



MASTERS OF PHILOSOPHY (M. PHIL.)
AGRICULTURE
DETAILED SYLLABUS
SESSION 2013-14



PAPER I

RESEARCH METHODOLOGY THEORY AND TECHNIQUES

UNIT - I

Research: Definition, Importance and Meaning of research, Characteristics of research, Types of Research, Steps in research, Identification, Selection and formulation of research problem, Research questions – Research design – Formulation of Hypo Dissertation, Review of Literature.

UNIT – II

Sampling techniques: Sampling theory, types of sampling – Steps in sampling – Sampling and Non-sampling error – Sample size – Advantages and limitations of sampling.

Collection of Data: Primary Data – Meaning – Data Collection methods – Secondary data – Meaning – Relevances, limitations and cautions.

UNIT – III

Statistics in Research – Measure of Central tendency, Dispersion, Skewness and Kurtosis in research, Hypo Dissertation, Fundamentals of Hypo Dissertation testing, Standard Error, Point and Interval estimates, Important Non-Parametric tests: Sign, Run, Kruskal, Wallis tests and Mann, Whitney test.

UNIT – IV

Para metric tests: Testing of significance, mean, Proportion, Variance and Correlation, testing for Significance of difference between means, proportions, variances and correlation co-efficient. Chi-square tests, ANOVA, One-way and Two-way.

UNIT– V

Research Report: Types of reports, contents, styles of reporting, Steps in drafting reports, editing the final draft, evaluating the final draft.

Reference Books:

1. Statistical Methods - S.P. Gupta
2. Research Methodology Methods and Techniques - C.R. Kothari
3. Statistics (Theory and Practice) - B.N. Gupta
4. Research Methodology Methods and Statistical Techniques - Santosh Gupta



PAPER-II

AGRICULTURAL ECONOMICS

UNIT I

Role of agriculture in Indian economy – nature of India's culture – cropping pattern in India – share of agriculture in plan expenditure - - decliner investments in agriculture and increasing subsidies – Indian agricultural policy.

UNIT II

Trends in agricultural production and productivity – low levels of productivity – causes of low productivity – measures to increase productivity increasing production and productivity. Tasks before the ninth plan farm size and productivity.

UNIT III

Objectives of land reforms – agricultural holdings in India – irrigation – fertilizers – green revolution – modern technology vs. Institutional reforms – national bank for agriculture and rural development – agricultural marketing – co-operative marketing.

UNIT IV

Agricultural prices and agricultural price policy – trends in agricultural price – need for agricultural price policy - agricultural price policy in India – evaluation of governments agricultural price policy.

UNIT V

Food security, public distribution system in India – definition of agricultural labor – growth in the number of agricultural works – causes of growth in the number of agricultural labors conditions and problems of agricultural labors.

PAPER-III

AGRICULTURAL BIOTECHNOLOGY

UNIT I

Introduction: Cell structure and physiological processes, organellar ultrastructure, respiration, photosynthesis, growth regulators and nitrogen metabolism.

UNIT II



Genetic Engineering for Crop Improvement: Plant cell and tissue culture, gene transfer techniques into plant cells, application in agricultural and food industries.

UNIT III

Microbes in Agriculture and Food: Applied Microbiology in the future of mankind, moving frontiers of applied microbiology, microbial enzymes and their applications in food processing and agro-chemical industries, agro-waste utilization, biodegradable polymers and their applications, microbial polysaccharides; Production and utilization of essential amino-acids, chemicals from micro-algae.

UNIT IV

Micorrhiza: Applications in agriculture and forestry

UNIT V

Food and Beverage Products: Traditional fermented food, single cell protein, glutamic acid fermentation, lactic acid, gluconic and Itaconic acid production.

Reference Books:

1. Molecular Biotechnology: Principles & Applications of Recombinant DNA, Glick & Pasternick—**Required New 3rd edition**
2. A Cartoon Guide to Genetics, Gonick--Optional.
3. Practical Applications of Plant Molecular Biology--Optional.

**PAPER IV
DISSERTATION**