

**Paper Code: M4ECO-A1-ET-21**

**M.A. ECONOMICS 2017-18**  
**SEMESTER – IV**  
**GROUP A: ELECTIVE PAPER – A1**  
**ADVANCED ECONOMETRICS**

**Objectives:** A primary objective of teaching this course is to engage students in active learning a critical thinking about econometrics. This course introduced the theory and application of econometrics. Another objective of this course is to relate economic questions to empirical observations and try to deal with those econometric models based on sound hypotheses.

**UNIT – I**

Simultaneous Equation Models – Meaning and basic concepts- Structural, Reduced form Model. Consequences of applying OLS to simultaneous model, Recursive models. Problem of identification and Conditions for Identification (Rank and Order Conditions).

**UNIT – II**

Estimation of Simultaneous Equation Models – Indirect Least Square Method (ILS), Two Stage Least Square Methods (2 SLS), The Method of Instrumental Variables (IV), Identification and Choice of Estimation Method. Estimation under linear restrictions, Specification Bias.

**UNIT – III**

Time Series Econometrics: Basic Concepts- Stationary and Non stationary Stochastic Processes, unit root stochastic processes, Trend stationary and Difference stationary stochastic process. Random walk model. The Unit root test- Augmented Dickey-Fuller test. The phenomenon of co-integration-spurious regression. The Granger Causality test.

**UNIT-IV**

Time Series Model: Forecasting with ARMA, Forecasting with ARIMA model, Box-Jenkins methodology. ARCH and GARCH Model to measure the volatility.

Vector autocoregression: Problems with VAR modelling .

## UNIT-V

Econometric Modelling: Model selection criterion- Hendry and Richard criterion, The  $R^2$  Criterion, Akaike Information Criterion (AIC), Schwarz Information Criterion (SIC).

Panel data Regression Model- Meaning, Uses and estimation of Panel data Regression Model using Fixed effects model, Random effects model.

### Reading List:

- Gujrati, D. (1995) – Basic Econometrics, (3<sup>rd</sup> Edition), McGraw Hill, New Delhi.
- Johnston, J. (1985) – Econometric Methods, McGraw Hill, New York.
- Koutsoyiannis, A. (1977) – Theory of Econometrics, (2<sup>nd</sup> Edition), The Macmillan Press Ltd., Hampshire.
- Maddala, G. S. (1993) – Econometrics: An Introduction, McGraw Hill, New York.
- S. Shyamala, Navdeep Kaur and T. Arul Pragasam – A Text Book on Econometrics – Theory and Applications, Vishal Publishing Co., Jalandhar.
- G. M. K. Madnani – Introduction to Econometrics: Principles and Applications, Oxford and IBH Publishing Co. Pvt. Ltd., New Delhi.
- Chow, G. C. (1983) – Econometrics, McGraw Hill, New York.
- Dhrymes, P. J. (1970) – Econometrics – Statistical Foundations and Applications, Harper and Row Publishers, New York.
- Intriligator, M. D. (1978) – Econometric Methods, Techniques and Applications, Prentice Hall, Englewood Cliffs, New Jersey.
- Pindyck, R. S. and D. L. Rubinfeld (1976) – Econometric Models and Econometric Models and Economic Forecasts, McGraw Hill, Kogakusha, Tokyo.
- Franses, P. H. (1998) – Time Series Models for Business and Economic Forecasting, Cambridge University Press, Cambridge.

- Kmenta, J. (1997) – Elements of Econometrics, University of Michigan Press, New York.
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**M.A. ECONOMICS 2018-19**

**SEMESTER – IV**

**GROUP A: ELECTIVE PAPER –A 2**

**MATHEMATICAL ECONOMICS**

**Objective:** This course is designed to equip students to understand the economic concepts and theories which use mathematical tools and techniques to refine the verbal logic. Modern algebraic tools allow convenient handling of simultaneous equations in the context of linear programming, game theory and input-output analysis. This course has been designed to include various mathematical techniques/methods/models related to the different parts of economic theory like pricing, trade cycles, growth models, etc. The paper covers important aspects of microeconomics, macroeconomics and development theory.

**UNIT – I**

Linear Programming – Meaning and definitions, Basic concepts and Solution of LPP through Simplex Method, Primal and Dual problem, Problem of Degeneracy in LPP, Application of LPP in Transport and Storage problems and other problems in Economics.

