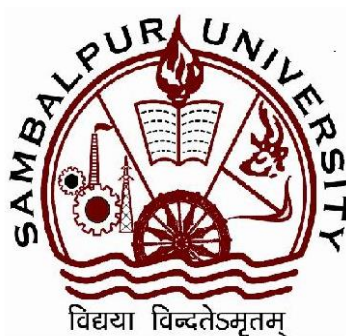# COURSES OF STUDIES

M.A. (ECONOMICS), 2018-20

P.G. DEPARTMENT OF ECONOMICS
SAMBALPUR UNIVERSITY
JYOTI VIHAR
768019

<div align="center">

SEMESTER SYLLABUS
2018-20
DEPARTMENT OF ECONOMICS (AUTONOMOUS) SAMBALPUR UNIVERSITY
M.A (ECONOMICS)

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COURSE NO.	COURSE TITLE	CREDITS
FIRST SEMESTER		
ECO-401	MICRO ECONOMIC THEORY-I	4
ECO-402	MACROECONOMIC THEORY-I	4
ECO-403	QUANTITAVE METHODS & COMPUTER APPLICATION-I / STATISTICAL METHODS & COMPUTER APPILCATION-I	4
ECO-404	INDIAN ECONOMIC POLICY-I	4
ECO-405	FINANCIAL INSTITUTIONS & MARKETS-I	4
ECO-406	HISTORY OF MODERN ECONOMIC ANALYSIS (CONTRIBUTIONS OF NOBEL LAURETTES)-I	4

Add on non-credit course (optional): (i)Leadership & Personality Development, or (ii) Communicative English

	TOTAL	**24**
SECOND SEMESTER		
ECO-411	MICRO ECONOMIC THEORY-II	4
ECO-412	MACROECONOMIC THEORY-II	4
ECO-413	QUANTITATIVE METHODS & COMPUTER APPLICATION-II / STATISTICAL METHODS & COMPUTER APPLICATION-II	4
ECO-414	INDIAN ECONOMIC POLICY-II	4
ECO-415	FINANCIAL INSTITUTIONS & MARKETS-II	4
ECO-416	HISTORY IF MODERN ECONOMIC ANALYSIS (CONTRIBUTIONS OF NOBEL LAURETTES)-II	4
	TOTAL	**24**
THIRD SEMESTER		
ECO-501	PUBLIC ECONOMICS-I	4
ECO-502	INTERNATIONAL TRADE & FINANCE-I	4
ECO-503	GROWTH & DEVELOPMENT-I	4
ECO-504	MATHEMATICAL ECONOMICS-I / AGRICULTURAL ECONOMICS-I	4
ECO-505	ECONOMETRICS-I/ ENVIRONMENTAL ECONOMICS-I	4
ECO-506	SEMINAR	1

Add on non-credit course(optional): (i)Soft and IT Skill, or (ii) Entrepreneurship Development

	TOTAL	**21**
FOURTH SEMESTER		
ECO-511	PUBLIC ECONOMICS-II	4
ECO-512	INTERNATIONAL TRADE & FINANCE-I I	4
ECO-513	GROWTH & DEVELOPMENT-II	4
ECO-514	MATHEMATICAL ECONOMICS-II / AGRICULTURAL ECONOMICS-II	4
ECO-515	ECONOMETRICS-II / ENVIRONMENTAL ECONOMICS-II	4
ECO-516	SEMINAR	1
TOTAL		**21**
	GRAND TOTAL	**90**

1

ECO-401: MICROECONOMIC THEORY-I

Objective: *This paper analyses the economic behaviour of individuals, firms and markets. It is mainly concerned with the objective of equipping the students in a rigorous and comprehensive manner with the various aspects of consumer behaviour and demand analysis, production theory and behaviour of costs, the theory of traditional markets and equilibrium of firm in modern non-profit maximizing framework.*

Expected outcome: *Students will know the application of Economic Theory in to practice.*

I. **Theories of demand**
Utility, indifference curve (income and substitution effects: Slutsky theorem, compensated demand curve) and their applications: Revealed Preference Theory: Revision of demand theory by Hicks: Characteristics of goods approach, Consumers' choice involving risk.

II. **Theory of Production and Cost**
Production function- short period and long period; law of variable proportions and returns to scale, Isoquants, Least Cost combination of inputs : Returns to factors ; Economies of scale ; Elasticity of substitution ; Euler's Theorem ; Traditional and modern theories of Costs- Empirical evidence, Derivation of Cost functions from production functions.

III. **Price and Output Determination-I**
Perfect competition- short run and long run equilibrium of the firm and industry, price and output determination, supply curve; Monopoly- short run and long run equilibrium, price determination, welfare aspects, monopoly control and regulation ; Monopolistic competition- general and Chamberlin approaches to equilibrium, equilibrium of the firm and the group with product differentiation and selling costs, excess capacity under monopolistic and imperfect competition, criticism of monopolistic competition.

IV. **Price and Output Determination-II**
Oligopoly- Non –collusive (Cournot, Betrand, Edgeworth, Chamberlin, Kinked demand curve and Stackelberg's solution) and collusive (Cartels and mergers, Price leadership and basing point price system) models; Price and output determination under monopsony and bilateral monopoly.

Reading List:

1. Kreps, David M. (1990) A Course in Microeconomic Theory, Princeton University Press, Princeton.
2. Koutsoyiannis, A (1979), Modern Micro Economics, Mac Millan Press, London
3. Layard, P.R.G. and A.W. Walters (1978), Mircoeconomic Theory, Mc Graw Hill, New York.
4. Varian, H (2000) Microeconomic Analysis, W.W. Norton, New York.
5. Baumol, W.J. (1982) Economic theory and Operation analysis, Prentice Hall of India, New Delhi.
6. Gree, H.A.G (1971) Consumer Theory, Penguin, Harmondsworth.
7. Hirshleifer J. and A. Glazer, (1997) Price Theory and Applications, Prentice Hall of India, New Delhi.
8. Da Costa, G.C (1980) Production, Prices and Distribution, Tata Mc Graw Hill, New Delhi.

ECO-402: MACRO ECONOMIC THEORY-I

Objective: *Macroeconomics analyses and establishes the functional relationship among the large aggregates. This paper is designed to make the students aware of the basic theoretical framework underlying in the field of macroeconomics. It also gives emphasis on the impact of different macroeconomic policies on the economy.*

Expected outcome: *After completing this course the students will be able to know the basic theoretical framework of the aggregate economy. As emphasis has been given in the theories relating to the supply of money, demand for money, inflation, business cycle, neo- classical and Keynesian synthesis, role of fiscal policy and monetary policy; the students can analyse and relate these theories to the real world situation*

UNIT-1   NATIONAL INCOME AND ACCOUNTS CONSUMPTION FUNCTION
1.1   Circular flow of income in two, three and four sector economy

      1.2   Different forms of national income accounting- social accounting, input output accounting, flow of funds accounting and balance of payments accounting, Green Accounting.

      1.3   Keynes's psychological law of consumption- implications of the law

      1.4   Short run and long run consumption function, Empirical evidence on consumption function

      1.5   Income-consumption relationship- absolute income, relative income, life cycle and permanent income hypotheses

UNIT-2   SUPPLY OF MONEY

      2.1 Financial intermediation- a mechanistic model of bank deposit determination

      2.2   A behavioural model of money supply determination, a demand determined money supply process

      2.3   RBI approach to money supply; High powered money and money multiplier; control of money supply

UNIT-3   NEO-CLASSICAL AND KEYNESIAN SYNTHESIS

      3.1   One sector Neo-classical and Keynesian models

      3.2   The IS-LM models

      3.3   Extension of IS-LM model with Government sector

      3.4   Relative effectiveness of monetary and fiscal policies

UNIT-4   EXTENSION OF IS-LM MODELS

      4.1   Extension of IS-LM models with labour market and flexible prices

      4.2   The three sector Macro Model: Neo-classical and Keynesian

      4.3   Policy implications of the neo-classical and Keynesian synthesis

Reading List:

1.   Branson W.A. (1989), Macroeconomic Theory and Policy, Harper and Row, New York.
2.   Dornbusch, R and F. Stanley (1997), Macroeconomics, McGraw Hill, Inc. New York.
3.   Hall, R.E and J.B Taylor (1986), Macroeconomics, W.W. Norton, New York.
4.   Jha, R. (1991), Contemporary Macroeconomic Theory and Policy, Wiley Eastern Ltd. New Delhi.
5.   Levacic, R. and Rebmann, A. (1982), Macro Economics- An introduction to Keynesian –Neo-classical controversies, Macmillan, London.
6.   Mankiw, N. G. (2010), Macroeconomics, Worth Publishers, 7th edition.
7.   Romer, D.L. (1996), Advanced Macroeconomics, McGraw Hill Company Ltd. New York.
8.   Shapiro E. (1996), Macroeconomic Analysis, Galgotia Publications, New Delhi.

ECO-403:   QUANTITATIVE METHODS & COMPUTER APPLICATION-I

Objective: The main objective of this paper is to train the students to use the techniques of mathematical and statistical analysis which are commonly applied to understand and analyse economic concepts. Economics being an empirical science, computers have emerged as the pivotal instruments of economic analysis, research and forecasting.

