution, uniform, Binomial, Poisson, hyper-geometric, exponential, and normal distribution. Bi-variate probability distribution, marginal and conditional distribution, statistical independence, characteristic function and moment generating function, functions of random variables.

Unit-III:

Sampling Methods and Sampling Distributions: Probability and non-probability sampling, Simple random sampling: with and without replacement, stratified random sampling, statistic and sample moments, sampling

distributions: Standard Normal (Z), Student's-t, Chi-square and F-distribution, determinants of sample size, law of large numbers and Central Limit theorem

Unit-IV:

Estimation: Point estimation of population mean for large sample and small sample, estimation of population proportion and population variance, introducing alternate estimation techniques, properties of good estimators: unbiasedness, consistency, efficiency, sufficiency, Interval estimation.

Unit-V:

Hypothesis Testing: Statistical hypothesis, simple versus composite hypothesis, critical region, types and size of error - type-I and type-II error, power of a test, p-value, Hypothesis test about: a population mean, population proportions, difference between two population means, difference between two proportions, a population variance, the ratio of two population variances, Tests of goodness of fit, the analysis of contingency tables (Chi-square test for testing independence of two classification criteria), test for correlation.

References:

Ross, S. M, *Introduction to probability models*. Academic press, 2014.

Ross, S, *A First Course in Probability.* 8th Edition, 2009.

Pearson. Chung, K. L, *Elementary probability theory with stochastic processes*. Springer Science & Business Media, 2012.

Clark, Megan J. and John A. Randal , *A First Course in Applied Statistics*. Pearson education, New Zealand, 2011.

Ken Black, *Business statistics*. John Wiley, student edition, 2004.

Levin R.I, *Statistics for management*. Prentice hall Inc, Paperback, 2008.

Allen Webster, *Applied Statistics for Business and Economics*. McGraw-Hill International Edition, 1998.

Nagar, A.L. and R.K Das, *Basic Statistics*, Oxford University Press,1983.

Hogg, R. and A. Craig, J., *Introduction to Mathematical Statistics*, McGraw-Hill, 1965.

Miller, I. and M. Miller, *Mathematical Statistics*. 6th edition, Prentice Hall International, 1999.

Mood, A. M., R. A. Graybill and R.C. Boes, *Introduction to the Theory of Statistics*, McGraw-Hill, 1974.

Course Code : **MEC115**	Course Title
Core/ Elective : **Elective**	**Public Economics**
No. of Credits : **4.00**	

Course Objectives:

- To discusses some facets of public economics from public goods to social security and taxes.
- To focuses on various instances of market failures and considers alternative government responses.
- To emphasises on the various social security measures and their implications.

Course Learning Outcomes:

Upon successful completion of the course students will be able to :

- Appreciate government policies from the point of view of economic efficiency and equity.
- Carry out a critical analysis of government policies, given the constraints, and propose appropriate interventions.

Course Outline:

Unit-I:

Introduction to Public Economics: Role of government, Changing perspectives, government in a mixed economy. Private goods, public goods and merit goods. Market failure and its causes - Imperfections, decreasing costs, externalities, public goods. Private and public mechanism for allocating resources. Fundamental principle of public finance - Maximum Social Advantage. Problems for allocating resources, Arrow's Impossibility theorem - Political equilibrium - Voluntary exchange model and Samuelson's impossibility of decentralised provision of public goods; Tiebout mode, Cost-benefit analysis - Measuring the costs of public projects, measuring the benefits of public projects.

Unit-II:

Public Revenue: Indian tax system; Revenue of the Union, State and local bodies; Direct and Indirect taxes - GST, taxation of agriculture, expenditure tax, reforms in direct and indirect taxes; Non-tax revenue. Effects of taxation, Principle of taxation - Benefit theory, Ability to pay theory, features and trend of Indian tax system, problem of double taxation. Tax evasion and the black economy.

Unit-III:

Public Expenditure: Theories of public expenditure, Cost Benefit Analysis, Social Rate of Discount, Shadow Prices; Social Security; consumption-smoothing benefits of social security, social security and retirement, optimal social insurance; unemployment benefits; health and insurance; income distribution and welfare programs; welfare policies in the India; moral hazard costs of welfare policy; cash transfers; universal basic income.

Unit-IV:

Public Debt: Sources of public borrowing, importance of public borrowing, effects of public debt, tax vs. debt, burden of public debt, shifting of debt burden, Public Borrowings and Price Level; Crowding Out of Private Investment, methods of debt redemption, trends and pattern of public debt in India. Issues in public debt management.

Unit-V:

Budgetary Policy and Fiscal Federalism: Balanced vs. unbalanced budget, budget as an instrument of economic policy, Objectives of fiscal policy, Interdependence of fiscal and monetary policies; budgetary deficits and its implications; Zero based budgeting; salient features of the most recent union budget of India. Fiscal federalism in India; Resource transfer from Union to States, Centre-State financial

References:

Musgrave, R.A. and P. B. Musgrage, *Public Finance in Theory and Practice.* McGraw Hill, Kogakusha, Tokyo, 2017.

Gruber, J, *Public Finance and Public Policy*. 5th edition, Worth Publishers, 2016.

Rosen, H. and Gayer, T, *Public Finance*. 10th edition, McGraw-Hill, 2014.

Stiglitz, J. and Rosengard, J, *Economics of the Public Sector*. 4th edition, W. W. Nor-ton & Company, 2015.

D K Srivastava, *Issues in Indian Public Finance,* New Century Publications, Delhi, 2005.

Auerbach, A., Chetty, R., Feldstein M. and Saez, E, *Handbook of public economics*. vol. 5, 2013.

T. N. Hajela, *Public Finance*. ANE Books Pvt. Ltd, New Delhi, 2009.

Hindriks, Jean and Gareth D. Myles, *Intermediate Public Economics*. Prentice Hall of India, 2006.

Raja Jesudoss Chelliah, D K Srivastava, U Sankar, Development and Public Finance: Essays in Honour of Raja J. Chelliah, , SAGE Publications, New Delhi, 2012.

Goode, R, *Government Finance in Developing Countries*. TMH, New Delhi, 1986

Jha. R, *Modern Public Economics*. Routledge, London, 1998

Atkinson, A.B. and J.E. Siglitz, *Lectures on Public Economics*. TMH, New York, 1980

Herber, B.P, *Modern Public Finance*. Richard D. Irwin, Homewood, 1967

Atkinson, A and Stiglitz, J, *Lectures in Public Economics*. Mc GrawHill, New Delhi, 1980

Cullis, J. and P. Jones, *Public Finance and Public Choice*. (2nd edition), Oxford University Press, 1998

Government of India: Ministry of Finance, Budget Documents, various years. Central Statistical Organisation (CSO), National Account Statistics, Various years.

Course Code : **MEC116**	Course Title
Core/ Elective : **Elective**	**Industrial Economics**
No. of Credits : **4.00**	

Course Objectives:

- To provide an introduction to theory and empirical work in Industrial Economics.
- To analyse various aspects of strategic interaction between firms and the determinants of industrial structure.
- Discusses the role of policy in the context of competition and industrial policies and regulation.

Course Learning Outcomes:

By the end of this course students will be able to:

- Analyse and interpret deals the concepts of industry, market product, industrial locations and industrial marketing and various aspects of strategic interaction between firms and the determinants of industrial structure.

Course Outline:

Unit-I:

Organizational Form and Structure and Productivity: Organisational forms - Types and choice of form of organization; Business motives - Alternatives types of motives/goals, Evaluation of goals. Market structure: Seller's Concentration; Product Differentiation; Profitability; Innovation Industrial Productivity- Measurement; Partial and total trends.

Unit-II:

Market Conduct and Efficiency: Market conduct - Theories of Product pricing; Investment expenditure - Methods of investment expenditure; Theories and empirical evidence on Merger and Acquisition (M&As) and Diversification. Economic efficiency - Meaning; factors determining efficiency and firm size; limits and obstacles to the size of firm-a synthesis on the size of firm, efficiency and decision making process.

Unit-III:

Theories of Industrial Location and Pattern: General determinants of industrial location; Approaches to industrial location analysis: - Alfred Weber's theory; Sergeant Florence's theory of industrial location, Market area theory, Central place theory of Losch; Industrial imbalances - Causes and remedies; Need for balanced regional development of industries; Government policy and approach for the development of backward regions in India.

