

**KVR Govt. College for Women(A), Kurnool**  
**DEPARTMENT OF ECONOMICS:**  
**M.A. ECONOMICS: SEMESTER - I**  
**PAPER - I: MICRO ECONOMIC ANALYSIS - I**

**Aim of the Course:** *The aim of this course is to familiarize the students with the economic behaviour of individuals, firms and markets. It also aims to analyze the various aspects of demand theory, theory of production, price and output determination and the alternative theories of the firm.*

**MODULE- I: THEORY OF CONSUMER BEHAVIOUR**

Demand Analysis: Marshalian, Hicksian and Slutsky – Samuelson's Revealed Preference Approaches – Pragmatic Approach – Linear Expenditure System – Constant Elasticity of Demand Function – Von Neumann – Morgenstern Utility Index.

**MODULE- II: THEORY OF PRODUCTION AND COST**

Production Function: Cobb – Douglas Production Function – CES Production Function – Law of Variable Proportions – Returns to Scale – Isoquants – Cost Curves – Equilibrium of the Firm: Choice of Optimum Combination of Inputs – Elasticity of Substitution.

**MODULE-III: COST OF PRODUCTION, REVENUE AND EQUILIBRIUM OF THE FIRM**

Cost of Production: Traditional and Modern Approaches – Short run and -Long run Cost Curves – Concept of Revenue – Revenue Curves under Different Market Conditions – Equilibrium of the Firm and Industry.

**MODULE-IV: PRICE AND OUTPUT DETERMINATION UNDER DIFFERENT MARKETS:**

Perfect Competition: Price and Output Determination - Market Period-Short run and Long-run Analysis – Monopoly: Short run and Long run Equilibrium – Price Discrimination – Monopolistic Competition: Equilibrium of the Firm and the Group – Product Differentiation and Selling Cost – Chamberlin Concept of Excess Capacity - Duopoly: The Models of Cournot, Bertrand and Stackelberg – Oligopoly: Chamberlin Model and Kinked Demand Curve Model – Collusive Oligopoly: Cartels and Price Leadership.

**REFERENCES**

1. Ahuja, H.L., 2005, Advanced Economic Theory: Micro Economic Analysis, S. Chand and Company, New Delhi.
2. Archibald G.C. (Ed), 1971, Theory of the Firm, Penguin, Harmonds worth
3. Baumol, W.J., 1982, The Economic Theory and Operations Analysis, Prentice Hall of India, New Delhi.
4. Borch, K.H., 1968, The Economics of Uncertainty, Princeton University Press, Princeton.
5. Koutsoyiannis, A., 1979, Modern Micro Economics, Second Edition, Macmillan Press, London.
6. Watson, Donald S., 1967, Price theory and its uses, Scientific Book Agency, Calcutta.
7. Da Costa, G.C., 1980, Production, Prices and Distribution, Tata McGraw Hill, New Delhi.
8. Diamond and Roths Child (Ed), 1978, Uncertainty in Economics, Academic Press, New York.
9. Hirschleifer, J. and Glazer, 1977, Price Theory and Applications, Prentice Hall of India, New Delhi.
10. John Von Neumann and Oskar Morgenstern, 1947, Theory of Games and Economic Behaviour, Second Edition, Princeton University Press, Princeton.
11. Kalman, J. Cohen and Richard M. Cyert 1976, Theory of the Firm: Resource Allocation in a Market Economy, Second Edition, Prentice Hall of India, New Delhi.
12. Kreps David, M., 1990, A course in Micro Economic Theory, Princeton University, Princeton.