Expected outcome: This paper can develop the mathematical, statistical and computer skills of the students which they can apply to economics for better understanding of the subject matter.

UNIT-1   CALCULUS

      1.1   Concepts of function, Limit and Continuity

      1.2   Differentiation: rules of differentiation

      1.3   Functions of several variables: partial derivatives, differentials, total differentials, second and higher order differentials, total derivative, implicit functions, Euler's theorem

UNIT-2   MAXIMA AND MINIMA OF FUNCTIONS, CONCEPT OF INTEGRATION

      2.1   Maxima and minima in single and multivariable functions

      2.2   Simple rules of integration.

      2.3   Application of derivatives and integration in Economics

UNIT-3   MATRIX ALGEBRA

      3.1   Concept of Matrix- their types, simple operations on matrices

      3.2   Determinants and their basic properties

      3.3   Solution of Simultaneous equations through Crammers rule

      3.4   Matrix inversion and rank of a matrix, Concept of vector- its properties; Matrices and vectors, Concept of Quadratic forms- Eigen roots and Eigen vectors

UNIT-4   DIFFERENCE EQUATIONS, DIFFERENTIAL EQUATIONS AND COMPUTER APPLICATION IN ECONOMICS

      4.1   Solution of non-linear differential equation and linear differential equation

      4.2   Solution of first order and second order difference equations

4.3   Economic applications of Difference and Differential equations
4.4   Basic applications of Microsoft Office- Excel, MS Word and Power Point
4.5   Application in Tabulation, Frequency Distribution, Correlation & Regression Analysis

Reading List:

1. Chiang A.C. (1986), Fundamental methods of Mathematical Economics, McGraw Hill, New York.
2. Allen, R.G.D. (1974), Mathematical Analysis for Economists, Macmillan Press and ELBS London.
3. Yamane, Taro (1975), Mathematics for Economists, Prentice Hall of India, New Delhi.
4. K. Sydsaeter and P. Hammond (2002), *Mathematics for Economic Analysis*, Pearson Educational Asia: Delhi.
5. Gupta, S. P. (1978), Statistical Methods, Sultan Chand and Sons.
6. Gupta, S. C. and V. K. Kapur (1970), Mathematical Statistics, Sultan Chand and Sons.
7. Murray R. Spiegel (1992), Theory and Problem of Statistics, Schaum's Outline Series, Metric edition
8. Gupta, S. C. (1981), Fundamentals of Statistics, Himalaya Publishing House

<div align="center">OR</div>

ECO-403   STATISTICAL METHODS & COMPUTER APPLICATION-I

*The objective of the paper "**STATISTICAL METHODS & COMPUTER APPLICATION-I**" is to teach the students about various types of secondary and primary data related to economic problems and enable the students for data analysis through computer software.*

Expected outcome: After the completion of the paper, the students are expected to know applications of statistics in economics and use of statistics through computer.

I. **An Introduction to Statistical Method:** Types of variables, classification, tabulation and graphic presentation of data, Study of frequency of data, Measures of Central tendency, measures of dispersion, skewness, moments and kurtosis.

II. **Bi-variate distributions**: simple correlation, rank correlation, Linear regression analysis, Least square method- properties of regression coefficients.

III. **Elements of probability theory:** Classical and empirical definitions of probability; Laws of addition and multiplication; Conditional probability and concept of interdependence Mathematical Expectation. **Distribution:** Properties of Binomial, Poisson and Normal distributions, Concept of an estimator and its sampling distribution, Desirable properties of an estimator

IV. **Computer Application in Economics :** Basic applications of Microsoft Office- Excel, MS Word and Power Point, Application in Tabulation, Frequency Distribution, Correlation & Regression Analysis.

Reading List:

1. Chiang A.C (1986) Fundamental methods of Mathematical Economics, Mc Graw Hill, New York.
2. Allen, R.G.D (1974) Mathematical Analysis for Economists, Macmillan Press and ELBS London.
3. Yamane, Taro (1975) Mathematics for Economists, Prentice Hall of India, New Delhi.
4. Handry A.T (1999) Operations Research, Prentice Hall of India, New Delhi
5. Baumol, W.J (1984) Economic Theory and Operational Analysis, Englewood Cliffs, New Jersey.
6. Monga, G.S (1972) Mathematics and Statistics for Economists, Vikas Publishing House, New Delhi.

ECO-404:   INDIAN ECONOMIC POLICY-I

The objective of the paper "Indian Economic Policy -I" is to teach the students about the inception and development of the concept of 'economic development' and understand the same in the Indian context based on the attempts taken in Indian planning process. Further it also looks into the opportunities and threats for the economy in the context of economic reforms.

Expected outcome: After the completion of the course, the students are expected to know different important issues of Indian economy.

I. **Economic Development and its determinants**- Approaches to economic development and its measurement- sustainable development ; Role of state, market and other institutions ; Indicators of development – PQLI, Human Development Index (HDI), Gender development indices.

II. **Planning in India-** Objectives and strategy of planning: Failures and achievements of plans; Developing grass-root organizations for development- Panchayats, NGOs and Pressure groups.

III. **Poverty and inequality**- One-dimensional Poverty, Multi dimensional poverty; Poverty in India

IV. **Resource base and Infrastructure**- Energy, Social infrastructure- education and health; Environment; regional imbalance ; Issues and policies in financing infrastructural development. **Economic reforms**- Rationale of internal and external reforms; Globalisation of Indian economy.

Reading List:

1. Ahluwalia I.J. and I.M.D Littles (Eds.) (1999) India's Economic Reforms and Development , Oxford University Press, New Delhi
2. Bardhan, P.K. (1999) The Political Economy of Development in Inda, Oxford University Press, New Delhi.
3. Bawa R.S and P.S. Raikhy (Ed.) (1997) Structural Changes in Indian Economy, Guru Nanak Dev University Press, Amritsar.
4. Chakravarty, S. (1987) Development Planning: The Indian Experience, Oxford University Press, New Delhi.
5. Dantwala, M.L. (1996) Dilemmas of Growth : The Indian Experinece, Sage Publications, New Delhi.
6. Jalan, A.K. (1986) Economic Planning in Inda, Ashish Publishing House, New Delhi
7. Jalan, B. (1992) India's Economic Policy- Preparing for the Twenty First Century, Viking New Delhi.
8. Sen R.K. and B. Chatterjee (2001) Indian Economy : Agenda for 21st Century, Deep and Deep Publications, New Delhi.
9. Byres T.J. (Ed.) (1997) The State, Development Planning and Liberalization in India, Oxford University Press, New delhi.
10. Dhameeja, N. and K.S. sastry (1998) Privatisation: Theory and Practice, A.H. Wheeler, New Delhi
11. Dubey M. (1996) An Unequal Treaty- World Trading Order After GATT, New Age International Ltd. New Delhi.
12. Gupta, S.P (1998) Post-Reform India: Emerging trends, Allied Publishers, New Delhi.
13. Srinivasan, T.N. (Ed) (2000) Eight Lectures on India's Economic Reforms, Oxford University Press, Oxford.

ECO-405:   FINANCIAL INSTITUTIONS & MARKETS –I

Objective: The present course is designed to acquaint the students the theory and practice of different financial institutions, financial assets, and markets. It is also aimed at to acquaint them with the Government policies and, the role of financial sector over time.

Expected outcome: After completing this course the students will be well conversant with the important concepts relating to finance, will understand and be able to analyse the interconnection between the monetary forces and real forces, their developmental role and limitations in shaping and influencing the monetary and related policies both at the national and international levels.
.

I. **Nature and Role of Financial system**

Meaning and structure of the financial system, Money and Finance- Money and near money, Equities and debt, financial intermediaries, Money market and capital market, Primary and secondary market, Equilibrium in Financial markets, Indicators of financial development, Financial system and Economic development.

II. **Return, risks and security valuation**

Time Value of Money, Expected rate of return, required rate of return, current return and yield to maturity; Risks - meaning, types and measures, Risk –Return trade off, risk and return of a portfolio, capital asset pricing model (CAPM), present value of annuity and perpetuity, Valuation of bond, Valuation of Stock- P/E ratio and dividend discount method.

III. **Structure of interest rates**

Theories of interest rate determination, Level of interest rates, Long period and short period rates- Term structure of interest rates, Interest rate Structure and its determinants, Spread between lending and deposit rates. Administered interest rates, India's interest rate policy over time, Appropriate interest rate policy.

IV. **Banks, and Non-bank Financial Intermediaries**
Functions of commercial banks, Profitability and liquidity of banks, Need for the regulation of the banking sector, efficiency of banks, Development banks- role and functions, Non-banking financial companies- types and functions, role and growth, Need for the regulation of NBFCs.

Reading List:

1. L. M. Bhole and J. Mahukud, *Financial Institutions and Markets,* Tata McGraw Hill, 5th edition, 2011.
2. Prasanna Chandra, *Financial Management, Theory and Practice,* Tata McGraw Hill, 6th edition, 2006.
3. John C., Hull, *Options, Futures and Other Derivatives*, Pearson Education, 6th edition, 2005.
4. Dominick Salvatore, *International Economics: Trade and Finance*, John Wiley International Student Edition, 10th edition, 2011
5. Edminister, R.O, *Financial Institutions, markets and Management*, Mc Graw Hill, New York.1986.
6. R.I Robonson, and D. Wrightman, *Financial Markets*, Mc Graw Hill, London.1981.