Unit-IV:

Indian Industrial Growth and Labour: Industrial policy in India - Role of Public and private sectors; recent trends in Indian industrial growth; policies and program for the development of small scale industries in India. Industrial labour- Problems, policies and reforms in India; Industrial legislation and social security measures in India.

Unit-V:

Industrial Finance: Importance of finance to industrial development, Owned, and external funds for industrial development; Role, and types of institutional finance- functions of IFCI, IDBI, SIDBI, MSFC,ICICI, SFCs, SIDC, commercial banks, etc., in industrial development, trend and problems of industrial finance in India.

References:

Cabral, L.M.B., *Introduction to Industrial Organization*. Second edition, MIT Press, 2017.

Belleflamme, P., Peitz, M., *Industrial Organization*. Markets and Strategies. Second edition, Cambridge University Press, 2015.

Hay, D A and Morris D J, *Industrial Economics: Theory and Evidence*, Oxford University Press, New Delhi, 1979.

Divine, P.J. and R.M. Jones et. al., *An Introduction to Industrial Economics*, George Allen and Unwin Ltd., London, 1976.

Barthwal, R. R, *Industrial Economics*, Wiley Eastern limited, New Delhi, 1985.

Seth R, *Industrial Economics*, Ane Books Pvt Ltd, 2010.

Reserve Bank of India, Special Issues on Industry and Government of India, Economic Survey (Annual).

Course Code : **MEC117**	Course Title
Core/ Elective : **Elective**	**Financial Economics**
No. of Credits : **4.00**	

Course Objectives:

The objective of this course is to provide:

- A comprehensive introduction to the functioning of financial markets in the emerging context of deregulations and globalization of markets.
- Equip the students with the tools and technical apparatus necessary to analyze modern literature on financial markets and financial institutions.

Course Learning Outcomes:

On successful completion of this course, students will be able to:

- Familiar with the basic economic and financial economic concepts necessary to understand the functioning of the financial institutions / markets, and government systems.

Course Outline:

Unit-I:

Financial Markets and Financial Instruments - The place of financial markets in the economy - Real assets and financial assets - A frame work for macroeconomic analysis of financial and nonfinancial flows - The relation between stocks and flows - Rate of interest - International transactions - exchange rate. **The cost of Capital:** The cost of debt and preferred stock - capital structure - Financial leverage - Dividend policy - Cash dividends and dividend payments - Stock repurchases - Stock dividends and stock splits.

Unit-II:

Securities: The supply of securities - Regulations governing supply of securities - General characteristics - Government bonds - Index linked bonds - Corporate securities - Equities, bonds, convertible securities - Mutual fund

shares - Money market funds - Claims on financial institutions. **The demand for securities:** The time dimension -Present value and duration - Calculation of yields on zero coupon bonds - Term structure of interest rates - The risk dimension - Measurement of risk. **Securities markets and their efficiency:** stock exchanges - The over the counter market - operational efficiency and efficient market hypothesis (EMH).

Unit-III:

The Determinants of Equity Prices: shares as claims on future dividends and corporate net worth - The capital asset pricing models (CAPM), implications for portfolio management - Modified CAPM - Arbitrage pricing theories (APT). **Security Analysis and Market Efficiencies:** modern view of security analysis - Macroeconomic developments and securities market - Performance of securities market - Industry growth and firm specific factors - Uses and pitfalls of price /earning ratios. **Derivatives:** Uses of derivatives - Futures contracts and future markets - Forward contracts.

Unit-IV:

Future prices: relation among spot prices and future prices - Financial futures - Commodity futures - Closing out with futures - Hedgers, speculators, market equilibrium - The role of expectations - Futures and portfolio management. **Options and Option Pricing:** institutional aspects - Exchange traded stock options - The payoffs from buying and selling options - Boundary conditions on option prices - The put-call parity - The Black Scholes formula - Other option models. **Swaps, Currency and Interest Rate Swaps:** Vanilla interest rate swaps - Swaptions - Other types of Swaps - Currency, equity and commodity swaps.

Unit-V:

Regulations of Financial Markets: The ethics of finance and economic function of financial markets - The purpose of regulation - levels of regulation - Securities Contract Regulation Act - SEBI.

References:

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Bhole, L.M, *Financial Institutions and Markets: Structure, Growth and Innovation*. Tata McGraw-Hill Publishing Company Limited, New Delhi, 1991.

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Brahmaiah, B. and P. Subba Rao, *Financial Futures and Options*, Himalaya Publishing House, Mumbai, 1998.

Campbell, J.Y, A.W. Lo and A.C. Mackinlay, *The Econometrics of Financial Markets.* Princeton University Press, 1997.

Chandra, P, *Financial Management: Theory and Practice*. Galgotia Publishers, 1999.

Chi-Fu Huang and R.H. Litzenberger, *Foundations for Financial Economics*. North Holland, New York, 1988.

D.G. Luenberger, *Investment Science*, Oxford University Press, New York, 1998.

Damodharan, Aswath, *Corporate Finance Theory and Practice*, John Wiley and Sons, 1997.

E. J. Elton and M.J. Gruber, Modern Portfolio Theory and Investment Analysis, Wiley, London.

Eicjberger, Jurgen and I R Harper, *Financial Economics*. Oxford University Press, 1997.

Grainblatt, M. and S. Titman, *Financial Markets and Corporate Strategy*. McGraw Hill International Edition, 1998.

Houthakar, H.S. and P.J. Williamson, The Economics of Financial Markets. Oxford University Press, 1996.

Hung, C. and R. Litzenberger, *Foundations of Financial Economics*, North Holland, 1998.

J. Cvitanic and Zapatero F, Introduction to Economics and Mathematics of Financial Markets, MIT Press, Cambridge, London, 2004.

J.C. Hull, *Futures and Option Markets*, Prentice-Hall, New Jersey, 2004.

King, David, N, *Financial Claims and Derivatives*, International Thomson Business Press, 1999.

Martin, J.D, S.H. Cox and R.D. MacMinn. *The Theory of Finance: Evidence and Application*. The Dryden Press, New York, 1998.

R.A. Haugen, *Modern Investment Theory*, Fifth Edition, Prentice Hall, New Jersey, 2001.

Rastogi, R.P, *Financial Management: Theory, Concepts and Problems.* Galgotia Publishers, 1998.

Ross, S.A. and R.W. Westerfield, *Fundamentals of Corporate Finance*, McGraw Hill International Edition, 1998.

Shapiro, Alan, C, *Multinational Financial Management*. International McGraw Hills, 4th Edition, Prentice Hall of India, 1998.

Van Horne, J.C, *Financial Management and Policy*. Prentice-Hall International, 1998.

Waghmare, Tushar, *Future of India's Stock Markets*. Tata McGraw Hill, New Delhi. (ed.) 1998.

Z. Bodie, A. Kane and A.J. Marcus, *Investments*, Irwin McGraw - Hill, London, 2004.

SEMESTER-II

Course Code : **MEC201** Core/ Elective : **Core** No. of Credits : **4.00**	Course Title **Microeconomic Theory-II**

Course Objectives:

This course is a continuum to Microeconomics-I. The aim of this course is to:

- Introduce the fundamental concepts and topics in microeconomic theory.
- Familiarise with the inter connectedness between micro and macroeconomics.
- Discuss the theoretical concepts for appreciating the developments in different branches in economics.

Course Learning Outcomes:

By the end of the course, successful students are expected;

- To understand economic behaviour of individuals, firms and markets.
- To apply mathematical tools and techniques to study behaviour of economic agents.

Course Outline:

Unit-I:

Managerial Models: Baumol's sales revenue maximization model; Williamson's model of managerial discretion; Marris model of managerial enterprise; Behavioural model of Cyert and March.

Unit-II:

General Equilibrium: Partial Equilibrium versus General Equilibrium analysis, absolute versus relative prices, perfectly competitive price and general equilibrium models - With and without production, uniqueness and

determinacy, Edgeworth box - Contract curve, Pareto improvement and efficiency, Walrasian equilibrium, money in general equilibrium.

Unit-III:

Welfare Economics: Arrow-Debreu economy, welfare theorems, existence of Walrasian equilibrium, fixed-point theorem, core and core convergence, general equilibrium with time and uncertainty, Jensen's Inequality, social welfare function, transfer efficiency; Kaldor-Hicks-Samuelson criterion, Rawl's theory of social justice.