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**KVR Govt. College for Women(A), Kurnool**  
**DEPARTMENT OF ECONOMICS:**  
**M.A. ECONOMICS: SEMESTER - I**  
**PAPER -II: MACRO ECONOMICS**

***Aim of the Course:** The aim of this course is to familiarize the students with the behavior of the aggregate variables at national level. To provide an in-depth understanding of national income accounts, classical macroeconomics, the Keynesian economics and different types of consumption and investment functions.*

**MODULE- 1: NATIONAL INCOME ACCOUNTS AND NATIONAL INCOME IDENTIFIES**

Nature of Macro Economics-Scope and Importance of Macro Economics-Limitations of Macro Economics. Meaning of National Income-Concepts of National Income; Gross National Product, Net National Product, NNP at Market Price, NNP at Factor cost, NDP at Factor cost, Personal income, Disposal Income, Real Income and Per Capita Income- Methods of measuring National Income and Difficulties in the Measurement of National Income – Circular flow of income and expenditure in two sector, three sector closed economy and four sector open economy.

**MODULE – II: CLASSICAL AND KEYNESIAN MACROECONOMICS**

Classical Theory of Employment – Critique of Classical Theory – Basic Keynesian Models – Consumption Function – Investment Function – Types of Investment – Marginal Efficiency of Capital and Investment – Multiplier and Accelerator – Interaction between Multiplier and Accelerator.

**MODULE – III: THEORIES OF CONSUMPTION FUNCTION**

Theories of Consumption Function – Alternative Hypotheses: Absolute Income Hypothesis, Relative Income Hypothesis, Life Cycle Hypothesis, Permanent Income Hypothesis.

**MODULE – IV: NEO CLASSICAL AND KEYNESIAN SYNTHESIS**

The Goods market and Money market – Goods market equilibrium: the derivation of IS curve – Shift in IS curve- Money Market Equilibrium: The derivation of LM curve- Shift in LM curve – Interaction of IS-LM curves: The simultaneous equilibrium of Goods market and Money market – The Elasticity of LM curve – The effectiveness of Monetary and Fiscal Policies.

**REFERENCE BOOKS:**

1. Ackley, G. (1978) Macroeconomics: Theory and Policy, Mac Millian, New York.
2. Dornbusch, R. and F. Stansel (2000) Macro Economics, Mc Graw Hill, Inc, New York.
3. Jha, R (1991) Contemporary Macro Economic Theory and Policy, Wiley Eastern Ltd., New Delhi.
4. Edward Shapiro: Macro Economic Analysis, Fifth Edition, Galgotia Publications (P) Ltd., Ansari Road, New Delhi.
5. H.L. Ahuja, Macroeconomic Theory, Theory and Policy – S. Chand and Company Ltd., New Delhi.
6. M.L. Jhingon: Macro Economic Theory, Tenth Edition, Urinda Publication (Pvt.) Ltd., Delhi.
7. Rana & Varma – Macro Economics.
8. Seth, M.L. 2006, Macro-economic theory, Lakshmi Narai Agarwal publications, Agra.
9. Keynes, J.M, 1936, General theory of employment interest and money.

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**DEPARTMENT OF ECONOMICS:**  
**M.A. ECONOMICS: SEMESTER – I**  
**PAPER III: PUBLIC ECONOMICS**

**Aims of the Course:** This paper basically tries to present the different functions of government / objectives of budget policy in the process of development in the light of market failure. It also tries to bring in the theories that would enable the students to understand public revenue, expenditure and debt policies.

**MODULE – I: INTRODUCTION**

Need for Public Economics: Market Failure and Remedial Measures – Asymmetric Information, Public Goods and Externalities; public goods, merit goods and private goods; Public Budget and Budget Multiplier – Objectives of budgetary policy: allocation, distribution, stabilization and economic growth; Functional finance; Principles of Maximum Social Advantage.

**MODULE – II: THEORIES OF TAXATION**

Definition of a Tax - Canons of taxation, Good tax system; Benefit approach to taxation- Lindhal, Bowen and Samuelson models; Ability to pay approach to taxation; Excess burden of taxes, Choice of tax base, Structure of tax rates; Incidence and Impact of taxation, Shifting of tax burden.

**MODULE – III: PUBLIC REVENUE**

Tax and non-tax revenues; Direct and indirect taxes; Proportional, Progressive and Regressive Taxation; Analysis of Income tax, Corporation tax, Wealth tax, Estate duty, Customs duties, Excise duties, Service tax in India; Effects of taxation on distribution and economic growth; Tax reforms in India.