ECO-406: HISTORY OF MODERN ECONOMIC ANALYSIS (Contribution of Nobel laureates in Economics)-I

*The objective of the paper "**History of Modern Economic Analysis-I**" is to teach the students about the Theory of value, General Equilibrium, games theory; Macroeconomics, Monetary Economics and Financial Economics; Economic Development and Economic Growth based on the contributions of different Nobel Laureates.*

Expected outcome: After completing this course the students expected to know the recent development on theory of value, welfare economics, macro economics and economic development..

I. Theory of value, General Equilibrium, games theory, Welfare-I : Samuelson, J. Hicks, K.J. Arrow, Maurice Allais, R.H. Coase, J.F. Nash.
II. Macroeconomics, Monetary Economics and Financial Economics-I :M. Friedman, J.Tobin, F. Modigilani,
III. Macroeconomics, Monetary Economics and Financial Economics-II: H.M. Markowitz, W.F. Sharpe, M.H. Miller, M. Scholes.
IV. Economic Development and Economic Growth- S. Kuznets, T.W. Schultz, W.A. Lewis, R.M. Solow.

Reading List:

1. Lendbeck, A. (Ed.) (1992) Economic Sciences : Nobel Lectures, World Scientific
2. Weintraiub, S. (Ed.) (1970) Modern Economic thought, University of Pensylvania
3. North D.C. (1990) Institutions, Institutional Change and Economic Performances, MIT Press, Cambridge, Mass.
4. Meade, J.E (1971 and 1978) Principles of Political Economy, Vols. I to IV, Duckworth, London
5. Stone, R. (1984), The Accounts of Society: Nobel Lecture
6. Miller, M.H (1998), Leverage : Nobel Lecture
7. Markowitz, H.M (1990) Foundations of Portfolio Theory, Nobel Lecture
8. Allais, M (1978) Contributions to economic Science

ADD ON NON-CREDIT COURSE

Each student can opt for one add-on course of the following two in Semester-I: (i)Leadership & Personality Development, or (ii) Communicative English. This course will be floated by Odisha State Open University. The student has to secure 50% marks with attendance to get the certificate. For detailed syllabus, please visit the website.

ECO-411:   **MICROECONOMIC THEORY-II**

Objective: This paper is mainly concerned with the objective of equipping the students in a rigorous and comprehensive manner with the various aspects of production theory and behaviour of costs, the theory of traditional markets and equilibrium of firm in modern non-profit maximizing framework. The paper also deals with the micro and macro theories of distribution, welfare economics, general equilibrium in closed and open systems and analysis of economic behaviour under uncertainty.

Expected outcome: Students will know the application of Economic Theory in to practice.

I. **Alternative Theories of the Firm I**

    Critical evaluation of marginal analysis ; Baumol's sales revenue maximization model ; Williamson's model of managerial discretion, Full cost pricing rule.

II. **Alternative Theories of the Firm II**

    Marris model of managerial enterprises; Bain's limit pricing theory and its recent developments including Sylos-Labinis model, Behavioural model of the firm ; game theoretic models.

III. **Distribution**

    Neo-classical approach- Marginal productivity theory ; Product exhaustion theorem ; Theory of distribution in imperfect product and factor markets ; determination of rent, wages, interest and profit, Ricradian, Marxian, Kalecki and Kaldor's.

IV. **Welfare Economics and Economics of information**

    Pigovian welfare economics; Pareto optimal conditions, Value judgment; Social welfare function. Theory of Second Best and General Equilibrium- Compensation principle; Inability to obtain optimum welfare- Imperfections, market failure, decreasing costs; Theory of Second Best. General Equilibrium- Partial and general equilibrium, Walrasian excess demand. The Economics of information.

Reading List:

1. Kreps, David M. (1990) A Course in Microeconomic Theory, Princeton University Press, Princeton.
2. Koutsoyiannis, A (1979), Modern Micro Economics, Mac Millan Press, London
3. Layard, P.R.G. and A.W. Walters (1978), Mircoeconomic Theory, Mc Graw Hill, New York.
4. Varian, H (2000) Microeconomic Analysis, W.W. Norton, New York.
5. Baumol, W.J. (1982) Economic theory and Operation analysis, Prentice Hall of India, New Delhi.
6. Gree, H.A.G (1971) Consumer Theory, Penguin, Harmondsworth.
7. Hirshleifer J. and A. Glazer, (1997) Price Theory and Applications, Prentice Hall of India, New Delhi.
8. Da Costa, G.C (1980) Production, Prices and Distribution, Tata Mc Graw Hill, New Delhi.

ECO-412:   **MACROECONOMIC THEORY-II**

Objective: Macroeconomics analyses and establishes the functional relationship among the large aggregates. This paper is designed to make the students aware of the basic theoretical framework underlying in the field of macroeconomics. It also gives emphasis on the impact of different macroeconomic policies on the economy.

Expected outcome: After completing this course the students will be able to know the basic theoretical framework of the aggregate economy. As emphasis has been given in the theories relating to the supply of money, demand for money, inflation, business cycle, neo- classical and Keynesian synthesis, role of fiscal policy and monetary policy; the students can analyse and relate these theories to the real world situation

UNIT-1   **POST KEYNESIAN APPROACHES TO DEMAND FOR MONEY**
    1.1   Regressive expectation model
    1.2   Portfolio balance approach
    1.3   Patinkin and the real balance effect
    1.4   Friedman and the modern quantity theory
    1.5   Crisis in Keynesian economics and the revival of monetarism.

UNIT-2   **MACROECONOMICS IN AN OPEN ECONOMY**
     2.1   Income determination in an open economy
     2.2   Internal and external equilibrium-The Mundell-Fleming Keynesian model
     2.3   Foreign trade multiplier

UNIT-3   **THEORY OF INFLATION**
     3.1   Keynesian and Monetarist approaches to inflation
     3.2   Structuralists' theory of inflation
     3.3   Phillips curve analysis- Short run and long run Phillips curve
     3.4   Samuelson and Solow- the Natural rate of unemployment hypothesis
     3.5   Tobin's modified Phillip's curve
     3.6   Adaptive expectations and rational expectations

UNIT-4   **BUSINESS CYCLES AND THE NEW CLASSICAL CRITIQUE OF KEYNESIAN MICRO FOUNDATIONS**
     4.1   Meaning and features of Business Cycle
     4.2 Theories of Business cycle: Schumpeter, Kaldor, Samuelson and Hicks, Goodwin
     4.3   Control of business cycles- relative efficiency of monetary and fiscal policies
     4.5   The new classical approach
     4.6   Policy implications of new classical approach
     4.7 New Keynesian Counter critics

Reading List:

1. Branson W.A. (1989), Macroeconomic Theory and Policy, Harper and Row, New York.
2. Dornbusch, R and F. Stanley (1997), Macroeconomics, McGraw Hill, Inc. New York.
3. Hall, R.E and J.B Taylor (1986), Macroeconomics, W.W. Norton, New York.
4. Jha, R. (1991), Contemporary Macroeconomic Theory and Policy, Wiley Eastern Ltd. New Delhi.
5. Levacic, R. and Rebmann, A. (1982), Macro Economics- An introduction to Keynesian –Neo-classical controversies, Macmillan, London.
6. Mankiw, N. G. (2010), Macroeconomics, Worth Publishers, 7th edition.
7. Romer, D.L. (1996), Advanced Macroeconomics, McGraw Hill Company Ltd. New York.
8. Shapiro E. (1996), Macroeconomic Analysis, Galgotia Publications, New Delhi.

ECO-413:   QUANTITATIVE METHODS & COMPUTER APPLICATION-II

Objective: The main objective of this paper is to train the students to use the techniques of mathematical and statistical analysis which are commonly applied to understand and analyse economic concepts. Economics being an empirical science, computers have emerged as the pivotal instruments of economic analysis, research and forecasting.
Expected outcome: This paper can develop the mathematical, statistical and computer skills of the students which they can apply to economics for better understanding of the subject matter.
.

UNIT-1   **CORRELATION AND REGRESSION ANALYSIS**
     1.1   Meaning, assumptions and limitations of simple correlation and regression analysis
     1.2   Spearman's rank correlation coefficients and their properties
     1.3   Method of least squares and the Gauss Markov Theorem; estimated variance in two variable linear model
     1.4   partial and multiple correlation and regression

UNIT-2   **THEORY OF PROBABILITY**
     2.1   Classical and empirical definitions of probability; Laws of addition and multiplication; Conditional probability and concept of interdependence
     2.2   Bayes theorem and its implications
     2.3   Mathematical Expectation.