Unit-IV:

Market Failure and Public Goods: Reasons for market failure - market imperfections, public goods, externality, macro-economic factors; types of public goods, theory of public goods - Provision and pricing, government intervention, second-best solution, free riding, types of externalities - Production and consumption externalities, Pigovian and Coasian solutions.

Unit-V:

Asymmetric Information: Moral hazard problem, adverse selection, principal agent problem, market for lemon, credit market, implications of asymmetric information, market signaling, hidden information modeling, efficiency wage theory.

References:

Varian, H. R., *Microeconomic Analysis.* (2009), Indian edition, W.W. Norton and Co., 1992

Mas-collel, Whinston and Green, *Micro-economic Theory*. OUP, 1995.

Gravelle, H and R. Rees, *Microeconomics*. Pearson Education, 3rd Edition, 2004.

Henderson, M. and R.E. Quandt, *Microeconomic Theory: Mathematical Approach*. McGraw Hill, 3rd edition, 1980.

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Varian, H. R., *Intermediate Microeconomics: A Modern Approach*, third edition, 2010.

Nicholson, W., *Microeconomic Theory: Basic Principles and Extensions*, eighth edition, South Western Thomson Learning, 2002.

Salvatore, Dominick, *Micro Economics Theory & Applications*, Oxford University Press, Inc. 198 Madison Avenue. New York, 2003.

Sen, Anindya, *Micro Economic Theory and Applications*, Oxford University Press, New Delhi,1999.

Stigler. G, Theory *of Price*. 4th Edition, Prentice Hall of India, New Delhi, 1996.

Roy Choudhary, K, *Microeconomics*, Vol 1, Khosla Publishing House, 2003.

Gibbons, *Game Theory for Applied Economists*, Princeton University Press, 1992.

Mukherji, A., *Walrasian and Non-Walrasian Equilibria: An Introduction to General Equilibrium Analysis*, Claredon Press, Oxford, 1990.

Course Code : **MEC202**	Course Title
Core/ Elective : **Core**	**Macroeconomic Theory-II**
No. of Credits : **4.00**	

Course Objectives:

This course is a continuum to Macroeconomics-I. The aim of this course is to:

- Provide a rigorous analysis of macroeconomic theory with emphasis on the role of monetary policy, fiscal policy and open economy influences on economic outcomes.

- Discuss the theories and conceptions of Post Keynesian Macroeconomic and Macroeconomic Crises, and Policy Issues.

Course Learning Outcomes:

By the end of the course, students are expected;

- To distinguish between the ideas of the different schools of thought, as they are apparent in policy discussions.

- To equip with methodological and analytical skills and will be able to fruitfully apply these skills to macroeconomic policy formulation.

Course Outline:

Unit-I:

The Labour Market: Measuring the Unemployment Rate - Unemployment, GDP and the Okun's Law; Profit Maximization and Labour Demand - Utility and Labour Supply - Aggregate Supply- Neoclassical Labour Market Equilibrium - Introducing Unemployment - Principles of Effective Demand - The Keynesian Underemployment Equilibrium.

Unit-II:

Inflation and Unemployment: The Phillip's Relationship - Theoretical Underpinnings of Phillip's Curve - Natural Rate Hypothesis - Theory of Adaptive Expectation - Expectation Augmented Phillip's Curve - The Rational Expectation and Luca's Supply function - Policy Ineffective Theorem - The Lucas Critique - Rational Expectation and Implications of Monetary Policy.

Unit-III:

Theories of Business Cycles: Multiplier - Accelerator Interaction Model - Monetarists Interpretation of Business Cycles - Real Business Cycle Theory - Political Business Cycle Model.

Unit-IV:

The Post Keynesian Macroeconomics: Walrasian and Keynesian Adjustment mechanism - Reinterpretation of Keynes - Dual Decision Hypothesis - Neo-Keynesian Quantity Constraint Models - Micro Theoretic foundations for Wage and Price Rigidity - Small Menu Cost - Efficient Wage Theory - Staggered Wage Setting - Insider- Outsider Model - Models of Coordination Failure.

Unit-V:

Macroeconomic Crises and Policy Issues: Macroeconomic Policy Issues - Targets, Indicators and Instruments - Activist Policy - Gradualism versus Shock Therapy - Rules versus Discretion - Role of Credibility - Dynamic Inconsistency Problem - Inflation Targeting - Seignorage - Barro-Ricardo and Blinder-Solow Hypotheses - Political Economy of Stabilisation and Adjustment, monetary policy rules, Analysing economic crises: Characterising different types of crises (e.g., Sovereign Debt crises, currency crises, depressions, bank failures etc.); inter-relations among different kinds of crises; causes of external crises; policy responses to external crises Causes, implications and policy response associated with the Global Financial crisis; the role of banks (including shadow banks), asset price bubbles and conventional and unconventional monetary and fiscal policy.

References:

David Romer, *Advanced Macroeconomics*. 4th edition, McGraw-Hill Irwin, 2012.

Olivier Blanchard, Raghuram Rajan, K. Rogoff and L. H. Summers, *Progress and Confusion: The State of Macroeconomic Policy.* (ed), MIT Press, 2016.

Blanchard, O., and S. *Fischer, Lectures on Macroeconomics.* Cambridge, MA: MIT Press, 1989.

Stephen D. Williamson, *Macroeconomics*, 5th edition, Pearson; International ed of 5th revised edition, 2013.

Barro, R.J., *Macroeconomics*. Fifth edition, MIT Press, 1997.

Sargent, T., *Macroeconomic Theory*. Academic Press, 1987.

Barro, Robert J. and Sala-i-Martin, Xavier. *Economic Growth, Prentice Hall of India.* Private Limited, 2nd edition, 2007.

Robert Z. Aliber, Charles P. Kindleberger, *Manias, Panics, and Crashes: A History of Financial Crises*, Seventh Edition 7th Edition, 2015.

Joseph E. Stiglitz, Freefall, *America, Free Markets, and the Sinking of the World Economy*. W. W. Norton & Company, 2010.

Course Code : **MEC203**	Course Title
Core/ Elective : **Core**	**Economics of Development**
No. of Credits : **4.00**	**and Growth**

Course Objectives:

The objective of this course is to:

- Introduce the concepts and theories in development economics.
- Provide a strong focus on application with an aim to develop student's research capabilities in the area of Economic Development.

Course Learning Outcomes:

After completion of the course student should be able to:

- Distinguish between the concepts of growth and development.
- Understand that economic development is a multi-dimensional concept.
- Analyze the reasons behind persistence of poverty and inequality in developing countries and suggest suitable policies for tackling them.

Course Outline:

Unit-I:

Theories of Development: Introduction - Growth and Development - classical theories from Smith to Schumpeter with classical concepts of Development - Partial theories of development - Critical minimum effort thesis - Lewis model of surplus labour, Fei Rains model, Rostow's stages in economic growth - Balanced growth - Unbalanced growth - Theory of 'Big Push' - Myrdal on economic growth - Dualisam, Neo-Marxist Development theories.

Unit-II:

Poverty and Inequality: Development Gap - Poverty - Different approaches - Money metric - tools of measurement - Capability Approach - HDI and HPI - Inequality - Horizontal and Vertical - Tools of measuring inequality - Gini Index.

Unit-III:

Human Resources and Labour Markets: Population as a challenge -Malthusian notion - Simon's Challenge - Demographic indicators - Demographic Dividend - New Challenges - Changing Demographic structure; Segmented labour markets, unemployment (Harris-Todaro model, labour turnover model, efficiency wage hypothesis) sub-optimal employment, disguised unemployment, informal labour markets.

Unit-IV:

Theories of Economic Growth: Harrod - Domar model, Solow model, comparative analysis; Role of resources, technology and institutions; Instability & Convergence debate, Ms. Joan Robinson and Concept of Golden Age and Golden Rule of Accumulation; Endogenous Growth Theories.

Unit-V:

Neo-Keynesian Models of Growth & Distribution: Kaldor and L. Pasinetti - Technology and Growth - Hicks, Harrod and Solow - Rosenstein - Rodan and Hirschman, Denison's growth accounting - Contribution of labour, Capital and Technology Neutrality of Technical Change, Embodied and Dis-embodied Technical Change, Growth Accounting, Money and Growth - James Tobin and H.G. Johnson.