**UNIT – II**

Input-Output Model – Static and Dynamic Model, Closed and Open Input Output Model, Solution of Input Output Model, Hawkins Simon conditions.

**UNIT – III**

Game Theory – Concept of Game, Two Person Zero Sum Game, Pay-off Matrix, Pure and Mixed Strategies, Maximin in and Minimax criteria and Saddle Point, Non-constant Sum Game, Prisoner's Dilemma, Linear Programming Equivalence.

**UNIT – IV**

Pricing under Duopoly- The Cournot Model, The Bertrand Model, and the Stackelberg Model. Collusive Oligopoly. Kinked Demand Curve Model. Bilateral Monopoly. Pareto Optimality; The efficiency of perfect and imperfect competition; Social welfare function. General Equilibrium.

## UNIT – V

Trade Cycle Model of Hicks and Samuelson. Harrod Growth Model, Neoclassical Growth Model – Solow and Meade Growth Models, Endogenous Growth Model of Romer and Harris-Todaro Model of Rural-Urban Migration.

### Reading List:

- Allen, R.G.D. (1974) – Mathematical Analysis for Economists, Macmillan Press and ELBS, London.
- Chiang, A.C. (1986) – Fundamental Methods of Mathematical Economics, McGraw Hill, New York.
- Henderson, J. M. and R. E. Quandt (1980) – McGraw Hill, New Delhi.
- Mehta, B. C. (1987) – Mathematical Economics: Microeconomic Models, Sultan Chand and Sons, New Delhi.
- Madnani, G.M.K. (2008) – Mathematical Economics, Oxford and IBH Publishing Co. Pvt. Ltd., New Delhi.
- Mehta, B.C. and G.M.K. Madnani (2008) – Mathematics for Economists, Sultan Chand and Company, New Delhi.
- Arrow, K. J. and M. Intrigator (Eds.) (1982) – Handbook of Mathematical Economics, Vol. I, II and III, North Holland, Amsterdam.
- Chung, J. W. (1993) – Utility and Production: Theory and Applications, Basil Blackwell, London.
- Ferguson, C. E. (1976) – Neo Classical Theory of Production and Distribution.
- Hadley, G. (1962) – Linear Programming, Addison Wesley Publishing Co., Massachusetts.
- Mankiw, N. G. and D. Romer (Eds.) (1991) – New Keynesian Economics (2 Vols.), MIT Press, Cambridge, Mass.
- Nash, J. F. (1996) – Essays on Game Theory, Cheltenham, U.K.

**M.A. ECONOMICS 2018-19**  
**SEMESTER IV**  
**GROUP A: ELECTIVE PAPER- A3**  
**ISSUES IN INDIAN AGRICULTURE**

**Objective :** Its objective is to familiarize students with issues and policies that are relevant to Indian Agricultural Economics and enable them to analyze the issues using basic micro and macro-economic concepts.

**UNIT – I**

**Agricultural Development in India**

Recent Agricultural Growth in India. Land Utilisation and Cropping Pattern Changes in India. Causes of Low Productivity in India, Suggestions to increase and Measures employed to develop agriculture in India. Diversification of Indian Agriculture, White Revolution in India – Fishery, Poultry, Forestry, Horticulture and Floriculture . Rural Industrialization: Problems and Prospects, Agro-based industries in India, Need for Second Green Revolution in India

**UNIT II**

**Input Supply in Indian Agriculture**

Supply of Inputs-Irrigation, Power, Seed and Fertilizer. Irrigation: Sources and Sources wise Development, Problems. Land Reforms: Objective and achievement. Farm Size and Productivity controversy. Farm Mechanisation: Types and Progress. Mechanisation Vs. Employment. Growth of Agricultural Labourers: Causes and problems.

**UNIT – II**

**Capital Formation and Finance in Indian Agriculture**

Role of Public Investment and Capital Formation in Indian Agriculture, Sources of Agricultural Finance in India - Institutional and Non- Institutional Sources, NABARD and Rural Credit, Micro Finance. Problems of Agricultural Finance in India. Suggestions of V.L. Mehta Committee.