UNIT-3   **THEORETICAL DISTRIBUTION, THEORY OF ESTIMATION AND TEST OF HYPOTHESES**
     3.1   Properties of Binomial, Poisson and Normal distributions
     3.2   Concept of an estimator and its sampling distribution
     3.3   Desirable properties of an estimator
     3.4   Formulation of statistical hypotheses- Null and Alternative;
     3.5   Type I and Type II error, Goodness of fit; Confidence intervals and levels of significance
     3.6   Hypothesis testing based on Z, t, Chi-square, F

UNIT-4   **BASIC CONCEPT OF SAMPLING AND COMPUTER APPLICATIONS**
     4.1   Random and non-random sampling; Simple random, stratified random and PPS sampling;
     4.2 Use of statistical packages (S.P.S.S. & E View) in frequency distribution, correlation and regression analysis, ANOVA, Time Series Tests

Reading List:

1. Chiang A.C. (1986), Fundamental methods of Mathematical Economics, McGraw Hill, New York.
2. Allen, R.G.D. (1974), Mathematical Analysis for Economists, Macmillan Press and ELBS London.
3. Yamane, Taro (1975), Mathematics for Economists, Prentice Hall of India, New Delhi.
4. K. Sydsaeter and P. Hammond (2002), *Mathematics for Economic Analysis*, Pearson Educational Asia: Delhi.
5. Gupta, S. P. (1978), Statistical Methods, Sultan Chand and Sons.
6. Gupta, S. C. and V. K. Kapur (1970), Mathematical Statistics, Sultan Chand and Sons.
7. Murray R. Spiegel (1992), Theory and Problem of Statistics, Schaum's Outline Series, Metric edition
8. Gupta, S. C. (1981), Fundamentals of Statistics, Himalaya Publishing House

<div align="center">OR</div>

ECO-413 STATISTICAL METHODS & COMPUTER APPLICATION-II

*The objective of the paper "**STATISTICAL METHODS & COMPUTER APPLICATION-II**" is to teach the students about testing of hypothesis and drawing of inferences from different sources of data using computer software. The paper also aims to enable the students to understand the index number and time series analysis.*

Expected outcome: After completions of the course, the students are expected to use different statistical software and apply them economic analysis.

I. **Estimation theory & Tests of hypotheses-I** , interval estimation, Tests of hypotheses, level of significance, large and small sample tests, Z-test, t-test, F-test and Chi-square test.

II. **Index numbers**: quantity and price index number, index number formulae, construction of index numbers, construction of cost of living index number, time reversal, factor reversal and circular test.

III. **Time series analysis**- decomposition- Fitting of secular Trend, Method of de-seasonalisation, Measurement of cyclical fluctuation and irregular variations.

IV. **Basic concept of sampling & Computer Applications**: random and non-random sampling ; Simple random, stratified random and PPS sampling;
Use of statistical packages (S.P.S.S. & E View) in frequency distribution, correlation and regression analysis, ANOVA, Time Series Tests.

Reading List:
1. Chiang A.C. (1986), Fundamental methods of Mathematical Economics, McGraw Hill, New York.
2. Allen, R.G.D. (1974), Mathematical Analysis for Economists, Macmillan Press and ELBS London.
3. Yamane, Taro (1975), Mathematics for Economists, Prentice Hall of India, New Delhi.
4. K. Sydsaeter and P. Hammond (2002), *Mathematics for Economic Analysis*, Pearson Educational Asia: Delhi.
5. Gupta, S. P. (1978), Statistical Methods, Sultan Chand and Sons.
6. Gupta, S. C. and V. K. Kapur (1970), Mathematical Statistics, Sultan Chand and Sons.
7. Murray R. Spiegel (1992), Theory and Problem of Statistics, Schaum's Outline Series, Metric edition
8. Gupta, S. C. (1981), Fundamentals of Statistics, Himalaya Publishing House

ECO-414: INDIAN ECONOMIC POLICY-II

*The objective of the paper "**Indian Economic Policy -II**" is to teach the students about different economic issues such as agriculture, industry, privitisation and parallel economy etc empirically.*

Expected outcome: After completions of the course, the students are expected to important economic issues of Indian economy.

I. **The Agricultural sector**-I Institutional structure- land reforms in India, Technological change in agriculture. Pricing of agricultural inputs and output, terms of trade between agriculture and industry, agricultural finance policy, Agricultural marketing and ware housing; Issues in food security- policies for sustainable agriculture.

II. **The Industrial sector-I:** Industrial policy, Public sector enterprises and their performance, problem of sick units in India,

III. **The Industrial sector-I**I: Privatisation and disinvestments debate, growth and pattern of industrialization, small scale sector, productivity in industrial sector, Exit policy- issues in labour market reforms ; Approaches for employment generation.

IV. **Public finances**- Parallel economy; problems relating to fiscal policy; Fiscal sector reforms in India

Reading List:

1. Ahluwalia I.J. and I.M.D Littles (Eds.) (1999) India's Economic Reforms and Development , Oxford University Press, New Delhi
2. Bardhan, P.K. (1999) The Political Economy of Development in Inda, Oxford University Press, New Delhi.
3. Bawa R.S and P.S. Raikhy (Ed.) (1997) Structural Changes in Indian Economy, Guru Nanak Dev University Press, Amritsar.
4. Chakravarty, S. (1987) Development Planning: The Indian Experience, Oxford University Press, New Delhi.
5. Dantwala, M.L. (1996) Dilemmas of Growth : The Indian Experinece, Sage Publications, New Delhi.
6. Jalan, A.K. (1986) Economic Planning in Inda, Ashish Publishing House, New Delhi
7. Jalan, B. (1992) India's Economic Policy- Preparing for the Twenty First Century, Viking New Delhi.
8. Sen R.K. and B. Chatterjee (2001) Indian Economy : Agenda for 21st Century, Deep and Deep Publications, New Delhi.
9. Byres T.J. (Ed.) (1997) The State, Development Planning and Liberalization in India, Oxford University Press, New delhi.
10. Dhameeja, N. and K.S. sastry (1998) Privatisation: Theory and Practice, A.H. Wheeler, New Delhi
11. Dubey M. (1996) An Unequal Treaty- World Trading Order After GATT, New Age International Ltd. New Delhi.
12. Gupta, S.P (1998) Post-Reform India: Emerging trends, Allied Publishers, New Delhi.
13. Srinivasan, T.N. (Ed) (2000) Eight Lectures on India's Economic Reforms, Oxford University Press, Oxford.

ECO-415: FINANCIAL INSTITUTIONS & MARKETS-II

Objective: The present course is designed to acquaint the students the theory and practice of different financial institutions, financial assets, and markets. It is also aimed at to acquaint them with the Government policies and, the role of financial sector over time.

Expected outcome: After completing this course the students will be well conversant with the important concepts relating to finance, will understand and be able to analyse the interconnection between the monetary forces and real forces, their developmental role and limitations in shaping and influencing the monetary and related policies both at the national and international levels.

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I. **Regulatory Financial Institutions**
Central Bank- Objectives and Functions, Monetary policy in India-objectives, instruments, process of monetary policy making, Effectiveness of monetary policy, Autonomy of Central Bank, Central Bank's Supervision and prudential measures for Financial stability; SEBI- Objectives and roles in capital market regulation, IRDA-Objectives and Functions.

II. **Money market and Capital Market**

Role and structure of money market and capital market- call money market, Treasury bill market, Commercial bill market including commercial paper and certificate of deposits, Government securities market, Industrial securities market, markets for derivatives (forward, future, options and swap), Stock exchanges in India.

III. **Foreign exchange market and International finance**
Foreign exchange market: spot and forward markets, Exchange rates- spot vs forward rates, fixed vs flexible rates, determination of (floating) exchange rate, working of floating exchange rates since 1973. International Financial flows: forms and volume, Theories of capital movement- flow and stock theories, Covered interest arbitrage parity model, Euro-dollar and Euro-currency market.

IV. **Financial Sector Reforms in India**
Need for financial sector reforms, Banking Sector reforms, Basel norms, Reforms in the I   nsurance sector, reforms in the money and capital market, Trade and exchange rate reforms, Liberalising capital flows.

Reading List:

7. L. M. Bhole and J. Mahukud, *Financial Institutions and Markets,* Tata McGraw Hill, 5th edition, 2011.
8. Prasanna Chandra, *Financial Management, Theory and Practice,* Tata McGraw Hill, 6th edition, 2006.
9. Hull, John C., *Options, Futures and Other Derivatives*, Pearson Education, 6th edition, 2005.
10. Dominick Salvatore, *International Economics: Trade and Finance*, John Wiley International Student Edition, 10th edition, 2011
11. Edminister, R.O (1986) Financial Institutions, markets and Management, Mc Graw Hill, New York.
12. Robonson, R.I and D. Wrightman (1981), Financial Markets, Mc Graw Hill, London.

ECO-416:   HISTORY OF MODERN ECONOMIC ANALYSIS (Contribution of Nobel laureates in Economics)-II

The objective of the paper "History of Modern Economic Analysis-II" is to teach the students about the Input-Output analysis, Programming, Social accounts, Economic and social systems; International trade and Capital movement; Quantitative Economic History and welfare economics based on the contributions of different Nobel Laureates.

Expected outcome: After completing this course the students expected to know the recent development on input-output analysis, programming, social accounts;, international trade and capital movement and quantitative economic history.