References:

Y. Hayami, *Development Economics: From Poverty to the Wealth of Nations*. 2nd Edition, OUP, 2001.

Alain De Janvry and Elisabeth Sadoulet, *Development Economics: Theory and Practice*. Routledge, 2016.

H.G. Jones, *An Introduction to Modern Theories of Economic Growth*. McGraw-Hill Book Company, Latest.

K. Basu, *Analytical Development Economics*. MIT Press, 1997.

Debraj Ray, *Development Economics*. Oxford University Press, 1999

Barro, Robert J. and Xavier Sala-i-Martin, *Economic Growth*. McGraw-Hill, Latest.

Jones C.I., *Introduction to Economic Growth*. W.W. Norton & Company, New York, Latest.

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AK Sen, *Growth Economics*. Penguin, 1970.

Bardhan, P. and C. Udry, *Development Microeconomics*. Oxford University Press, Latest.

Agenor, P-R., and P. J. Montiel, *Development Macroeconomics*. Princeton University Press, 2008.

Perkins, Radelet, Lindauer and Block, *Economics of Development.* (seventh edition), W. W. Norton& Company, 2012.

Thirlwall, 2006, *Growth and development with special reference to developing countries*. Palgrave Macmillan, 2006.

S Subbramnian, *The Poverty Line* (Oxford India Short Introductions Series). Oxford University Press: Delhi, 2012.

Ehrman and T.N Sreenivasan, *Handbook of Economic Development*. Vol.3, Elsevier Amsterdam.

Ghatak S, *An Introduction to Development Economics*. Routledge, London, 2003.

Krugman, *Development, Geography and economic theory*. MIT press, 1995.

Course Code : **MEC204** Core/ Elective : **Core** No. of Credits : **4.00**	Course Title **Econometrics-I**

Course Objectives:

The aim of the course is to:

- Introduce the basic tools of econometric analysis.
- Understand the methods of econometric analysis and their application in empirical research.

Course Learning Outcomes:

By the end of the course, students will be able to;

- Learn classical linear regression model, statistical inference in regression model, problems in regression and uses of dummy variables and estimation with independent and limited dependent dummy variables are some specific aspects of the course about which students would be provided sound knowledge.

Course Outline:

Unit-I:

The Linear Regression Analysis : Bi-variate and multi variate linear regression models, CLRM assumptions, Ordinary Least Squares estimation, Properties of OLS and the Gauss - Markov theorem. General and confidence approach to hypothesis testing, goodness of fit, ANOVA and testing of overall significance of sample regression, matrix approach to linear regression models.

Unit-II:

Functional Forms of Regression Models: Choice of functional forms -Log-linear, Double log and lin-Log models, Reciprocal and polynomial models, Choice of functional form, Interpreting coefficients in different functional forms and applications, Specification error and tests for specification error.

Unit-III:

Relaxation of CLRM Assumptions and Problems in Regression: Violation of CLRM assumptions and its consequences, detection and remedial measures of multicollinearity, heteroskedasticity and autocorrelation.

Unit-IV:

Regression with Qualitative/ Dummy Variables: The nature of dummy variables, Regression on dummy (qualitative) variables with two categories, with more than two categories - Intercept shifters, dummy variable trap, interaction of two categorical variables, interaction of categorical and continuous (quantitative) variables - Slope shifters, piecewise linear regression model, Chow test for cross-section data and for time-series data (test structural stability of regression models).

Unit-V:

Maximum Likelihood Estimation: Introduction to binary and limited dependent variable, Limitation of the linear probability model(LPM), Method of maximum likelihood estimation and its properties (including consistency), Probit and Logit models, Multinomial models.

References:

Greene, William H, *Econometric Analysis*. 6th Edition, Prentice Hall, 2008.

Johnston J. and DiNardo, J, *Econometric Methods*. 4th Ed. McGraw-Hill, 1997.

Ramanathan, Ramu, *Introductory Econometrics with Applications*. 5th edition, Thomson Asia Pvt Ltd., Singapore, 2002.

Gujarati, D and Porter, *Basic Econometrics*. Fifth Edition, McGraw Hill/Irwin, 2009.

Stock, James H., and Mark W. Watson, *Introduction to Econometrics*, Second Edition, (Addison-Wesley Series in Economics), 2006.

Wooldridge, J., *Introductory Econometrics: A Modern Approach*. Nelson Education, 2015.

G. S. Maddala, *Introduction to Econometrics*. Wiley Publishers, 4th Edition, Indian edition, 2009.

Christopher Dougherty, *Introduction to Econometrics*. Oxford University Press, 3rd edition, Indian edition, 2007.

Course Code : **MEC215**	Course Title
Core/ Elective : **Elective**	**Energy Economics**
No. of Credits : **4.00**	

Course Objectives:

The aim of the course is to:

- Prepare the students for managerial, advisory and academic position in the energy sector.
- Provide an intellectually challenging academic programme which will strengthen the ability of students to analyse, synthesise and evaluate key theoretical concepts and practical applications in energy with emphasis on the economic dimensions.

Course Learning Outcomes:

At the end of the course, the student will be able to:

- Understand the functioning of international energy markets, developed tools and techniques to learn more and analyze even beyond the course.
- Master theoretical models relating to energy markets, energy regulation and policy, environmental issues, risk management, energy and the economy, energy sustainability be able to work out quantitative examples and use computer applications and skill to increase intuitive understanding of theoretical models.

Course Outline:

Unit-I:

Introduction to Energy Economics: Scope and Importance, Types of energy: Primary energy, Secondary energy, Energy Sources: Renewable and non-conventional, primacy of energy in the process of economic development; factors determining the demand for energy; Effects of energy shortage.

Unit-II:

Energy Markets & Planning: Free market optimization; Market response to non-marginal price changes; Equity issues & market failures and non-market

objectives, implications of decreasing costs conditions on energy markets; energy planning: scope, objectives, policy tools and constraints.

Unit-III:

Energy Conservation: Economics of energy conservation, Effects of market imperfections on energy conservation and policy options; Principal practical possibilities of energy conservation in energy producing and energy using sectors, energy efficiency, Energy Service Companies (ESCOs) and their energy saving models: Guaranteed saving model and shared saving model, Growth of ESCOs in India, Energy input-output analysis, main features of India's energy policy.

Unit-IV:

Energy Pricing and Demand Management: Energy Markets and Role of Demand Management: Objectives and Need for Energy Planning& Demand Management, Planning Procedures and Problems of Implementation, Integrated Framework for Energy Pricing: Objectives, Basic Pricing Principles, Short-Run V/S Long-Run Marginal Cost Pricing, Peak-Load Off-Load Pricing as tool of Demand Management, Shadow Pricing, Pricing of Exhaustible/ Non-renewable Energy Sources, Energy Demand Analysis& Forecasting: Importance methods.

References:

Mohan Munasinghe & Gunter Schramm, *Energy Economics, Demand Management and Conservation Policies*. Van Nostrand Reinhold Company, New York, 1983.

Mohan Munasinghe & Peter Meier, *Energy Policy Analysis& Modelling*, Cambridge Energy & Environment Series, 2009.

Parikh Jyoti, *Energy Models for 2000 and Beyond*, Tata McGraw Hill, 1997.

Chopra S.K. *Energy Policy for India: Towards Sustainable Energy Security in India in India in 21st Century*, Oxford & IBH Publishers, 2004.

Guido Buenstorf, *Economics of Energy and Production Processes: An Evolutionary Approach*, Edward Elgar Publishing, 2004.

Course Code : **MEC216**	Course Title
Core/ Elective : **Elective**	**Game Theory and**
No. of Credits : **4.00**	**Information**

Course Objectives:

- Game theory attempts to teach, understand and apply the mathematical models of conflict and cooperation between intelligent rational decision-makers.

Course Learning Outcomes:

After completion of the course student will be able to:

- Identify strategic situations and represent them as games and use various basic game techniques.

Course Outline:

Unit-I:

Games of Complete Information: Static games; solution concept: Nash equilibrium, mixed and pure strategies, maximin principle; extensive forms, backward induction, subgame perfection, repeated games; applications.

Unit-II:

Games of Incomplete Information: Incomplete and imperfect information; static games of incomplete information, solution concepts, Bayes-Nash equilibrium; dynamic games of incomplete information, equilibrium refinements: weak perfect Bayesian equilibrium, sequential equilibrium and trembling hand perfect equilibrium, forward induction; applications.