**MODULE – IV: PUBLIC EXPENDITURE AND PUBLIC DEBT**

Laws of growth of Public expenditure - Wagner's law, Wiseman-peacock hypothesis; Effects of Government expenditure on production, distribution and economic growth; Measures to control the growth of public expenditure; Sources and classification of Public debt, Burden of public debt, Principles of debt management, Debt redemption policy.

**REFERENCE BOOKS:**

- |                                  |   |
|----------------------------------|---|
| 1. Charles M.Allan               | The theory of taxation, Penguin   |
| 2. Hugh Dalton                   | Principle of Public Finance   |
| 3. R.A.Musgrave                  | Public Finance in Theory & Practice   |
| 4. Hareler B.P. Richard D Irwin, | Modern Public Finance,  |
| 5. Philip Taylor                 | Economics of Public Finance   |
| 6. Otto Eckstein                 | Public Finance, fourth edition Prentice-<br>Hall of India Pvt. Ltd, New Delhi |
| 7. B.P Tyagi & H.P.Singh         | Public Finance, Jai Prakash Nath & Co.  |
| 8. M.C.Vaish & H.S.Agarwal       | Public Finance  |
| 9. Bhatia, H.L                   | Public Finance with effect from 2006-07                                       |
| 10. Indian Economy               | Datt & Sundaram, S.Chand & Company Pvt. Ltd, New Delhi                        |

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**KVR Govt. College for Women(A), Kurnool**  
**DEPARTMENT OF ECONOMICS:**  
**M.A. ECONOMICS: SEMESTER – I**  
**PAPER IV: INDIAN ECONOMY**

**Objectives of the Course:** *The purpose of this paper is to enable the students to have an understanding of the overall features of various key sectors and their issues and developments, obstacles involved in the growth of Indian Economy since colonial period.*

**MODULE – I: ECONOMIC DEVELOPMENT AND ITS DETERMINANTS**

Approaches to Economic Development and its measurement – Under Development – meaning and indicators – common characteristics of under development – Sustainable development – Determinants of Developments – Role of State Market and Open Institutions – PQLI – Human Development Index (HDI) – Human Poverty Index.

**MODULE – II: PLANNING IN INDIA**

Nature of Indian Economic Planning – Rationale – Features – Objectives and Targets – Strategy – Evaluation of Economic Planning in India – New Economic Policy.

**MODULE –III: DEMOGRAPHIC FEATURES**

Broad demographic features of Indian population – Rural-Urban Migration – Population Explosion – Problems of over Population – Remedies for Population Explosion – Population Policy in India.

**MODULE – IV: POVERTY AND UN-EMPLOYMENT**

The concept of poverty – Measurement of Rural poverty – Poverty Alleviation programmes – Nature of un-employment – Causes of un-employment – Major employment programmes and Policy – Regional imbalance.

**REFERENCE BOOKS:**

1. Ahluwalia, I.J. and I.M.D. Little (Eds.) (1999), India's Economic Reforms and Development
2. Brahmanda, P.R. and V.R. Panchmukhi (Eds.) (2000), Development Experience in the Indian Economy.
3. Chakavarty, S. (1987), Development Planning
4. Dantwala, M.L. (1996), Dilemmas of Growth.
5. Datt, R. (Ed.) (2001), Second Generation Economic Reforms in India.
6. Ishwar.C – the Indian Economy.
7. S.K. Misra – V.K. Poori – Indian economy.
8. S.k. Ray – Indian Economy.
9. Rudhradatta and K.P.M. Sundaram – Indian Economics

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**KVR Govt. College for Women(A), Kurnool**  
**DEPARTMENT OF ECONOMICS:**  
**M.A. ECONOMICS: SEMESTER - I**  
**PAPER -V: MATHEMATICAL METHODS**

**Aims of the Course**

*This course is for students who need to review Elementary Algebra. It provides a framework for modelling systems in which there is change, and a way to deduce the predictions of such models. The main objective is to know how differentiation and integration is useful in economics. To prove mathematically the relationship of economic variables. Introduce basic concepts and skills in matrix algebra. and applications.*

**MODULE-1: ELEMENTARY ALGEBRA**

Basic processes in Algebra - Simple fractions and Factors - Solution of Linear and Quadratic Equations - Solution of Simultaneous equations - Concept of a Function and types of functions - Equilibrium of Demand and Supply functions.