I. **Input-Output analysis, Programming, Social accounts, Economic and social systems- I**: W.W. Leontief, F. Hayek, G. Myrdal., L. Kantorovich, C.T. Koopmans, R.Stone

II. **International trade and Capital movement**- J.E. Keade, B.Ohlin, R.A. Mundell

III. **Quantitative Economic History-I** D.C. North, R.W. Fogel. G.S. Becker

IV. Quantitative Economic History-II A.K. Sen, Angus Deaton, H.A. Simon, G.J. Stigler, J.M. Buchanan, R.J. Lucas, W.J. Vickery, J. Mirrlees,

Reading List:

1. Lendbeck, A. (Ed.) (1992) Economic Sciences : Nobel Lectures, World Scientific
2. Weintraiub, S. (Ed.) (1970) Modern Economic thought, University of Pensylvania
3. North D.C. (1990) Institutions, Institutional Change and Economic Performances, MIT Press, Cambridge, Mass.
4. Meade, J.E (1971 and 1978) Principles of Political Economy, Vols. I to IV, Duckworth, London
5. Stone, R. (1984), The Accounts of Society: Nobel Lecture
6. Miller, M.H (1998), Leverage : Nobel Lecture
7. Markowitz, H.M (1990) Foundations of Portfolio Theory, Nobel Lecture
8. Allais, M (1978) Contributions to economic Science

ECO-501:   PUBLIC ECONOMICS-I

Objective: Role and functions of the Government in an economy have been changing with the passage of time. This paper covers the theoretical aspects of Public Economics and Public Finance.

Expected outcome: Students will know the application of Public Economics and its application to facts.

I. **Introduction**
    Role of Govt. in organized society; changing perspectives- government in a mixed economy, public and private sector, co-operation or competition; Govt. as an agent for economic planning and development. Government as a tool for operationalising the planning process ; private goods, public goods, market failure- imperfections, decreasing costs, externalities, public goods.

II. **Public choice**
    Private and public mechanism for allocating resources, problems for allocating resources, problems of preference revelation and aggregation of preferences, Voting systems, Arrow Impossibility theorem.

III. **Public Policy and Institutions**
    An economic theory of democracy, Politico-eco-bureaucracy; rent seeking and directly unproductive profit seeking (DUP) activities. Rationale for public policy: Allocation of resources, provision of public goods, voluntary exchange models, impossibility of decentralized provision of public goods (contributions of Samuelson and Musgrave)

IV. **Fiscal policy**
    Fiscal policy for full employment, anti-inflation, economic growth, redistribution of income and wealth, interdependence of fiscal and monetary policies, budgetary deficits and its implications, Fiscal policy for stabilization-automatic vs. discretionary stabilization ; Alternative measures of resource mobilization and their impact on growth, distribution and prices, balanced budget multiplier.

Reading List:

1. Atkinson, A.B. and J.E. Siglitz (1980) Lectures on Public Economics, Tata McGraw Hill, New York
2. Auerbach, A.J. and M. Feldstern (Eds) (1985) Handbook of Public Economics, Vol.I, North Holland, Amsterdam.
3. Jha, R (1998) Modern Public Economics, Routledge, London
4. Musgrave, R.A. (1959) The Theory of Public Finance, McGraw Hill, Kogakhusa, Tokyo
5. Shoup, C.S (1970) Public Finance, Aldine, Chicago
6. Peacock . A and G.K. shaw (1976) The Economic Theory of Fiscal Policy, George Allen and Unwin, London.
7. American Economic Association (1955) Readings in Fiscal Policy, George Allen and Unwin, London.

ECO-502   INTERNATIONAL TRADE & FINANCE-I

Objective: *This course has become relatively more relevant from the policy point of view under the present waves of globalization and liberalization both in the North and in the South. It aims to provide a deep understanding about the broad principles and theories, which tend to govern the free flow of trade in goods, services and capital at the global level.*

Expected outcome: *The students will not only be acquainted with the trade theories and policies but also will be able to analyse the impact of the relevant policies on the economy.*

I. **Theories of International Trade**
    Classical Theories of trade, Opportunity costs and trade theories, Empirical testing of theory of comparative cost. Heckscher-Ohlin theory, Leontieff's paradox, Theorem of factor price equalization, Kravis and Linder theory.

II. **Trade Theories with Economies of Scale and Imperfect Competition**
Imitation gap theory, Technological gap and Product cycle theory. Economies of scale and International trade, Product differentiation and intra-industry trade- Krugman model and Lancaster model.

III. **Measurement and gains from trade**
Measurement of gains from trade and their distribution, Terms of trade- concept, uses and limitations, Hypothesis of secular deterioration of terms of trade, Trade as an engine of economic growth, Immiserising growth.

IV. **Theory of interventions and Welfare implications**:
Trade protection measures- Tariffs, Quotas and voluntary export restraints, Tariff and rewards to the factors of production in the short, medium and long run Stolper-Samuelson theorem on welfare implications of tariff, Metzler's paradox, nominal, effective and optimum tariff, The political economy of non-tariff barriers and their implications.

Reading List:

1. Salvatore, D (2014) *International Economics: Trade and Finance*, Wiley Students' Edition, 11th Edition.
2. Soderstein, Bo. And G. Reed,(1994) *International Economics*, The Palgrave Macmillan, London, 3rd (revised) edition.
3. Cherunilam, Francis (2017), Mc Graw Hill, Education
4. Carbough, R.J. (1999) *International Econ*omics, International Thomson Publishing, New York.
5. Chacoliades, M. (1990) *International Trade : Theory and P*olicy, Mc Graw Hill, Kogakusha, Japan
6. Acharya, Rajat (2013) International *Economics An Introduction to Theory and Policy*,Oxford University Press, New Delhi

ECO-503   GROWTH & DEVELOPMENT-I

Objective: The study of economic development has gained importance because of sustained interest of the developing countries in uplifting their economic conditions by restructuring their economies to acquire greater diversity, efficiency and equity in consonance with their priorities. There have been many approaches to economic development and the objective of the paper is to make the students understand the various approaches to economic development and growth.

Expected outcome: Modules incorporated in this paper are devoted to the theories of growth and development, institutional aspects of development, role of international trade, investment criteria, social cost benefit analysis, relevance of planning in the context of development. After completing this course the students will be able to know the different aspects of economic development and can use these things in their future research as well as in qualifying the various national level tests.

I. **Theories of development**: Classical theory of development, contributions of Adam Smith, Ricardo, Malthus, Karl Marx and development of capitalistic economy- theory of social change, surplus value and profit, Immutable laws of capitalistic development, crisis in capitalism- Schumpeter and capitalistic development ; Innovation- role of credit, profit and degeneration of capitalism ; Structural analysis of development. Institutional Aspects of development: Economic development and institutions- markets and market failure, state and state failure, issues of good governance.

II. **Approaches to development:** Partial theories of growth and development- vicious circle of poverty, circular causation, unlimited supply of labour, big push, balanced growth, unbalanced growth, critical minimum effort thesis, low income equilibrium trap, Ranis and Fei model.

III. **Economic Growth-I**: Economic growth and development- factors affecting economic growth, ; capital, labour and technology ; Growth models- Harrod and Domar, instability of equilibrium ; Neo-classical growth models- Solow-Swan model, Cambridge criticism of Neo-classical analysis of growth

IV. **Economic Growth-II:** The Capital controversy- general ideas, Kaldor's growth model, Technological progress- embodied and disembodies technical progress, Hicks, Harrod, Exogenous and endogenous technical progress, Learning by doing.

Reading List:

1. Ghatak, S (1986) An Introduction to development Economics, Allen and Unwin, London
2. Higgins,B. (1959) Economic Development, WW Norton, New York.
3. Meier G.M.(1986) Leading Issues in Economic Development, Oxford University Press, New York
4. Basu, Kaushik (2000) Analytical Development Economics: The less developed Economy Revisited, Oxford University Press, India.
5. Ray Debraj (2000) Development Economics, Oxford University Press, India.
6. Chenery H and T.N. Srinivasan (Eds) (1989) Handbook of Development Economics, Vols. 1&2, Elsevier, Amsterdem.
7. Todaro, M.P (1996) Economic Development, Longman, London
8. Thirlwal, A.P (1999) Growth and Development, Macmillan, UK.
9. Hayami, Y. (1997) Development Economics, Oxford University Press, New York
10. Sen, A.K. (Ed) (1990) Growth Economics, Penguin, Harmondsworth

ECO-504 MATHEMATICAL ECONOMICS-I

Objective: A student of economics can make much headway in understanding the subject with basic mathematical logic. Mathematical economics has been accordingly designed to include various mathematical techniques/ methods/ models related to the different parts of economic theory. This course is designed to equip students to understand the micro economic concepts and theories which use mathematical tools and techniques to refine the verbal logic.

Expected outcome: Students will know the integration of Mathematics and Economic Theory.

I. **Theory of Consumer Behaviour**
Cardinal and ordinal utility maximization ; Slutsky equation, compensated demand functions, income, substitution and price effects ; Concept of elasticities- generalizations to n variable case. Separate and additive utility functions; homogeneous and homothetic utility functions ; constant elasticity of substitution (CES) and transcendental logarithmic utility functions ; duality theorem ; consumers surplus ; Theory of revealed preference and index numbers ; Linear expenditure systems.

II. **Theory of production**
Production function- homogeneous and non-homogeneous, Properties of production function; CES, VEX and trans-log production function. Simple derivation of short run and long run cost functions ; Modern approach to theory of costs; Cost function, constrained optimization of a producer ; Generalisation to n variable case ; Input demand functions ; Adding up theorem, Technical progress through production function.