Unit-III:

Cooperative Games: Elements of cooperative games, transferable utility games, core, Shapley -Value, coalition structure, credibility and core, matching games, examples.

Unit-IV:

Bargaining: Bargaining with complete information, bargaining as an extensive game: Rubinstein model, axiomatic bargaining: Nash bargaining solution, relation between strategic and axiomatic models, outside options, inside options, bargaining with incomplete information, one-sided and two-sided uncertainty, private and correlated values, applications.

Unit-V:

Differential Game: Repeated and differential game, commitment and sub-game perfection, solution concept: open and closed loop solutions, Markov - Perfect equilibrium, hierarchical game and Stackleberg solution, applications.

References:

Osborne, M. J., *An Introduction to Game Theory*. Oxford University Press, 2003

Gibbons, R., *A Primer in Game Theory*. Harvester-Wheatsheaf, 1992

Fudenberg, D and J. Tirole, *Game Theory.* MIT Press, 1991

Osborne, M. J. and A. Rubinstein, *A Course in Game Theory*. MIT Press, 1994

Muthoo, A., *Bargaining Theory with Applications*. Cambridge University Press, 1999

Avinash K. Dixit , Susan Skeath, et al., *Games of Strategy*. W. W. Norton & Company; Fifth International Student edition, 2020.

Course Code : **MEC217**	Course Title
Core/ Elective : **Elective**	**Monetary Economics**
No. of Credits : **4.00**	

Course Objectives:

The aims of the course is to:

- Develop understanding of the theories that relate to the existence of money, explaining why it is demanded by individuals and used in the trading process.

- Develop an understanding of the monetary transmission mechanism, whereby decisions made by the monetary authorities concerning money supplies or interest rates can have real effects on the economy.

- Develop a number of macroeconomic models through which monetary policy can be evaluated. Such models will include both Classical and Keynesian schools of thought and will consider why monetary policy matters and when monetary policy decisions may be impotent.

- Develop understanding of the uncertainties policy-makers face and how policy makers may deal with these.

Course Learning Outcomes:

After completion of the course student will be able to:

- Explain and discuss why people hold money and why it is used in the trading process.

- Solve macroeconomic models and assess the role and efficacy of monetary policy for various types of models in both the Classical and Keynesian set-ups.

- Describe and explain the main channels of the monetary transmission mechanism, through which monetary policy can have real effects on the economy.

- Discuss the merits and disadvantages of different monetary policies used by Central Banks.

- Introduce the concepts of data and parameter uncertainty and discuss the policy under uncertainty

Course Learning Outcomes:

Unit-I:

Definition, Functions and Theories of Money: Money and its function - The concepts and definitions of money - Measurement of money - Advantages of money - Theories of demand for money: Classical approach, the transactions and cash balance approach, the Keynesian analysis.

Unit-II:

Money Supply: Financial intermediaries - Nature and functions - Theories of money supply - mechanistic model of money supply determination - High Powered money and behavioral model of money supply determination - Methods of monetary control - Interest rates in closed and open economies - Theories of term structure.

Unit-III:

Monetary Transmission Mechanism: Meaning - Interest rate channel, credit channel, bank lending channel, balance sheet channel, exchange rate channel, other asset price channels.

Unit-IV:

Monetary Policy: Instruments, targets, indicators, lags in monetary policy and rules versus discretion debate.

Unit-V:

Central Banking: Functions of a central bank - Quantitative and qualitative methods of credit control - Bank rate policy, open market operations, cash reserve ratio, selective methods, role and functions of Reserve Bank of India - Objectives and limitations of monetary policy with special reference to India.

References:

Lewis, M. K. and P. D. Mizen, Monetary *Economics*. Oxford University Press, New York, 2000.

Carlin,W. and D. Soskice, *Macroeconomics: Imperfections, Institutions and Policies*. Oxford University Press, New York, 2006.

Pierce, D G and P J Tysome, *Monetary economics: theories, evidence and policy*. Butterworths, London, 1985.

Saving, R T, *Monetary policy targets and indicators*. Journal of Political economy, 1967.

Carl E Walsh, *Monetary Theory and Policy*, MIT Press, Cambridge, 1998.

Bennett McCallum, *Monetary Economics: Thoery and Policy*, Macmillan, 1989.

C Rangarajan, *Indian Economy: Essays in Money and Finance*, UBSPD, 1999.

Narendra Jadhav, *Monetary Economics for India*, Macmillan, 1994.

SEMESTER-III

Course Code : **MEC301** Core/ Elective : **Core** No. of Credits : **4.00**	Course Title **International Economics**

Course Objectives:

This course aims to:

- Provide an understanding of theories of international trade, trade policies, balance of payments, international institutions, economic integration and Trade Policies in India.

- Improve the analytical skills of the students to relate theory with current trade affairs.

Course Learning Outcomes:

- Students are imparted with the strong theoretical background of international trade.

- It also helps to interpret the empirical aspects such as international trade reforms and their impact on Indian economy.

Course Outline:

Unit-I:

Introduction to Trade: Adam Smith and Absolute Advantage, Labor Productivity and Comparative Advantage: The Ricardian comparative advantage model. Trade, Growth, and Economic Interrelatedness, Trade and National Characteristics, the Structure of Trade, Gains from trade with homogenous and heterogeneous agents, Offer curves: derivation; properties, related elasticities; Equilibrium Terms of Trade.

Unit-II:

Trade Theories: Hecksher-Ohlin model, Stolper-Samuelson, Rybcznski theorem and factor-price equalization theorem, Leontief paradox, empirical validity, Specific-factor model as a short-run Approximation.

Unit-III:

Strategic Trade Policy: Tariffs and welfare dynamics for small and large countries perspective; Tariffs versus quantitative restrictions; the optimum tariff; Empirical modelling of trade policy; Monopolistic competition models of trade, Tariff versus quota under monopoly. Voluntary import expansion and export restrictions. Export Quotas, Subsidy, Dumping - Forms of Dumping - Antidumping and International Price Discrimination. Metzler Paradox; Effective. Rate of protection.

Unit-IV:

Balance of Payments and Macro Adjustment Mechanisms: Balance of Payments, Capital Flows, National Accounts Determinants and Foreign Exchange Market Equilibrium, The Elasticity Approach, Marshall-Lerner Condition, Multipliers, Mundell- Fleming Model, Purchasing Power Parity, Fischer Effect, Monetary Approach, Overshooting, Monetary Policy and Fiscal Policy, Fixed and Flexible Exchange Rate Regimes, Sterilization, Monetary and Fiscal Intervention, Devaluation and BOP Crisis, Capital Flight.

Unit-V:

Economic Integration and International Institutions: Forms of Economic and regional Integration: Regional Agreements ASEAN, NAFTA, European Union, Customs Union- Partial Equilibrium Analysis of Customs Union Trade Creation and Trade Diversion. Objectives and functions of IMF, IBRD, WTO, Free trade areas.

References:

Krugman P. R. and Obsfeild M, *International Economics- Theory and Policy*. 5th Edition. Addison Wesley, 2006.

Soderston, B. and Reed G, *International Economics*, 3rd Edition, McMillan Press, 1998. Ltd.,London Carbaugh, R. J, *International Economics*. 11th Edition, Thomson South Western, New Delhi, 1994.

Salvatore, D, *International Economics*. 8th Edition, Wiley India, New Delhi, 2000.

Keith Pilbeam, *International Finance*. 3rd edition, Palgrave, 2001.

Feenstra. R., *Advanced International Trade: Theory and Evidence*. Princeton University Press, 2009.

Bhagwati, J., A. Panagariya, and T. Srinivasan. *Lectures on International Trade*, 2nd edition, MIT Press, 1998.

Van Marrewijk, C., *International Economics*. Oxford University Press, 2007.

Caves, R, R. Jones, and J. Frankel, *World Trade and Payments: an Introduction*. Addison- Wesley, 1993.

Paul R. Krugman & Maurice Obstfeild: *International Economics*, Pearson Education, 2005.

Dornbusch, *Open Economy Macro Economy*, Basic Books, New York, 1980.

Caves Frankel & Jones, *World Trade & Payments: An Introduction*, Pearson Education, 2007.

James Gerber, International Economics. Pearson, 6th edition, 2013.

Henry Thompson, International Economics: Global Markets and Competition, Cambridge University Press, 2nd edition, 2009.