**MODULE-2: INTRODUCTION TO CALCULUS**

Derivative of a function - Rules of differentiation - Maxima, minima and point of inflexion of functions with one independent variable - Rules of partial differentiation and partial derivatives - Total differentiation - Concept of Integration and rules of Integration.

**MODULE-3: APPLICATION OF CALCULUS TO THEORY OF FIRM**

Marginal and average concepts of cost, revenue and production functions; Maximum and Minimum problems of a firm ; Elasticity of demand and supply functions ; Application of integration to Consumer's and Producer's surplus.

**MODULE-4: MATRIX ALGEBRA**

Concept of Matrix - Types of Matrices; Simple operations on Matrices ; Determinants and their basic properties ; Singular and Non-Singular Matrices ; Rank of a Matrix ; Inverse of a Matrix ; Solution of simultaneous linear equations through Cramer's Rule.

**REFERENCE BOOKS**

- |   |                   |   |  |
|---|-------------------|---|--|
| 1 | Caroline Dinwiddy | : | Elementary Mathematics for Economists, Oxford University Press, Nairobi, Kenya, 1993.                                    |
| 2 | Taro Yamane       | : | Mathematics for Economists (An Elementary Survey), 2nd Edition. Prentice Hall of India Private Limited, New Delhi, 2000. |
| 3 | Alpha C. Chiang   | : | Fundamental Methods of Mathematical Economics, McGraw-Hill Book Company, New Delhi, 1984.                                |
| 4 | R.G.D. Allen      | : | Mathematical Analysis for Economists MacMillan Press (ELBS Edition), London.   |

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**DEPARTMENT OF ECONOMICS:**  
**M.A. ECONOMICS: SEMESTER - II**  
**PAPER-I :MICRO ECONOMIC ANALYSIS-II**

**Objectives of the course:** This is to introduce the students to understand the theories of distribution with reference to rent, wages, interest and social welfare function. The course also aims to introduce students to general and partial equilibrium theories, welfare economics, and theories of risk and economics of information.

**MODULE – I: MODERN THEORIES OF THE FIRM**

Baumol's Sales Revenue Maximization Model–Marris' Model of the Managerial Enterprise–Williamson's Model of Managerial Discretion–Bain's Limit Pricing Theory –Recent Developments in the Theory of Limit Pricing: The Models of Sylos- Labini–Franco Modigliani and Bhagwati.

**MODULE – II: THEORIES OF DISTRIBUTION**

Theories of Distribution:- Ricardo, Karl Marx, Neo-Classical Theory(Marginal Productivity Theory) Kaldor -Factor Pricing in Perfect and Imperfect Competitive Markets–Adding up Problem and Euler's Theorem.

**MODULE – III: GENERAL EQUILIBRIUM**

Meaning of Equilibrium–Static and Dynamic Equilibrium–Stable and Unstable Equilibrium – Partial and General Equilibrium – General Equilibrium of Exchange and Consumption–General Equilibrium of Production and Exchange–General Equilibrium and Relative Prices.

**MODULE – IV: WELFARE ECONOMICS**

Pigovian Welfare Economics–Pareto-Optimal Conditions–Kaldor-Hicks Compensation Principle – Grant Utility possibility Frontier and Welfare Maximization – The theory of Second Best - Social Welfare Function: Bergson – Samuelson Social Welfare Function – Arrow's Theory of Social Choice.