III. **Price determination in various markets**
Price determination in perfect competition, monopoly, monopolistic competition, duopoly, oligopoly, and monopsony ; Pricing of factors of production ; Bilateral monopoly.

IV. **Market equilibrium**- Marshallian and Walrasian equilibrium conditions; lagged market equilibrium; Multi-market equilibrium- general equilibrium, systems of Walras and Debreau ; Conditions of stability for equilibrium.

Reading List:

1. Allen RGD (1974) Mathematical Analysis for Economists, Macmillan Press and ELBS, London.
2. Chiang, A.C (1986), Fundamental Methods of Mathematical Economics, Mac Graw Hill, New York.
3. Henderson & Quandt, Micro Economic Theory, A mathematical approach, Mac Gaw Hill, New Delhi.
4. Allen, RHD, (1976) Mathematical Economics, Macmillan, London
5. Arrow K.J., and M. Intrilligator, (Eds) (1982), handbook of Mathematical Economics, Volumes, I, II, III, North Holland, Amsterdam.
6. Hadley, G (1962) Linear Programming, Addison Wesley Publishing Co., Massachusetts.

OR

ECO-504   AGRICULTURAL ECONOMICS-I

Objective: *The objective of this course is to provide a detailed treatment of issues in agricultural economics to those intending to specialise in this area.*

Expected outcome: *It will familiarise students with the policy issues that are relevant to Indian agricultural economics and enable them to analyse these issues.*

I. **Agriculture and Economic Development**- Nature and scope of agricultural and rural economics ; Traditional agriculture and its modernization ; Role of agriculture in economic development ; Interdependence between agriculture and industry- some empirical evidence; Models of interaction between agriculture and the rest of the economy; Agricultural development: poverty and environment. Diversification of Rural Economic activities- Livestock economics- Livestock resources and their productivity; White revolution; Fishery and poultry development; Forestry, horticulture and floricultur ; Issues and problems in rural industrialization and development of agro-based industries.

II. **Agricultural production and productivity**- Agricultural production- Resource use and efficiency; production function analysis in agriculture, factor combination and resource substitution; Cost and supply curves; Size of firm and laws of returns. Theoretical and empirical findings: Farm budgeting and cost concepts; Supply response of individual crops and aggregate supply; Resource use efficiency in traditional agriculture; Technical change, labour absorption and gender issues in agricultural services.

III. **Land reforms and land policy-** principles of land utilization : Land distribution-Structure and trends: land values and rent; Land tenures and farming systems- Peasant, capitalist, collective and state farming; Tenancy and crop sharing- Forms, incidence and effects; Land reforms measures and performance; Women and land reforms.

IV. **Rural labour market** – Rural labour supply, interlocking of factor markets; Mobility of labour and segmentation in labour market; marginalization of rural labour; nature, extent and trends in rural unemployment; Agricultural wages in India; male-female wage differences, Non-agricultural rural employment- Trends and determinants.

Reading List:

1. Bhaduri A. (1984) The Economic Structure of Backward Agriculture, Macmillan, Delhi
2. Bilgrami SAR, (1996) Agricultural economics, Himalaya Publishing House, Delhi
3. Gulati , A & T. Kelly (1999), Trade Liberalisation and Indian Agriculture, Oxford University Press, New Delhi.
4. Rudra A. (1982), Indian Agricultural Economics: Myths and Reality, Allied Publishers, New Delhi.
5. Bardhan P. (1984) Land, Labour and Rural Poverty, Oxford University Press, New Delhi.
6. Soni, R.N (1995) Leading issues in Agricultural Economics, Arihant Press, Jalandhar.
7. Dantwala M.L, (1996) Dilemmas of Growth: the Indian Experience, sage Publications, New Delhi.
8. Vaidyanathan, A (1995) The Indian economy : Crisis, response and Prospects, Orient Longmans, New Delhi
9. Bhalla G. S (1994) Economic Liberalisation and Indian Agriculture, Institute for Studies in Industrial development, New Delhi.

ECO-505   ECONOMTERICS-I

Objective: *Econometrics is mainly concerned with the empirical verification of economic theory. It requires a reasonable understanding of economic relationships and relevant statistical methods. Thus, the econometric theory becomes a powerful tool for understanding of applied economic relationships and for meaningful research in economics. This paper is devoted to equip the students with basic as well as advanced theory of econometrics and relevant applications of the methods.*

Expected outcome: *The topics covered in the course include various problems faced in estimation of both single equations and simultaneous equations models. The course also covers various econometric methods applicable to different topics in economics and those needed for applied economic research. Students are expected to know the basic concepts and applications of econometrics, adding rigour to the understanding of economic problems*

UNIT-1   BASIC ECONOMTERICS
       1.1   Nature, meaning and scope of econometrics
       1.2   Simple and general linear regression model- Assumptions, Estimation (through OLS approach) and properties of estimators
       1.3   Gauss Markov theorem
       1.4   Concepts and derivation of R^2 and Adjusted R^2

GENERALISED LEAST SQUARES (GLS)
          2.1   Generalised Least Square estimation (GLS)
          2.2   Functional Forms of Regression models: The log-linear model, Semilog model, Reciprocal model and the logarithmic reciprocal model

UNIT-3   **PROBLEMS OF REGRESSION ANALYSIS**
          3.1   Heteroscedasticity: nature, test, consequences and remedial steps of problems of heteroscedasticity
          3.2   Multicollinearity: problem, types, causes, consequences, detection and remedial measures
          3.3   Autocorrelation: problem, causes, AR scheme, consequences, detection and remedies

UNIT-4   **REGRESSIONS WITH QUALITATIVE INDEPENDENT VARIABLES AND DUMMY DEPENDENT VARIABLES**
          4.1   Dummy variable technique
          4.2   Testing structural stability of regression models comparing to regressions,
          4.3   Interaction effects, seasonal analysis
          4.4   Piece-wise linear regression
          4.5   The LPM Model
          4.6   The Logit Model
          4.6   The Probit Model

Reading List:

1. Jhonston J. (1991), Econometric Methods , McGraw Hill Book Co. London
2. Asteriou Dimitrious, (2006), Applied Econometrics, Palgrave Macmillan, New York
3. Gujrati D.N. (1995), Basic Econometrics, (2nd edition) McGraw Hill, New Delhi
4. Kmenta, J. (1977), Elements of Econometrics, (reprint edition) University of Michigan Press, New York.
5. Koutsoyiannis A. (1977), Theory of Econometrics (2nd ed.) The Macmillan Press Ltd. London.
6. Madalla G.S. (1997), Econometrics, McGraw Hill, New York.
7. Intrilligator, M.D. (1978), Econometric Methods, Techniques and Applications, Prentice Hall, Englewood Cliffs, New Jersey.
8. Pindyck, Robert S. and Daniel L. Rubinfeld,(1976), Econometric Models and Economic Forecasts, International Student edition, McGraw-Hill

OR

ECO-505   **ENVIRONMENTAL ECONOMICS-I**

Objectives: The objective of this course is to acquaint the students of economics the various environmental issues and to provide some insights into the application of economic theory in the design and implementation of public policy related to the management of environment.

Expected outcomes: The students will learn the valuation of environment, the importance of institutions for the management of environment, and issues relating to sustainable development.

I. **An introduction to Environmental Economics**
    Concepts: Environmental Economics and Natural Resource Economics, Natural resources (renewable and non-renewable), Pollutants (biodegradable and non-biodegradable), Threshold level value, carrying capacity, Environment Economy inter-linkage, Irreversibility and uncertainty problems of intervention on environment and the need for precaution, Limits to growth, Environmental issues in developing countries.

II. **Market failure and Solutions**
    Environmental quality as a public good, Pollution as a public bad, the problems of externalities and solutions: Pigovian Measures of Government Interventions, Coase' bargaining solution, Tradable Pollution Rights, Command and Control measures.

III. **Valuation of Environment**
    Meaning and the need for environmental valuation, Direct and Indirect method of valuation, Willingness to pay and willingness to accept, Revealed Preference method: Hedonic Price theory, Averting expenditure method, and Travel cost method, Contingent valuation method.

IV. **Natural Resource Economics and Sustainable Development**
    Economics of non-renewable resources and Hotelling model, Efficiency and sustainability issues in the management of renewable resources, Environment and development trade-off

and the concept of sustainable development; Sustainability Rules and Indicators of sustainable development, Integrated environmental and economic accounting.

Reading List:
1. Kolstad, C. D (1999) *Environmental economics*, Oxford University Press, New Delhi
2. Sankar, U (Ed.) (2001) *Environmental Economics*, Oxford University Press, New Delhi
3. Hanley N (1997) *Environmental Economics in Theory and Practice*, Macmillan, London.
4. Tietenberg T. (1994) *Environmental Economics & Policy*, Harper Collins, New York.
5. Bromley D W, (ed.) (1995) *Handbook of Environmental Economics*, Blackwell, London
6. Bhattacharya, R.N. (2001) Environmental Economics an Indian Perspective, Oxford University Press, New Delhi
7. Hussen, AM (1999) Principles of Environmental Economics, Routledge, London

ADD ON NON-CREDIT COURSE:
Each student can opt for one add-on course of the following two in Semester-III: (i) Soft and IT skills, or (ii) Entrepreneurship Development. This course will be floated by Odisha State Open University. The student has to secure 50% marks with attendance to get the certificate. For detailed syllabus, please visit the website.