**UNIT – III**

**Indian Agricultural Markets and Pricing System**

System of Agricultural Marketing in India, Measures to Improve Marketing Efficiency in India, , Agricultural Marketing – Issues and Suggestions.

Agricultural Prices In India: Objectives and Performance Trends in Agricultural Prices, Terms of Trade between Agriculture and Non-Agriculture Prices, Need and Methods of Price Stabilization, Warehousing of Agricultural Produce in India.

#### UNIT – IV

##### **State Intervention in Indian Agriculture**

Need for State Intervention, State Policy with Respect to Agricultural Marketing; Prices (Agricultural Price policy of India); Taxation and Crop Insurance in India. Food Security in India and Public Distribution System in India. Pricing of Inputs and Role of Subsidies

#### UNIT – V

##### **Changes in Indian Agriculture**

Technological Change in Agriculture-Indigenous Practices, Information and Communication Technologies and Agriculture - Agricultural Information Systems, Role of Remote Sensing, GPS Technology, Biotechnology, Nano Technology in Agriculture, Kisan Credit Cards, Kisan Call Centers, Bhoomi Project, Agricultural Technology Information Centers, Agricultural Knowledge System, Sustainable, Agricultural Extension in India, FAO. Impacts of WTO agreements on Indian Agriculture, Globalisation and priority issues for Indian Agriculture.

##### **Reading List:**

- Raj, K. N. *et al.* (1988) – Essays in the Commercialisation of Indian Agriculture, Oxford University Press, New Delhi.
- Subbarao, K. and De Janvry (1986) – Agriculture Price Policy and Income Distribution in India, Oxford University Press, New Delhi.
- Bhalla, G. S. (1994) – Economic Liberalisation and Indian Agriculture Institute for Studies in Industrial Development, New Delhi.
- Bhalla, G. S. (1994) – Economic Liberalisation and Indian Agriculture Institute for Studies in Industrial Development, New Delhi.
- Dhawan, B. D. (1988) – Irrigation in Indian Agriculture Development, Sage Publication, New Delhi.
- Rao, C. H. Hanumantha (1994) – Agriculture Growth, Rural Poverty and Environmental Degradation in India, Oxford University Press, New Delhi.

- Misra and Puri (2008) – Indian Economy, Himalaya Publishing Company, New Delhi.
- Dutta, R. and Sundaram (2008) – Indian Economy, S. Chand and Company, New Delhi.
- Hariharan, N. P. (2008) – Lights and Shades of Indian Economy, Vishal Publishing Company, Jalandhar.
- Soni, R. N. (2008) – Leading Issues of Agriculture Economics, Vishal Publishing Company, Jalandhar.
- Sadhu and Singh (1991), Agricultural Problems in India, Himalaya Publishing House, New Delhi.
- Government of India – Reports of the National Commission on Agriculture, New Delhi.
- Government of India-Statistical Abstract of India (Latest), Directorate of Economics and Statistics of India.
- Government of India- Agricultural Statistics at a Glance, Ministry of Agricultural and farmers welfare.
- Reserve Bank of India – Report of the Agricultural Credit Review Committee, Bombay.
- Government of India – Economic Survey (Annual) Ministry of Finance.



**M A ECONOMICS 2018-2019**

**SEMESTER IV**

**GROUP –A ELECTIVE PAPER-A4**

**ISSUES OF LABOUR IN INDIA**

**Objective:** This course presents various aspects of labor in India and their specific issues.

**UNIT – I**

Industrial Labour in India- Composition and Characteristics , Fair wages , Wage Boards in India, Bonus system and Profit Sharing, Wage Policy in India, The Problem of Bonus In India

**UNIT – II**

Trade Unions - Types and Functions, Growth of Trade Union Movement in India, Trade Unions Act, Evaluation of Trade Unions, Emerging Trends in Trade Union Movement, Trade Unions and Economic Development, Social Responsibilities of Trade Unions.

**UNIT – III**

Concept of Industrial Peace – Causes of Industrial Disputes and Present Mechanism of Dispute Settlement in India, Role of Tripartism, Collective Bargaining, Workers Participation in Management, ILO and India.

**UNIT – IV**

Social Security – Concept of Social Security and its evolution, Social Assistance and Social Insurance, Review and Appraisal of State Policies with respect to Social Security and Labour Welfare in India, Social Security Measures in India, Workmen's Compensation Act and ESI Act (in Brief).