Course Code : **MEC302**	Course Title
Core/ Elective : **Core**	**Research Methodology**
No. of Credits : **4.00**	

Course Objectives:

- The aim of this course is to enable the students to gain insight into how scientific research is conducted.
- Help them in critical review of literature and equip the students to undertake research.
- Train the students in documentation of research results.

Course Learning Outcomes:

- Develop understanding on various kinds of research, objectives of research, research process, design and sampling.
- Obtain basic knowledge on research techniques, measurement and scaling techniques as well as basic awareness of data analysis.

Course Outline:

Unit-I:

Introduction to Social Science Research: Meaning and objectives of research, types of research, need and significance of research; Formulation of a research problem; meaning and need of research design, features of a good design, different research designs for exploratory, descriptive, diagnostic and experimental research. Review of literature- need and sources; Setting up objectives and hypotheses; Preparation of a research proposal, Problems in Research.

Unit-II:

Collection of Data: Data-Primary and secondary data, Methods of collection of Primary Data- observation, interview, questionnaire, schedule; Pilot survey and case study method; Advantages and disadvantages of primary data, collection of sensitive information; Secondary data-sources; advantages and limitations of secondary data; Sampling design-methods and sample size.

Unit-III:

Processing and Analysis of Data & Testing of Hypothesis: Editing, coding and classification; Data presentation: Tabular and graphical presentation-preparation of a statistical table, requisites of a good table, types of tables, figures and charts; Analysis: tools and techniques for qualitative and quantitative data; Hypothesis-importance and definition, Formulation- Null and Alternative Hypothesis, types of errors in testing of hypothesis, testing of hypothesis and level of significance.

Unit-IV:

Report Writing: Report Writing - Significance and Steps; Foot note and end note; Bibliography and References-Style (APA, MLA, Chicago and Harvard); Steps for writing dissertation. Method for writing an article for conference/ seminar and publication in a journal; Ethics and Plagiarism in Research; Roles of Computer in Research.

Unit-V:

Introduction to SPSS (Statistical Package for Social Sciences): data entry and cleaning; Tabulation; Central tendencies, measures of distribution, measures of asymmetry; Graphs; transform / select data; Correlation and linear regression; estimation and hypothesis testing; and other statistical dependence techniques.

References:

William J Goode and Paul K Hatt: *Methods in Social Research*, McGraw- Hill. Latest Edition.

W LNeuman, Social Research Methods, *Quantitative and Qualitative Approaches*. Pearson, 2012.

Pauline V Young, *Scientific Social Surveys and research*, Prentice Hall India Pvt Ltd. Latest Edition.

Modern Language the MLA *Handbook for Writers of Association of America*, Research Papers,2009.

Fink, Arlene & J Kosecoff, *How to Conduct Surveys A step by step Guide*. Sage, UK, 1998.

Bryman, Alan, *Social Research Methods*. Oxford University Press, 2nd edition, 2004.

Bernard, H. R. *Analysis of Qualitative Data*. Sage, UK, 2010.

Bose, Pradip Kumar, *Research Methodology*. ICSSR, New Delhi, 1995.

Bryman, Alan, *Quality and Quantity in Social Research*, Unwin Hyman, London Hughes, 1998.

John, *The Philosophy of Social Research*, Longman, London, 1987.

Dvane R. Monette, Thomas IJ Sullivan, Cornell R. Dejong, *Applied Social Research Tool for the Human Serves*. 5th edition, Marcourt College Publishers,2002.

Hoyle H.Rick et al, *Research Methods in Social Relations*, Wadsworth, Publication, 2002.

Keith, *Introduction to Methodology*, Sage Publication India Pvt Ltd., New Delhi, 1986.

<table>
<tr><td>Course Code : **MEC303**
Core/ Elective : **Core**
No. of Credits : **4.00**</td><td>Course Title
Econometrics-II</td></tr>
</table>

Course Objectives:

The course in continuation of Econometrics-I is designed to:

▪ Introduce the econometric methods and estimation in the context of simultaneous equation frame work, dynamic and autoregressive models.

Course Learning Outcomes:

After completion of the course student will be able to:

▪ Understand the methods of elementary time series and panel data econometrics and their estimation and application in empirical research.

Course Outline:

Unit-I:

Simultaneous Equations Models: Structural equation models-specification, endogenous, exogenous and predetermined variables, structural versus reduced form, simultaneity bias, identification: rank versus order condition, exact and over identifications, methods of estimation: indirect least squares, instrumental variable estimation, two-stage least squares and three-stage least squares, seemingly unrelated regression and its application.

Unit-II:

Autoregressive and Distributed Lag Models: Autoregressive and Distributed Lag models: Role of Lag in Economics - Estimation of Distributed/Lag Models: Koyck/Apparoch, the almon transformation, adaptive expectation and partial adjustment models.

Unit-III:

Univariate Time Series Analysis: Concept of time series - Stationary and non-stationary stochastic process - Different types of nonstationary process - The concept of unit roots - Testing for unit roots - Specifications of auto regressive and moving average models - Identification, estimation, and diagnosing model adequacy - Forecasting through univariate time series modelling.

Unit-IV:

Multivariate Stationary and Non-stationary Processes: Vector autoregressive model, introduction to cointegration, testing for cointegration: Singl eequation approaches: ARDL and Engle Granger method, Johansen test for cointegration, Vector error correction model, Granger causality, impulse response function.

Unit-V:

Panel Data Models: Why Panel data, fixed effect model and random effect model, pooled or population average model, estimation of coefficients, specification test, FGLS, Application with real world cross country data.

References:

Greene, William H, *Econometric Analysis*. 6th Edition, Prentice Hall. 2008.

Ramanathan, Ramu, *Introductory Econometrics with Applications*, 5th edition, Thomson Asia Pvt Ltd., Singapore, 2002.

Enders, W., *Applied Econometric Time Series*. second edition, John Wiley and Sons, 2006.

Baltagi, B. H, *Econometric Analysis of Panel Data* (4th ed.) chi chester, UK: Wiley, 2008.

Maddala, G, *Introduction to Econometrics*, 2nd ed., New York: MacMillan, 1992.

Johnston, J. *Econometric Methods*, 3rd edition, New York: McGraw Hill, 1995.

Wooldridge. Jeffry *Introductory Econometrics: A Modern Approach.* Thomson, 2007.

Hamilton, J. D, *Time series econometrics*, Princeton university press, 1994.

Course Code : **MEC304**	Course Title
Core/ Elective : **SEC**	**Computer Applications in**
No. of Credits : **4.00**	**Economics**

Course Objectives:

- To make students proficient in computer applications and statistical computing methods in software like EViews, STATA & RATS.
- To understand the fundamentals of RATS, applying critical programming language concepts to data, prepare data for analysis and visualisation.

Course Learning Outcomes:

- Students will become familiar with statistical software and draw distributive tables, graphs, trend lines which will be helpful for interpretation of data.
- Students can apply application in economic analysis in Eviews, STATA & RATS Programming in terms of estimation of the parameters of multiple regressions and other analysis.

Course Outline:

Unit-I:

Introduction to Computer and Operating Systems and Use of Computer for Office Automation: Computer Organisation; CPU; Types of memory; Input and output devices; Classification of computers; Programming languages; Operating system - Dos and windows; Data representation and the number systems: decimal, binary, octal and hexadecimal. MS word and its features and uses. spread sheet - Concept and use of spread sheet, structure of a spread sheet, spread in-built functions, chart feature of a spread sheet, operation and use of MS-Excel and Lotus Smart-suite.

Unit-II:

Introduction to EViews: Package handling and command descriptions of EVIEWS; creating work file and importing data - Creating new series - Running simple statistical and econometric tools, generating histograms and

trend line.

Unit-III:

Introduction to STATA: Talking to STATA, Getting help, Basic syntax: commands and operators, Loading and examining data, Variables and data types, Workflow: building an analysis dataset from raw data, Using Do-Files, Combining different datasets, Typical consistency checks, Analyzing data using graphs and tables.

Unit-IV:

Introduction to RATS: Package handling and command descriptions of RATS; creating work file and importing data - Creating new series - Running simple statistical and econometric tools, generating histograms and trend line.

Unit-V:

Time-Series Analysis and Methods of Using EViews, STATA & RATS: Package handling and command descriptions of EVIEWS, STATA and RATS; Simple time series Analysis - Trend analysis; Estimation of demand function, production function and investment function using time series data, Basics of internet; Search Engines.