SEMESTER-IV

ECO-511   PUBLIC ECONOMICS-II

Objective: Role and functions of the Government in an economy have been changing with the passage of time. There are vast array of fiscal institutions — tax systems, expenditure programmes, budgetary procedures, stabilization instruments, debt issues, levels of government, etc., which raise a spectrum of issues arising from the operation of these institutions This paper combines a thorough understanding of fiscal institutions with a careful analysis of the issues which underline budgetary policies in general and Indian experience in particular.

Expected outcome: Students will know the application of Public Economics and its application to facts.

I. Public expenditure and Taxation
Wagner's law of increasing state activities ; Wiseman-Peacock hypothesis ; Pure theory of public expenditure ; Structure and growth of public expenditure ; Criteria of public investment ; Social cost-benefit analysis- Project evaluation, Estimation of costs, discount rate ; Reforms in expenditure budgeting : Programme budgeting and zero base budgeting. Theory of incidence ; Alternative concepts of incidence- Allocative and equity aspects of individual taxes ; benefit and ability to pay approaches ; Theory of optimal taxation ; Excess burden of taxes ; Trade off between equity and efficiency ; Theory of measurement of dead weight losses ; The problem of double taxation.

II. Public debt
Classical view of public debt ; Compensatory aspect of debt policy ; Burden of public debt ; Sources of public debt ; Debt through created money ; Public borrowings and price level ; Crowding out of private investment and activity ; Principles of debt management and repayment.

III. Fiscal federalism
Principles of multi-unit finance ; Fiscal federalism in India ; Vertical and horizontal imbalances ; Assignment of function and sources of revenue ; Constitutional provisions ; Finance commission and Planning commission ; Devolution of resources and grants ; Theory of grants ; Resource transfer from union to states- Criteria for transfer of resources ; Centre- state financial relations in India ; Problems state's resources and indebtedness ; Transfer of resources from Union and States to local bodies.

IV. Indian Public Finances
Indian tax system ; Revenues of the Union, States and local bodies ; Major taxes in India, base of taxes, direct and indirect taxes, taxation of agriculture, expenditure tax, reforms in direct and indirect taxes, taxes on services ; Non-tax revenue of centre, States and local bodies ; Analysis of central and state government budgets ; Lack of flexibility in central and state budgets, shrinking size of development finance through budgets ; Trends in public expenditure and public deb; Fiscal crisis and fiscal sector reforms in India ; Reports of Finance commissions in India.

Reading List:

1. Atkinson, A.B. and J.E. Siglitz (1980) Lectures on Public Economics, Tata McGraw Hill, New York
2. Auerbach, A.J. and M. Feldstern (Eds) (1985) Handbook of Public Economics, Vol.I, North Holland, Amsterdam.
3. Jha, R (1998) Modern Public Economics, Routledge, London
4. Musgrave, R.A. (1959) The Theory of Public Finance, McGraw Hill, Kogakhusa, Tokyo
5. Shoup, C.S (1970) Public Finance, Aldine, Chicago
6. Peacock . A and G.K. shaw (1976) The Economic Theory of Fiscal Policy, George Allen and Unwin, London.
7. American Economic Association (1955) Readings in Fiscal Policy, George Allen and Unwin, London.

ECO-512   **INTERNATIONAL TRADE & FINANCE-II**

Objective: *This course has become relatively more relevant from the policy point of view under the present waves of globalization and liberalization both in the North and in the South. It aims to provide a deep understanding about the foreign exchange market, Balance of Payments, regionalism and multilateralism in trade and finance and trade policies of India.*

Expected outcome: *The students will not only be acquainted with the concepts, theories and policy interventions relating to exchange rate, BOP, regionalism but also will be able to analyse the impact of the relevant policies and external shocks on the economy.*

I. **Foreign exchange Market**

Demand and supply of foreign exchange, Marshall-Lerner Stability condition, Spot and forward rate, Fixed vs Flexible exchange rate, Mint parity theory, Purchasing power parity Theory, Monetary approach to balance of payments and exchange rate, Asset market model and exchange rate, exchange rate over shooting.

II. **Balance of payments**

Meaning and components of balance of payments ; Equilibrium and dis-equilibrium in the balance of payments ; The process of adjustment in BOP under systems of gold standard, fixed exchange rates and flexible exchange rates; Devaluation and its effectiveness-Elasticity and Absorption approach; Expenditure-reducing and expenditure switching policies and direct controls of adjustment; policies for achieving internal and external equilibrium simultaneously under alternative exchange rate regimes; Foreign trade multiplier with and without foreign repercussions.

III. **The Theory of Regional Blocs and International Monetary Systems**

Forms of economic cooperation; Reforms for the emergence of trading blocs at the global level; Static and dynamic effects of a customs union, EU, NAFTA, Rationale and economic progress of SAARC/SAPTA and ASEAN regions, Rise and fall of Bretton-woods system; Need, adequacy and determinants of international reserves; East Asian crisis and the lessons for the developing countries, Global financial crisis, Euro zone crisis, International trade and GATT/WTO and UNCTAD.

IV. **Trade policies in India**

Trade problems and trade policies in India during the last five decade; Recent changes in the direction and composition of trade and their implications; rationale and impact of trade reforms since 1991 on balance of payments, Problems of India's international debt; Working and regulations of MNC in India; Instruments of export promotion and recent import and export policies and the agenda for future.

Reading List:
1. Salvatore, D (2014) *International Economics: Trade and Finance*, Wiley Students' Edition, 11th Edition.
2. Soderstein, Bo. And G. Reed,(1994) *International Economics*, The Palgrave Macmillan, London, 3rd (revised) edition.
3. Cherunilam, Francis (2017), Mc Graw Hill, Education

4. Carbough, R.J. (1999) *International Econ*omics, International Thomson Publishing, New York.
5. Chacoliades, M. (1990) *International Trade : Theory and P*olicy, Mc Graw Hill, Kogakusha, Japan
6. Acharya, Rajat (2013) International *Economics An Introduction to Theory and Policy*,Oxford University Press, New Delhi

ECO-513   GROWTH & DEVELOPMENT-II

Objective: The study of economic development has gained importance because of sustained interest of the developing countries in uplifting their economic conditions by restructuring their economies to acquire greater diversity, efficiency and equity in consonance with their priorities. There have been many approaches to economic development and the objective of the paper is to make the students understand the various approaches to economic development and growth.

Expected outcome: Modules incorporated in this paper are devoted to the theories of growth and development, institutional aspects of development, role of international trade, investment criteria, social cost benefit analysis, relevance of planning in the context of development. After completing this course the students will be able to know the different aspects of economic development and can use these things in their future research as well as in qualifying the various national level tests.

     I. **Sectoral aspects of development**- Role of agriculture in economic development; Efficiency and productivity in agriculture, New technology and sustainable agriculture; Globalisation and agricultural growth, rationale and pattern of industrialization in developing countries;

     II. **Trade and economic development**- International trade as engine of growth; Static and dynamic gains from trade, Prebisch, Singer and Myrdal thesis vs. Free trade; Export-led growth ; Dual gap analysis, International Monetary Assistance and Development- FDI, FII, technology inflow, MNC activity in developing countries, Burden of borrowing- IMF and World bank policies in developing countries.

     III. **Allocation of resources**- Need for investment criteria in developing countries- present vs future, Alternative investment criteria; Cost-benefit analysis; shadow prices, project evaluation and UNIDO guidelines. The choice of techniques and appropriate technology and employment

     IV. **Planning and development in India**- Need for planning- democratic, decentralized and indicative planning, Review of Indian plan models and planning: Mahalanobis Model

Reading List:

1. Ghatak, S (1986) An Introduction to development Economics, Allen and Unwin, London
2. Higgins,B. (1959) Economic Development, WW Norton, New York.
3. Meier G.M.(1986) Leading Issues in Economic Development, Oxford University Press, New York
4. Basu, Kaushik (2000) Analytical Development Economics: The less developed Economy Revisited, Oxford University Press, India.
5. Ray Debraj (2000) Development Economics, Oxford University Press, India.
6. Chenery H and T.N. Srinivasan (Eds) (1989) Handbook of Development Economics, Vols. 1&2, Elsevier, Amsterdem.
7. Todaro, M.P (1996) Economic Development, Longman, London
8. Thirlwal, A.P (1999) Growth and Development, Macmillan, UK.
9. Hayami, Y. (1997) Development Economics, Oxford University Press, New York
10. Sen, A.K. (Ed) (1990) Growth Economics, Penguin, Harmondsworth

ECO-514   MATHEMATICAL ECONOMICS-II

Objective: A student of economics can make much headway in understanding the subject with basic mathematical logic. Mathematical economics has been accordingly designed to include various mathematical   techniques/ methods/ models related to the different parts of economic theory. The paper covers important aspects of macroeconomic theories Growth theories based on mathematics and operational research.

Expected outcome: Students will know the integration of Mathematics and Economic Theory.

     I. **Macro-economic Models**
       Determination of income and fluctuations in income- Classical and Keynes macro system; Static and dynamic multiplier. Determinants of investment, accelerator, Trade cycle model of development of Samuelson and Hicks.