**UNIT – V**

Specific Labour Problems in India – Child Labour, Labour Problems of Unorganized Sector, Gender Bias in Labour Market, Report of Second National Commission on Labour, Impact of Globalization on Indian Labour Market.

**Reading List:**

- Datta, G. (1996) – Bargaining Power, Wages and Employment: Analysis of Agricultural Labour Markets in India, Sage Publications, New Delhi.
- Papola, T.S. and Rodgers, (Eds.) (1992) – Labour Institutions and Economic Development in India, International Institute for Labour Studies, Geneva.
- Sen, A. K. (1975) – Employment, Technology and Development, Oxford University Press, New Delhi.
- Solow, R. M. (1990) – Labour Market as an Institution, Blackwell, London.
- Hicks, J. R. (1932) – The Theory of Wages, Clarendon Press, Oxford.
- Misra, L. (2000) – Child Labour in India, Oxford University Press, New Delhi.
- Lester, R. A. (1964) – Economics of Labour (2<sup>nd</sup> Edition), Macmillan, New York.
- McConnell, C. R. and S. L. Bruce (1986) – Contemporary Labour Economics, McGraw Hill, New York.
- Sinha, V.C. Audhyogik Arthshastra

**M A ECONOMICS 2018-2019**

**SEMESTER IV**

**GROUP –B ELECTIVE PAPER-B1**

**INDIAN INDUSTRIAL ECONOMICS**

**Objective:**This course presents various aspects of industrial structure , growth , pattern and issues of industrial development in india. It also provides detail knowledge about industrial sector of India.

**UNIT – I**

Industrial Growth and Pattern of Industrialization in India, Recent trends in Indian Industrial Growth, Small-scale and Cottage Industries of India- Definition, Importance and Problems.

**UNIT-II**

LPG Policy and its Impact on Industrial Development, Evaluation of Role of Public Sector on Industrial Development, Balanced Regional Development- Need, Challenges and Measures taken by The Government.

**UNIT – III**

Role of Foreign Capital in Industrial Development of India, Multinational Corporations – Definitions, Merits and Demerits, Recent Trends, Perspective code of conduct, MNCs In India, Foreign Investment by Indian Companies, Major Indian MNCs and their Importance.

**UNIT – IV**

Industrial Proliferation and Environmental Protection- Challenges and Measures taken by the Government of India for Environmental Protection, Major Indian Industries-Iron and Steel Industry, Cotton Textile Industry, Cement Industry, Sugar Industry

**UNIT – V**

Industrial Finance – Sources, Types, Components, Institutional Finance – IDBI, IFCI, SFCs, SIDC, Commercial Banks, Indian Money and Capital Market.

## Reading List:

- Barthwal, R R (2010): Industrial Economics, New Age International (P) Limited, New Delhi, 2010.
- Penrose, E (1959): The theory of growth of the Firm, Blackwell, Oxford.
- Ahluwalia (1985): Industrial Growth in India, Oxford University Press, New Delhi.
- Umakapila (2003) : Understanding the problems of Indian Economy, Academic Foundation
- Agarwal, A N (1995): Indian Economy Problems of development and planning Vishwas publication
- Desai, B. (1999) – Industrial Economy in India (3<sup>rd</sup> Edition), Himalaya Publishing House, Mumbai.
- Kuchhal, S. C. (1980) – Industrial Economy of India (5<sup>th</sup> Edition), Chaitanya Publishing House, Allahabad.
- Singh, A. and A. N. Sadhu (1988) – Industrial Economics, Himalaya Publishing House, Bombay
- Mamoria and Mamoria (2000) – Dynamics of Industrial Relations in India, (15<sup>th</sup> Edition), Himalaya Publishing House, Mumbai
- Gaurav Dutt and Ashwini Mahajan, 2017 , Indian Economy, S Chand and Co. New Delhi
- Government of India, Economic Survey (Annual), New Delhi

**Paper Code: M4ECO-B2-ET-22**

**M.A. ECONOMICS 2017-18**  
**SEMESTER – IV**  
**GROUP B: ELECTIVE PAPER – B2**  
**DEMOGRAPHY**

**Objectives-** The basic aim of this paper is to understand the demographic trends and issues in India. The study postulates the theories of population and structure of population in India. Apart from that, the related concepts like fertility, Mortality and Migration in population will be discussed.