**REFERENCES:**

1. Koutsoyiannis, A., 1979, Modern Micro Economics, (2<sup>nd</sup> Edition), Macmillan Press, London.
2. Archibald, G.C. (Ed), 1971, Theory of the Firm, Penguin, Harmonds Worth.
3. Mishan, E.J. 1969, Welfare Economics: An Assessment, Noeth Holland, Amsterdam.
4. Green, H. and V.Waish, 1975, Classical and Neo Classical Theories of General Equilibrium, Oxford University Press, London
5. Quirk. J. and R.Saposnik, 1968, Introduction to General Equilibrium Theory and Welfare Economics, McGraw Hill, New York.
6. Weintrub, E.R., 1974, General Equilibrium Theory, Macmillan, London.
7. Broadway, R.W. and N.Bruce, 1984, Welfare Economics, Basil Blackwell, London.
8. Pigou, A.C., 1920, Economics of Welfare, Macmillan and Co. London.
9. Little I.M.D., 1975, A Critique of Welfare Economics, (2<sup>nd</sup> Edition), Oxford University Press, Oxford.
10. Ahuja, L., 2000, Advanced Economic Theory: Micro Economic Analysis, S.Chand and Company, New Delhi.

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DEPARTMENT OF ECONOMICS:

M.A. ECONOMICS: SEMESTER - II

PAPER – II: MONETARY ECONOMICS

***Aim of the Course:** The aim of this course is to familiarize the students with the basic concepts and theories in monetary economics. The objective is to enhance student's ability to understand and interpret the behaviour of the aggregate variables at global and national level.*

#### **MODULE – I: DEMAND AND SUPPLY OF MONEY**

Classical approach to Demand for money – Quantity theory approach, Fishers' equation, Cambridge quantity theory, Keynes Liquidity Preference approach - Transaction, Precautionary and Speculative Motives – Aggregate Demand for Money- Baumol Inventory theoretic approach – Tobins portfolio Selection Model – Determinants of Money Supply – High Powered Money – Money Multiplier.

#### **MODULE – II: BUSINESS CYCLES**

Types of Trade Cycles-Different Theories of Trade Cycles: Samuelson- Hicks and Kaldor-control of Business Cycles: Monetary and Fiscal Policies.

#### **MODULE – III: THEORIES OF INFLATION**

Types of Inflation; Demand pull inflation; cost push inflation; Phillips curve; The Inflation and Unemployment Trade off-The Monetarists Accelerationists' Hypothesis – Rational Hypothesis.

#### **MODULE – IV: MACROECONOMICS POLICIES**

Objectives of Macro Economic Policies- Objectives and Tools of Monetary Policy- Evaluating Monetary Policy: The policy of Activists and Non- Activists Arguments- Fiscal Policy: Objectives and Tools- Automatic Stabilizers- problems in the Implementation of Fiscal policies- Relative Effectiveness of Monetary and Fiscal Policies.

#### **REFERENCE BOOKS:**

1. Ackley, G. (1978) Macro Economics: Theory and Policy Mac Millian, New York.
2. Jha, R (1991) Contemporary Macro Economic Theory and Policy, Wiley Eastern Ltd. New Delhi.
3. Edward Shapiro: Macro Economic Analysis, Fifth Edition, Galgotia Publications (P) Ltd., Ansari Road, New Delhi.
4. Suraj B. Gupta: Monetary Economics' Institutions Theory and Policy, S. Chand and Company Ltd., New Delhi.
5. Kishore G. Kularni : Modern Monetary Theory, Mac Millian, New York.
6. Branson, W.B., Macro Economic Theory and Policy.
7. Friedman, M.(ed). The Quantity Theory of Money- A Restatement of studies in the Quantity Theory of Money.
8. Hicks, J.R. Mr. Keynes and the Classicals: A Suggested Interpretation, Econometric, April, 1937.

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**KVR Govt. College for Women(A), Kurnool**  
**DEPARTMENT OF ECONOMICS**  
**M.A. ECONOMICS: SEMESTER – II**  
**PAPER – III: FEDERAL FINANCE**

**Aims of the Course:** Fiscal federalism or the inter governmental financial relations assume importance in a federation as the more than one level of government operate upon the available resources in a country. The division of fiscal responsibilities and the resources are distributed between the two or more layers of governments. Fiscal imbalances exist and financial adjustments become inevitable. Therefore, it is necessary to know about the mechanism and instruments of fiscal adjustments.