Reference/Links:

Richard Startz, *EViews Illustrated*, University of California, Santa Barbara, 1994-2019 IHS Global Inc.https://www.eviews.com/illustrated/EViews%20Illustrated.pdf

Chukwuemeka Tiptop Okoro, *Teach Yourself Econometric Data Analysis with EViews: Step by Step.* Guide from Basic to Advance: Econometrics & Statistics in Practice, Independently Published, May 2020,

Bharti Motwani, *Data analytics with R*. (1st Edition), Wiley, 2019

Michael J Crawley*, The R Book*. (2nd Edition), Wiley, 2018

Gareth James et.al.,*An Introduction to Statistical Learning: with Applications in R.* (Springer Texts in Statistics), (7th Edition), Springer, 2017

Grant V Farnsworth, *Econometrics in R*. eBook,

https://cran.r-project.org/doc/contrib/Farnsworth-EconometricsInR.pdf

https://www.tutorialspoint.com/r/r_mean_median_mode.htm

Course Code : **MEC305**	Course Title
Core/ Elective : **SEC**	**Internship**
No. of Credits : **4.00**	

The Internship is 2 credits course with 4 to 6 weeks durtion. During the summer vacation (approximately May-June) after the 2nd semester end examination. Internship is intended to gain practical knowledge related to economic concepts and econometric applications. The students are expected to learn how organizations in practice apply the economic concepts and econometric techniques in their operations. The students should submit their Internship report along with the nature of work done during the Internship and the certificate from the organization where the Internship was carried out. The candidates should also present their Internship repot in the seminar before the department faculty which will evaluate the Internship work. The internship report carries marks of 60 (sixty) and remaining 40 (Forty) marks would be for Viva-Voce that will be conducted by the Department as per the rules and regulations of the University.

Course Code : **MEC315**	Course Title
Core/ Elective : **Elective**	**Environmental Economics**
No. of Credits : **4.00**	

Course Objectives:

- To introduce the techniques of dynamic optimization in resource use and the role of institutions in sustainable utilization of resources.
- To develop economic perspectives on modern environmental issues and to apply economic theory
- To discuss selected topics on international environmental problems.

Course Learning Outcomes:

On completion of the course, the student will be able to

- Identify dynamic resource utilisation problems in the context of renewable and non-renewable resources.
- Identify various property rights regime and understand the institutional economic approach to resource management.
- The students will also understand the alternative resource depletion time-path under various market regimes, and also recognize the risk and uncertainty associated with resource use

Course Outline:

Unit-I:

Introduction: Basic concepts of environment, environment and economics, distinction between environmental economics and ecological economics. Review the microeconomics and welfare economics; Distinction between environmental economics and natural resource economics. Externalities, common property resources, public goods, resource degradation and market efficiency.

Unit-II:

Environment and Sustainable Development: Relation between development and environmental stress; Concept of sustainable development; Indicators of

sustainability; Various approaches to environmental accounting. Sustainable development: concepts and measurement. Environmental Kuznet's curve hypothesis - theory and empirical evidence.

Unit-III:

Environmental Economics Theory: Pareto optimality and market failure in the presence of externalities; Market failure; Pigouvian solution; Buchanan's theory; Coase's theorem and its critique; Pigouvian vs Coasian solution; Subsidies for Abatement of pollution-The case in the short and long run; Choice between taxes and quotas under uncertainty; implementation of environmental policy.

Unit-IV:

Population, Environment Policies, and Regulations: Global Issues - Poverty, population and environment, global agreements on environment, political economy of sustainable development, trade and policy environment under WTO regime. Mechanism for environment regulation in India; environmental laws and their implementation; Policy instruments for controlling pollution environmental standards; forestry policy ; People's Participation in management of common and forest lands, the institutions of joint managements, Social forestry- rationale and benefits.

Unit-V:

Global Issues: Trans-boundary environmental problems; economics of climate change; Trade and environment; Non-Market values and measurement methods; Risk assessment and perception; International environmental problems and measuring.

Textbooks/References:

Baumol, Y. and Ostes, W. R. *The Theory of Environmental Policy*. Cambridge: Cambridge University Press, 1998.

Bromely, D. W. *Handbook of Environmental Economics*. London: Blackwell, 1995

Goodstein, E. S. *Economics and the Environment*. New York: John Wiley, 2002.

Hanley, N. and Roberts, C. J. *Issues in Environmental Economics*. Oxford: Macmillan, 2002

Kadekodi, G. K. *Environmental Economics in Practice*. New Delhi: Oxford University Press, 2004

Kolstad, C.D. *Environmental Economics*. New Delhi: Oxford University Press, 1999.

Sankar, U. *Enviromental Economics An Indian Perspective*. New Delhi: Oxford University Press, 2001

Sengupta, R. P. Ecology*and Economics: An approach to Sustainable Development*. New Delhi: Oxford University Press, 2001.

<table>
<tr><td>Course Code : **MEC316**
Core/ Elective : **Elective**
No. of Credits : **4.00**</td><td>Course Title
Labour Economics</td></tr>
</table>

Course Objectives:

- To sensitize the students on the theoretical as well as empirical issues pertaining to labour market, wage theories, employment policies, trade unions etc.
- To develop students' abilities in acquiring a better understanding of the functioning of labour markets.

Course Learning Outcomes:

After completion of the course student will be able to:

- Develop skills for analyzing problems in the labour market and frame strategies for the smooth functioning of the labour market.
- Think independently on various issues related to labour markets.

Course Outline:

Unit-I:

The Supply of Labour: Supply of labour by an individual, by a household to an economy - A Household model of labour supply - A bargaining model of family labour supply - Changes in work participation over time: The decline in male participation rates: The increase in female participation rates - Labour force growth during recessions: The Added Worker Effect - The Discouraged Worker Effect - Classical Theory of Job Choice - Modern Theory in terms of investment in Human Capital - Migration.

Unit-II:

The Demand for Labour: The individual firm's demand for labour in the short run - The individual firm's demand for labour in the long run - Industry demand for labour - Elasticity of demand for labour.

Unit-III:

The Labour Market and Theories of Labour Market Discrimination:
A. Definition of the labour market - Differences between labour markets and commodity markets - Labour market structure: Structured labour markets- Unstructured labour markets - Internal and external labour markets - Primary and secondary labour markets.

B. Types of discrimination - Taste-for- discrimination model - Market Power: The Monopsony Model - Theory of Statistical Discrimination - The Crowding Model.

Unit-IV:

Employment and Wage Determination: A. Types of unemployment - The measurement of unemployment - Causes of unemployment: Job Search (The Stigler model, The McCall model)-Rigid wages-Efficiency wages.

B. Wage determination in a perfectly competitive market - Wage determination in a Monopsony market - Minimum wage - Minimum wage in a perfectly competitive market - Minimum wage in a monopsony market - The minimum wage and efficiency wage theory - Segmentation and Dual Labour Market Theory.

Unit-V:

Productivity: Concept - Measurement - Importance of productivity increases - Factors influencing labour productivity - Productivity and inflation - Productivity and employment.

References:

Borajs, G, *Labour Economics.*7th edition, McGraw-Hill, 2015

Venkata Ratnam, C. S., *Globalization and Labour-Management Relations: Dynamics of Change.* Sage Publications, 2001.

Misra, L, *Child Labour in India.* Oxford University Press, 2000.

Hajela, P. D, *Labour Restrucing in India : A Critique of the New Economic Policies.* Commonwealth Publishers, New Delhi, 1998.

Ashenfelter Orley C., David C., *Handbook of Labour Economics.* Vol. 3C, North Holland, U.K, 2010.

Basu Kaushik, (Ed.), *International Labour Standards: History, Theories and Policy Options*. Wiley-Blackwell, 2002.

Bauder Harold, *Labour Movement: How Migration Regulates Labour Markets*. OUP, USA, 2006.

Bloom G.F. and Northrup H.R., *Economics of Labour Relations*. Richard D. Irwin, Inc. Homewood, Illinois, 1977.

Cahuc Pierre, Zylberberg A., *Labour Economics*. Mit Press, USA, 2014.

Ehrenberg R., *Modern Labour Economics- Theory and Public Policy*. Routledge, U.S.A., 2017.