**UNIT-I**

Nature and Scope of Demography, Relation with other Disciplines. Population trends India; Study of Census in India – Methodology and characteristics of Census since 1951; Size, Composition and Distribution of Population. Latest Population Policy in India. Concept of Demographic Dividend.

Theories of population- Malthusian Theory, Post Malthusian Theories- Marx ideas on Population, Optimum Theory of Population, Theory of Demographic Transition. Views of Medows, Enke and Simon. Population and development.

**UNIT – II**

Fertility: Meaning and importance of study of fertility, Differential Fertility, Measurement of Fertility, Factors Influencing Fertility , Fertility levels and Trends in Developed and Developing Countries – Fertility in India. Fertility Transition in India. Nuptiality – Concept and Analysis of Marital Status, Single Mean age at Marriage. Concept of Morbidity, measures of Morbidity, incidence and prevalence rates.

**UNIT – III**

Mortality: Measurement of Mortality, Mortality levels and Trends in Developed and Developing Countries-Mortality in India, Reasons for Declining Trends in Mortality. Infant Mortality.

Techniques of Analysis: Crude Birth Rate, Death Rates, Age Specific Birth and Death Rates, Infant Mortality , Child Mortality, Maternal Mortality; Standardized Birth and Death Rates; Analysis of Total Fertility Rate; Gross Reproductive Rate, Net Reproductive Rate.

#### **UNIT –IV**

Concept and Types of Migration – Temporary, Internal and International. International Migration – Its effect on Population Growth and Pattern, Factors affecting Migration, Theories of Migration related to Internal Migration.

Life Table : Basic Concepts of Life Table, Types and Forms of Life Table, Construction of Life Tables based on Age-Specific Death Rates, Conventional Approach of Life Table Construction; Concept and Need for Model Life Tables.

#### **UNIT- V**

Concept and uses of Population Projection, Methods of Interpolation, Extrapolation using Gompertz Curves; Concepts and Measures of Population Ageing; Implications of Population Ageing on Labour Force, Retirement and Work Participation among Elderly, Implication for Government Expenditure on Pension.

#### **Reading List**

- Agarwal, S. N. (1985) – India's Population Problem, Tata McGraw Hill, Bombay.
- Agarwal, U. D. (1999) – Population Projections and Their Accuracy, B. R. Publishing Corporation, New Delhi.
- Bhende, A. A. and T. R. Kanitkar (1982) – Principles of Population Studies, Himalaya Publishing House, Bombay.
- Bogue, A. (1996) – India's Basic Demographic Statistics, B. R. Publishing Corporation, New Delhi.
- Choubey, P. K. (2000) – Population Policy in India, Kanishka Publications, New Delhi.

- Misra, B. D. (1980) – An introduction to the study of population, South Asian Publishers, New Delhi.
- Srinivasan, K. (Ed.) (1999) – Population Policy and Reproductive Health, Hindustan Publishing Corporation, New Delhi.
- Census of India, Government of India, Various Reports, New Delhi.
- Srinivasan, K. (1998) – Basic Demographic Techniques and Applications, Sage Publications, New Delhi.
- Simon, J. L. (1992) – Population and Development in Poor Countries, Princeton University Press.
- Agnihotri, S. B. (2000) – Sex ratio in Indian Population: A Fresh Exploration, Sage Publications, New Delhi.
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**Paper Code: M4ECO-B3-ET-23**

**M.A. ECONOMICS 2017-18**  
**SEMESTER – IV**  
**GROUP B: ELECTIVE PAPER – B3**  
**ECONOMY OF RAJASTHAN**

**Objectives:** The objective of the paper would be to make analytical study on Rajasthan Economy and its position and contribution in Indian economy. The paper emphasis on major issues related to agriculture, Industry and tourism sector of Rajasthan. The course is expected to enable the student to appreciate the evaluation of the Rajasthan economy, its institutional frame work for analysing public policy, and to get familiar with the current issues and challenges of Rajasthan economy.

**UNIT-I**

Rajasthan Economy- Characteristics, compositional trend of SDP; Position of Rajasthan in the Indian Economy. Broad Demographic Features of Rajasthan: Population Size and Growth Rates, Sex Composition, Population and occupational Distribution of Labour Force. New Population Policy of Rajasthan.