II. **Growth models**
Harrod problem; Neoclassical model of growth ; Solow and Meade growth models with technical progress ; Optimal growth ; and golden rule of accumulation.

III. **Game theory**
Concept of game- Two person zero-sum game, Payoff matrix, pure and mixed strategies. Maximin and Minimax solutions ; Saddle point solution ; Non-constant sum game ; Prisoners' dilemma ; Linear programming- Primal and dual problem ; Simplex method.

IV. **Linear Programming application and Input-output analysis**
Transport and storage problems and other applications of linear programming in economics; Input-output analysis- Open and closed systems; Hawkins-Simon conditions ; Leontief's dynamic system ; Testing consistency of planning models.

Reading List:

1. Allen RGD (1974) Mathematical Analysis for Economists, Macmillan Press and ELBS, London.
2. Chiang, A.C (1986), Fundamental Methods of Mathematical Economics, Mac Graw Hill, New York.
3. Henderson & Quandt, Micro Economic Theory, A mathematical approach, Mac Gaw Hill, New Delhi.
4. Allen, RHD, (1976) Mathematical Economics, Macmillan, London
5. Arrow K.J., and M. Intrilligator, (Eds) (1982), handbook of Mathematical Economics, Volumes, I, II, III, North Holland, Amsterdam.
6. Hadley, G (1962) Linear Programming, Addison Wesley Publishing Co., Massachusetts.

OR

ECO-514   AGRICULTURAL ECONOMICS-II

Objective: The objective of this course is to provide a detailed treatment of issues in agricultural economics to those intending to specialise in this area. Its objective is to familiarise students with policy issues that are relevant to Indian agricultural economics and enable them to analyse these issues.

Expected outcome: After the completion of this course students will be able to comprehend and critically appraise the Indian agricultural sector.
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I. **Rural finance**- Role of capital and rural credit; Organised and unorganized capital market ; Rural savings and capital formation ; characteristics and sources of rural credit-institutional and non-institutional ; Reorganization of rural credit- cooperatives, commercial banks, regional rural banks, Role of NABARD. Cooperation in India-Cooperative movement; genesis and growth of cooperative sector, Agricultural cooperation in India; problems and prospects of cooperative institutions.

II. **Agricultural prices-** marketing and state policy; Agricultural markets and market efficiency- Marketing functions and costs; Market structure and imperfections; regulated markets; marketed and marketable surplus; Crop insurance; Terms of trade between agricultural and non-agricultural prices; Need for state interventions; Objectives of agricultural policy- Instruments and evaluation; Food security in India and Public Distribution System.

III. **Agricultural growth in India**- Recent trends in agricultural growth in India; Inter-regional variations in growth of output and productivity; Cropping pattern shifts; supply of inputs- irrigation, power, seed and fertilizers; Pricing of inputs and role of subsidies; Distribution of gains from technological change; Role of Public investment and capital formation in Indian agriculture.

IV. **Agriculture and external sector-** International trade in agricultural commodities; Commodity agreements- Role of WTO; Issues in liberalization of domestic and

international trade in agriculture- nature and features of agro industries; Role of MNCs; Globalisation of Indian economy and problems and prospects of Indian agriculture ; Impact of WTO on Indian agriculture.

Reading List:

1. Bhaduri A. (1984) The Economic Structure of Backward Agriculture, Macmillan, Delhi
2. Bilgrami SAR, (1996) Agricultural economics, Himalaya Publishing House, Delhi
3. Gulati , A & T. Kelly (1999), Trade Liberalisation and Indian Agriculture, Oxford University Press, New Delhi.
4. Rudra A. (1982), Indian Agricultural Economics: Myths and Reality, Allied Publishers, New Delhi.
5. Bardhan P. (1984) Land, Labour and Rural Poverty, Oxford University Press, New Delhi.
6. Soni, R.N (1995) Leading issues in Agricultural Economics, Arihant Press, Jalandhar.
7. Dantwala M.L, (1996) Dilemmas of Growth: the Indian Experience, sage Publications, New Delhi.
8. Vaidyanathan, A (1995) The Indian economy : Crisis, response and Prospects, Orient Longmans, New Delhi
9. Bhalla G. S (1994) Economic Liberalisation and Indian Agriculture, Institute for Studies in Industrial development, New Delhi.

ECO-515   ECONOMETRICS-II

Objective: *Econometrics is mainly concerned with the empirical verification of economic theory. It requires a reasonable understanding of economic relationships and relevant statistical methods. Thus, the econometric theory becomes a powerful tool for understanding of applied economic relationships and for meaningful research in economics. This paper is devoted to equip the students with basic as well as advanced theory of econometrics and relevant applications of the methods.*

Expected outcome: *The topics covered in the course include various problems faced in estimation of both single equations and simultaneous equations models. The course also covers various econometric methods applicable to different topics in economics and those needed for applied economic research. Students are expected to know the basic concepts and applications of econometrics, adding rigour to the understanding of economic problems*

UNIT-1   SIMULTANEOUS EQUATION MODELS
      1.1   Structural form and reduced form
      1.2   The simultaneous equation bias and inconsistency of OLS estimators
      1.3   The identification problem ; Rules of identification- order and rank conditions
      1.4   Indirect least squares (ILS)
      1.5   Two stage least square (2SLS)
      1.6   Three stage least square (3SLS)
      1.7   Maximum likelihood estimation (ML)

UNIT-2   TIME SERIES ANALYSIS
      2.1   Deterministic time series models and stochastic time series model
      2.2   Test of stationarity: Autocorrelation Function (ACF) and Correlogram
      2.3   The Unit Root Test: The Augmented Dickey-Fuller (ADF) test, The Phillips-Perron (PP) tests

UNIT-3   FORECASTING TECHNIQUES
      3.1   Forecasting with a single equation regression model
      3.2   Forecasting with ARIMA modeling; Box-Jenkins methodology,
      3.3   Multivariate analysis- principal component analysis (PCA)
      3.4   Discriminant Analysis

UNIT-4   DYNAMIC ECONOMETRIC MODELS
      4.1   Autoregressive and distributed lag models
      4.2   Geometric lag approach: The Koyck model, Adaptive expectation model
      4.3   Concept of rational expectation
      4.4   Partial adjustment model
      4.5   Polynomial lag: The Almon approach

Reading List:
1. Jhonston J. (1991), Econometric Methods , McGraw Hill Book Co. London
2. Asteriou Dimitrious, (2006), Applied Econometrics, Palgrave Macmillan, New York
3. Gujrati D.N. (1995), Basic Econometrics, (2nd edition) McGraw Hill, New Delhi

4. Kmenta, J. (1977), Elements of Econometrics, (reprint edition) University of Michigan Press, New York.
5. Koutsoyiannis A. (1977), Theory of Econometrics (2nd ed.) The Macmillan Press Ltd. London.
6. Madalla G.S. (1997), Econometrics, McGraw Hill, New York.
7. Intrilligator, M.D. (1978), Econometric Methods, Techniques and Applications, Prentice Hall, Englewood Cliffs, New Jersey.
8. Pindyck, Robert S. and Daniel L. Rubinfeld,(1976), Econometric Models and Economic Forecasts, International Student edition, McGraw-Hill

<div align="center">**OR**</div>

ECO-515   ENVIRONMENTAL ECONOMICS-II

Objectives: The objective of this course is to acquaint the students how economic factors are at the root of various environmental problems, the importance of property rights for the management of renewable resources, inform them India's policies relating to the management of environment and natural resources.

Expected outcomes: The students will be able to analyse economic causes and implications of different environmental problems and policies.

I. **Property Rights and Environment Management**

Importance of property rights, Rules of access to resource under different property rights regimes, the Tragedy of the Commons, Governing the Commons; Ostrom's contribution for CPR management. Management of state owned environmental resources.

II. **Environmental problems**

land use pattern and its affect on environment, forest and environmental quality, urbanization and its impact on environment, Population, poverty and environmental degradation, Environmental Kuznets curve hypothesis.

III. **International environmental problems and treaties**

Trans-boundary environmental problems, global warming and climate change, International Cooperation for Environment Protections and treaties, Trade and environment in WTO regime.

IV. **India's environmental policies and Participatory management of environment**

Environment Protection Act, Forest Conservation Acts, the Water (Prevention and Control of Pollution) Acts, Air (Prevention and Control of Pollution) Acts, the Wildlife (Protection) Act, Biological diversity Act, National Environmental Policy-2006. People's participation in the management of commons: JFM, watershed management, participatory irrigation management.

Reading List:

1. Kolstad, C. D (1999) *Environmental economics*, Oxford University Press, New Delhi
2. Sankar, U (Ed.) (2001) *Environmental Economics*, Oxford University Press, New Delhi
3. Hanley N (1997) *Environmental Economics in Theory and Practice*, Macmillan, London.
4. Tietenberg T. (1994) *Environmental Economics & Policy*, Harper Collins, New York.
5. Bromley D W, (ed.) (1995) *Handbook of Environmental Economics*, Blackwell, London
6. Bhattachary, R.N. (2001) Environmental Economics an Indian Persptive, Oxford University Press, New Delhi
7. Hussen, A.M. (1999) Principles of Environmental Economics, Routledge, London.