**MODULE – I: INTRODUCTION TO FEDERAL FINANCE**

The Rationale of Federal Set-up and Concept of Fiscal Federalism – Principles for Efficient Division of Financial Resources between Governments – The problems of Financial Imbalance: Vertical and Horizontal Imbalances – Methods of solving Financial Imbalance through Inter-Governmental Financial Transfer – Distributive pool method or Tax sharing – Supplementary Levies – Grants – In – Aid – Loans.

**MODULE – II: CENTRE-STATE FINANCIAL RELATIONS AND FINANCE COMMISSIONS OF INDIA**

Centre-State Financial Relations in India – Devolution of financial resources - Constitutional Provisions - the role of Finance Commissions – The recommendations of Finance Commissions during the liberalization period --- and transfer of resources from Union to States and Local bodies.

**MODULE – II: FISCAL POLICY AND ITS IMPLICATIONS**

Objectives and tools of Fiscal Policy, Interdependence of fiscal and monetary policies, Budgetary Deficits: Revenue Deficit, Primary Deficit, Fiscal Deficit and Monetised Deficit; Role of fiscal policy in developing countries, Reforms in the fiscal policy during the liberalization period in India.

**MODULE – IV: FINANCES OF STATE GOVERNMENTS WITH SPECIAL REFERENCE TO ANDHRA PRADESH**

Sources of State revenues – States own Tax and non-tax revenues, Share of revenues of Central taxes, Grants in Aid, Growth of Revenue and Capital Expenditure - development and non-development expenditure - Growth of public debt in Andhra Pradesh - Analysis of Andhra Pradesh State Budgets.

**REFERENCE BOOKS:**

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|----------------------------------|---|
| 1. Charles M.Allan               | The theory of taxation, Penguin   |
| 2. Hugh Dalton                   | Principle of Public Finance   |
| 3. R.A.Musgrave                  | Public Finance in Theory & Practice   |
| 4. Hareler B.P. Richard D Irwin, | Modern Public Finance,  |
| 5. Philip Taylor                 | Economics of Public Finance   |
| 6. Otto Eckstein                 | Public Finance, fourth edition Prentice-<br>Hall of India Pvt. Ltd, New Delhi |
| 7. B.P Tyagi & H.P.Singh         | Public Finance, Jai Prakash Nath & Co.  |
| 8. M.C.Vaish & H.S.Agarwal       | Public Finance  |
| 9. Bhatia, H.L                   | Public Finance with effect from 2006-07                                       |
| 10.Indian Economy                | Datt & Sundaram, S.Chand & Company Pvt. Ltd, New Delhi.                       |

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**DEPARTMENT OF ECONOMICS**  
**M.A. ECONOMICS**  
**SEMESTER – II : PAPER – IV**  
**INTERNATIONAL TRADE & FINANCE**

**Objectives of the Course:** This course aims to provide micro foundation in the understanding of International Economics. The course consists of theories of international trade, multinational corporations, and theories of economic integration and terms of trade, Tariffs and Quotas, Balance of Payments ect. The course is divided into four modules introducing students to learning International Economics and Finance.

**MODULE-I: THEORIES OF INTERNATIONAL TRADE**

Theory of absolute advantage – theory of comparative advantage – Heberlers theory of opportunity costs – Heckscher – Ohilin theory of Trade - Empirical Testing of absolute and comparative Cost – Leontief Paradox.

**MODULE-II: MODERN THEORIES OF INTERNATIONAL TRADE**

Factor Price equalization theorem – Slopler Samuelson Theram – The Rybczynski theorem – Effects of factor – endowment changes on Trade – Kravis and Linder theory of Trade.