**UNIT – II**

Major issues related to Agriculture sector- Land utilization pattern, irrigated Area, Sources of irrigation and their contribution , cropping Patterns in Rajasthan: Trends in the Production of food grains, Agricultural Development during Planning Period, Problem of Drought and Famine in Rajasthan. Animal Husbandry in Rajasthan. Government policies and programmes to promote Agriculture Development.

**UNIT-III**

Industry -Salient Features, Regional variation in Industrial Development of Rajasthan, Role and Problems of small scale Industries. Role of different corporations in Industrial Development- RIICO, Rajasthan Financial Corporation(RFC), Rajasthan small industries Corporation Limited (RAJSICO).



Tourism Development in Rajasthan - Role of Tourism in Rajasthan, Problems and Prospects of Tourism in Rajasthan. Government Policies and Programmes for Tourism Development in Rajasthan.

#### UNIT –IV

Resource Base Economic Infrastructure: Economic Infrastructure - Power and Roads; Issues and Policies in Infrastructural Development.

Natural Resources and Economic Development- Land Resource, Forest Resource, Water Resource, Livestock Resources, Mineral resources. Latest Mineral policy of Rajasthan.

#### UNIT-V

Problems of Rajasthan Economy – Poverty and Unemployment: causes and measures undertaken by Government to solve the problems. Rural Development Schemes and Special Area Programmes in Rajasthan.

Economic Planning in Rajasthan : objectives and Achievements. Latest Five Year Plan of Rajasthan – Objectives, Strategy.

Rajasthan Budget Analysis (Latest)

Finance Commission and Centre- Rajasthan State Financial Relationship (Latest).

#### **Reading List:**

- Laxminarayan Nathuram Ka, Rajasthan Economy, college book house, Jaipur.
- H.R. Bhalla, Contemporary issues in Rajasthan.
- State Finance: A study of budget.
- Economic Review, Government of Rajasthan.
- Tourism policy of Rajasthan, Department of Rajasthan.
- Agricultural statistics of Rajasthan.
- Basic statistics, Rajasthan.
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**M.A. ECONOMICS 2017-18**  
**SEMESTER – IV**  
**GROUP B–ELECTIVE PAPER – B4**  
**ENVIRONMENTAL ECONOMICS**

**Objectives:** In the past twenty years or so, many new insights have taken root and become important in economic theory and policy. Environmental Economics is one of these. There is a common notion that economic activities are behind all the environmental evils, but nowadays the environmental factors have started affecting economic variables. The objective of this paper is to let the students know about the basics of environmental issues with its economic implications.

**UNIT – I**

Environmental Economics - Meaning, Importance and Scope; The Concept of Externalities, Environment as a Public Good and Market Failure, Common Property Resources, Theories of optimal use of Exhaustible and Renewable Resources, Environmental Kuznet's Curve: Theory and Some Empirical Evidences

**UNIT – II**

Environmental valuation and Environmental risk: Valuing the Environment and Natural Resources – Concept of total Economic Value, Use Value, Option, Values and Non-use Values, Valuation Methods – Physical Linkage Methods, Abatement Cost Method, Behavioural Linkage Method, Contingent Valuation Method (CVM), Hedonic Pricing Technique. Environmental Accounting – Meaning, Need, Nature of Environmental Accounting (IEEA) and the Measurement of Environmentally corrected GDP (Green Accounting).

Environmental Risk – Concept and Assessment of Environmental Risks, Choice under Risk, Risk Management.

**UNIT – III**

Managing Natural Resources and Sustainable Development : Economics of Natural Resources, A Resource Taxonomy; Managing Exhaustible and Renewable Resources. The Theory of Collective Choices: Hardin's Thesis of the Tragedy of Commons; Prisoner's Dilemma Game, Olsen's theory of collective action. Methods of Abatement of Externalities: Sustainable Development: Concept, Indicators, Measurement and Strategies for Sustainable Development

#### **UNIT IV**

Environmental Issues and Environmental Policy: Global Environmental Issues: Negative International Externalities and their Implications. Global Warming and Acid Rains: Causes, Effects and Solutions.

Major Environmental organization and Events: Green Peace movement, The World conservation union, The nature conservancy. Sierra club, WWF, UNEP, UNCED.