Course Code : **MEC317**	Course Title
Core/ Elective : **Elective**	**Time Series Applications**
No. of Credits : **4.00**	

Pre Request:

▪ Basic knowledge on Statistics and Econometric concepts.

Course objective:

▪ To familiarize students with time series econometric techniques, commonly used in financial analysis, policy formulation and academic research.

▪ To provide lab sessions where students apply these concepts using relevant data.

Learning outcomes:

▪ The students will be able to choose the appropriate time series techniques to analyse various economic problems and draw suitable inferences.

Course Outline:

Unit-I:

Basic Concepts of Time Series: The concept of data generating process - Stochastic process and Deterministic process, white noise process, stationary and non-stationary stochastic process - with and without intercept and trend, difference stationary and trend stationary process, concept of unit root, tests for detecting unit root.

Unit-II:

Univariate Time Series Models: Autoregressive (AR) model, Moving Average (MA) model, ARMA, ARIMA and SARIMA models, Box Jenkins Methodology - Model identification, diagnostics, forecasting - Dynamic vs static forecasts, Smooth transition models.

Unit-III:

Multivariate Time Series Models: Cointegration - Engle Granger and Johansen Juselius methodology, error correction model - VAR models -lag length selection, factorization - Cholesky decomposition and structural factorization, Causality tests in VAR framework, impulse response functions, variance decomposition - ARDL approach - Cointegration with mix of I(0) and I(1) variables, bounds testing, error correction model; NARDL model.

Unit-IV:

Volatility modelling: Modelling high frequency data; testing for ARCH effect, estimating ARCH models - ARCH, GARCH, ARCH - M, TGARCH, EGARCH, diagnostic checks.

Unit-V:

Introduction to Spectral Analysis and Bayesian Approach: Time domain and Frequency domain, The spectrum and its properties, Spectral representation for weekly stationary process, spectrum estimation, Wavelet coherence analysis. Bayesian analysis - Overview of classical and Bayesian views on probability, the role of priors, posterior estimation, Gibbs sampling, Markov Chain Monte Carlo (MCMC) methods.

References:

Kerry Patterson, *An Introduction to Applied Econometrics*. Palgrave Macmillan, 2000.

Chris Brooks, *Introductory Econometrics for Finance*. Cambridge UP, 2002.

James D. Hamilton, *Time Series Analysis*. Princeton University Press, 1994.

Pesaran, M. H. (2015). Time series and panel data econometrics. Oxford University Press. Walter Enders, *Applied Econometric Time Series*, 4th Edition, Wiley, 2015.

Bernardo, Jose M. and Adrian F. M. Smith, *Bayesian Theory*. Wiley Series in Probability and Statistics, John Wiley & Sons, 1994.

Chan, Joshua, Gary M. Koop, Dale J. Poirier and Justin L. Tobias, *Bayesian Econometric Methods*, 2nd Edition, Cambridge University Press, 20119.

Davidson, R., & MacKinnon, J. G., *Econometric theory and methods.* (Vol. 5). New York: Oxford University Press, 2004.

Koopmans, L. H., *The spectral analysis of time series*. Elsevier, 1995.

Peter Kennedy, *A Guide to Econometrics*, 6th Edition, Blackwell Publishing, 2008.

Priestley, M. B. *Spectral analysis and time series: probability and mathematical statistics*, Academic Press, 1981.

Verbeek, M. *A guide to modern econometrics*. John Wiley & Sons, 2008.

SEMESTER-IV

Course Code : **MEC401**	Course Title
Core/ Elective : **Core**	**Indian Economic**
No. of Credits : **4.00**	**Development and Policy**

Course Objectives:

- Main objective of this course is to provide a detailed analysis of the modern history of various sectors of the Indian economy.

Course Learning Outcomes:

After completion of the course student will be able to:

- Understand the Indian economy and also comfort them to prepare for competitive exams.
- Evaluate the efficacy of various government programmes and propose alternative policy directions.

Course Outline:

Unit-I:

Introduction to Indian Economy: Features of Indian Economy - Demographic, Development indices, Inequality, Poverty, Unemployment, Inflation, Healthcare system, Education; Trends

Unit-II:

Sectoral comparison of Indian Economy

Agriculture- Growth and issues; Land reforms; Green revolution; Subsidies; Recent developments; Growth and efficiency; employment generation; Public distribution system; food security; storage management; issue of farmer suicides; policy interventions, regulations and reforms.

Industry: Performance, problems and prospects; Capital formation; industrial infrastructure; Regional imbalances; MSME's; Output and employment; labour

reforms; Development strategies and policy; Industrial growth; technology and innovation; industrial policy; Power sector reforms; Atmanirbhar Bharat.

Service: Overview; Market size; Service sector led growth story; Employment; labour productivity; Policy intervention; ICT and economic growth; FDI inflows; Sub sector wise performance; informal sector; Digital India.

Unit-III:

Policy Reforms: Economic Planning in India; Five Year Plans; Planning commission v/s NITI Ayog; New Economic Policy; Centre state Finance Relations, Finance commission; Monetary policy in India; Indian banking sector; priority sector lending; Insolvency and Bankruptcy code; J-A-M trinity; New Companies act; GST.

Unit-IV:

Social Security: Social security measures in organized and unorganized sector; Pension; Health and medical insurance; disability benefits; Maternity benefits; Poverty alleviation schemes; MGNREGA; LPG distribution; Housing; Food Security Act.

Unit-V:

External Sector: India's foreign trade value composition and direction; Balance of payment since 1991; Foreign capital flow; Impact of Globalization on Indian Economy; WTO and India; Trade agreements; Free trade agreements; Trade in service sector; Impact of Global financial crisis.

References:

Pranab Bardhan, *Symposium on the State and Economic Development*. 1990.

J Bhagwati and T N Srinivasan, *India's Economic Reforms*. 1993.

Arvind Panagariya. *India's Trade Reform*. India Policy Forum, 2004.

Basu, K, *The Indian economy: Up to 1991 and since*. India's Emerging Economy-Performance and Prospects in the 1990s and Beyond, 3-31, 2004.

François Bourguignon, *The Globalization of Inequality*. Princeton University Press, 2015.

Reserve Bank of India, *Financial Stability Report*. various editions.

Ghate, C. (Ed.), *The oxford handbook of the Indian Economy*. Oxford University Press, 2012.

Reserve Bank of India*, Handbook of Statistics on Indian Economy*. various editions.

Jalan, B. *Indian Economy*. Penguin UK, 2004.

Krishna, K. L., Pandit, V., Sundaram, K., & Dua, P. (Eds.), *Perspectives on Economic Development and Policy in India: In Honour of Suresh D. Tendulkar.* Springer, 2016.

Monetary Policy report, Reserve Bank of India (various editions) and Reports by various ministries, *NITI Ayog.*

The Code on Social Security, https://prsindia.org/billtrack/the-code-on-social-security-2019

S Chakravorty & S V Lall, *Made in India: The economic geography and political economy of industrialization*. New Delhi: Oxford University Press, 2007.

Montek S Ahluwalia, *Planning*, in Kaushik Basu and Annemie Maertens edited, The New Oxford Companion to Economics in India, Oxford University Press, 2012.

G S Bhalla, *Indian Agriculture since Independence*. New Delhi: National Book Trust, 2007.

K L Krishna, *Industrial Growth and Diversification,* in Uma *Kapila* Edited, *Indian Economy since Independence,* Academic Foundation, Delhi, 2002.

R Nagaraj (ed), *Growth, Inequality and Social Development in India: Is Inclusive Growth Possible?* London, Palgrave Macmillan, 2012.

Pulapre Balakrishnan (ed), *Economic Growth and its Distribution: Essays from Economic and Political Weekly*, Orient Blackswan, Hyderabad, 2015.

Course Code : **MEC402**	Course Title
Core/ Elective : **Core**	**Project Work/ Dissertation**
No. of Credits : **4.00**	

Students are required to submit the synopsis on any selected research topic as per the prescribed guidelines.

The M. Sc. Economics students in the final semester would be required to do project work/ dissertation. The research work is to be related to the specialization area chosen by the student. For example a student who has chosen Labour Economics as specialization will have to do a project/field work related to labour economics and submit a dissertation. Dissertation submitted by the students would be evaluated by External Examiners appointed by the University for marks of 60 (sixty). Remaining 40 (Forty) marks would be for Viva-Voce that will be conducted by the Department as per the rules and regulations of the University.