**MODULE-III: MESUREMENTS OF GAINS & TERMS OF TRADE**

Factors determining the gains from Trade – Measurement of gains from trade and their distribution – The concept of Terms of Trade, their uses and limitations – Hypothesis of secular deterioration of Terms of Trade Concept of immierizing growth and its policy implications. Trade as an engine of Economic growth – Welfare implications.

**MODULE-IV: THEORY OF INTERVENTIONS IN BALANCE OF PAYMENTS:**

Economic effects of tariffs and quotas on national income, output, and employment – Effects of Tariff under general equalization – optimum rates of Tariff and welfare implications. Meaning and components of balance of payments – Equilibrium and disequilibrium in the balance of payments and causes for disequilibrium.

**REFERENCE BOOKS:**

1. Bhagwati, J. (Ed.) (1981), International Trade.
2. Kindleberger, C.P. (1973), International Economics.
3. Soderston, Bo (1991), International Economics.
4. Aggarwal, M.R. (1979), Regional Economic Cooperation in South Asia.
5. Heller, H. Robert (1968), International Monetary Economics.
6. Patel, S.J. (1995), Indian Economy Towards the 21<sup>st</sup> Century.
7. Satyanarayan, B. (1986), India's Trade with Asia and the Far East Countries.
8. Jhington M.L. International Economics.
9. Mithani. International Economics.

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**KVR Govt. College for Women (A), Kurnool**  
**DEPARTMENT OF ECONOMICS**  
**M.A. ECONOMICS: SEMESTER-II**  
**PAPER – V: STATISTICAL METHODS**

**Objective:**

*To know the relationship between two variables. To study the dependency of two variables, concept of probability. Understand how to develop Null and Alternative Hypotheses 2. Understand Type I and Type II Errors 3. Able to do hypothesis test about population mean when  $\sigma$  is known 4. Able to do hypothesis test about population mean when  $\sigma$  is unknown. To test the homogeneity and goodness of fit, ANOVA test..*

**MODULE-1: CORRELATION AND REGRESSION ANALYSIS**

The basic concept of simple correlation - The Scatter diagram - Karl Pearson's Coefficient of Correlation - Spearman's Rank Correlation - Regression analysis - Method of the Least Squares - Regression equations - Regression lines - Standard error of estimate.

**MODULE-2: PROBABILITY AND SAMPLING**

Definitions of probability - Addition and Multiplication Theorems of Probability - Conditional probability, Bayes theorem - Basic concepts of Sampling - Probability and non-probability Sampling Methods - Sampling and Non-sampling Errors - Merits and Limitations of Sampling.

**MODULE-3: HYPOTHESIS TESTING**

Formulation of statistical hypotheses- Null and alternative hypotheses - Normal curve - Level of significance - Critical region - Confidence intervals - One tailed and two tailed tests - Type I and Type II errors - 'z'-test and 't' test for testing means - Testing of differences between means, standard deviations, proportions and correlation coefficients.

**MODULE-4: CHI-SQUARE TEST AND ANALYSIS OF VARIANCE**

□ Concept of the chi-square ( $\chi^2$ ) □ test -  $\chi^2$ -test as a test of independence, as a test of homogeneity and as a test of goodness of fit - Yates's correction - The 'F' test - Analysis of variance - One way classification of analysis of variance - ANOVA Table.

**REFERENCE BOOKS**

- |   |                                   |   |   |
|---|-----------------------------------|---|---|
| 1 | John E. Freund                    | : | Mathematical Statistics, Prentice Hall of India Pvt. Ltd., New Delhi.                             |
| 2 | Harry Frank and Steven C. Althoen | : | Statistics - Concepts and applications, Cambridge Low priced edition, Cambridge University Press. |
| 3 | J. Medhi                          | : | Statistical Methods - An Introductory Text, New Age International (P) Ltd., New Delhi.            |
| 4 | S.P. Gupta                        | : | Statistical Methods, S. Chand & Sons, New Delhi   |
| 5 | Clinton I. Chase                  | : | Elementary Statistical Procedures, 3rd edition, Mc Graw-Hill Book Company, New York.              |

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