Environmental Policy Instruments- Internalizing Environmental externalities, Pigouvian taxes and subsidies; Coase's bargaining solution and collective action; Tradable pollution permits and international carbon tax,

#### **UNIT – V**

Environmental Law and Policy in India: The Vision, Goals, Objectives and Instruments of Environmental Policy; A Critique of India's Environmental Policy. Mechanism for Environmental Regulations in India, Environmental Laws and their implementation, Policy instruments for Controlling Water and Air Pollution, Forest Policy in India Resources and Energy.

#### **Reading List:**

- Charles D. Kolstad (2008) – Environmental Economics, Oxford University Press.
- H. K. Pathak (2010) – Economics of Environmental Development, G. S. Rawat for Cyber Tech Publication.

- Bhattacharya, R. N. (Ed.) (2001) – Environmental Economics: An Indian Perspective, Oxford University Press, New Delhi.
- Markandya, A. and J. Richardson (Eds.) – The Earth Scan Reader in Environmental Economics, Earth Scan, London.
- Panchmukhi, P. R. (1980) – Economics of Health: A Trend Report in ICSSR, A Survey of Research in Economics, Vol. VI, Infrastructure, Allied Publishers, Delhi.
- Peare, D. W. and R. K. Turner (1991) – Economics of Natural Resource Use and Environment, Johns Hopkins University Press, Baltimore.
- Beman, P. and M. E. Khan (1993) – Paying for India's Health Care, Sage Publications, New Delhi.
- Cooms, P. H. and J. Hallak (1988) – Cost Analysis in Education, John Hopkins University Press, Baltimore.
- M.L. Jhingan- Environmental Economics, Vrinda publication, New Delhi.
- Murty, M. N., A. J. James and S. Misra (1999) – The Economics of Water Pollution in India, Oxford University Press, New Delhi.
- Sengupta, R. P. (Ed.) (2001) – Ecology and Economics: An Approach to Sustainable Development, Oxford University Press, New Delhi.
- Woodhall, M. (1992) – Cost Benefit Analysis in Educational Planning, UNESCO, Paris.
- World Bank (1993) – The World Development Report, 1993: Investing in Health, Oxford University Press, New York.
- Arun Kumar Singh – Environmental Economics, Deep and Deep Publications Pvt. Ltd., New Delhi.
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**MA ECONOMICS 2018-19**  
**SEMESTER IV**  
**SKILL COURSE PAPER-02**  
**ADVANCE ECONOMIC ANALYSIS WITH SPSS**

**Objective:** Economics being an empirical science, computers have emerged as the pivotal instruments of economic analysis, research and forecasting. Therefore, the future economists must be equipped with skills and tools based on computers, which this course shall provide to them.

**UNIT-I**

**Comparing Means: One or Two Samples**

Basic concept – t- tests and z tests, One sample t-test; independent samples t-test, dependent sample t- test, Dependent (paired) Samples t- test.

Using SPSS – One Sample t- test, independent Samples t-test, Dependent Samples t- test.

**UNIT-II**

**Analysis of Variance**

Basic concepts- ANOVA Procedure, Factors and Covariates, between, within and Mixed (Between – Within) Designs, Main effects and Interactions, Post-Hoc Multiple Comparisons, Contrast Analysis.

Using SPSS – One Way between Groups ANOVA, Planned comparisons, Two Way between Groups ANOVA.

**Unit III**

**Regression Analysis**

Concept of Ordinary Linear Regression, Curvilinear Regression and Multiple Regression.

Use of SPSS – Linear Regression, Curvilinear and Multiple Regression.

**Unit IV**

**Other Multivariate Techniques**

Concept of Factor Analysis, Cluster and Discriminant Analysis.

Use of SPSS- Dimension Reduction, Cluster and Discriminant Analysis.

**Basic Readings:**

- Gaur A. S. & Gaur S. S (2009). Statistical Methods for Practice and Research: A guide to data analysis using SPSS, Sage Response, Second edition.

- IBM SPSS Training Manual
- Parameswaranm R. (2010).Computer Applications in Business, S. Chand and Company, New Delhi.
- Sudalaimuthu, S. & Anthony R. S. (2008), Computer Applications in Business, Himalays Publishing House, New Delhi.