Syllabus of Research Methodology for RET in Agriculture

Unit 1: Concepts of research methodology

Importance and scope of research in agriculture. Types of research: Fundamental vs. Applied. Concept of researchable problem, Research prioritization, Selection of research problem. Approach to research, Research process.

Unit 2: Hypostheis Testing

Hypothesis- meaning- characteristics- types of hypotheses- Review of literature, Setting of course objectives and Hypothesis, Testing of hypothesis, z, t, chi-square and f-distribution

Unit 3: Data collection and descriptive analysis

Data- meaning, assessment of data needs, sources of data collection, collection of data in different fields of agriculture, Types of data, Classification, tabulation, and graphical representation of data, measures of central values, measures of dispersion, correlation and regression analysis.

Unit 4: Sampling

Sampling Theory and sampling design, methods of sampling; probability and non-probability sampling methods, Research design and techniques, Types of research design.

Unit 5: Probability

Theory of probability, Random experiment, Mathematical or classical definition of probability, Statistical definition of probability, conditional probability, Mathematical expectation.

Unit 6: Data analysis

Data coding, cleaning, transformation of data, Universal procedures for preparation of bibliography, writing of research articles, Project proposal, Introduction to ANOVA: One way and two-way, Introduction to SPSS

अधिष्ठाता
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SYLLABUS FOR RESEARCH ENTRANCE TEST (RET)

Agricultural Engineering (Soil and Water Conservation Engineering)

PAPER-II

(SUBJECT CONTENT)

UNIT I

Soil erosion: Introduction, causes and types .Water erosion: Mechanics and forms. Gullies: classification, stages of development; Soil loss estimation– Universal soil loss equation (USLE) and modified USLE. Rainfall erosivity- estimation by KE>25 and EI30 methods. Agronomical measures, engineering measures and grassed waterways and design.

UNIT II

Energy and momentum principles in open channels; hydraulic jump and its application, types of hydraulic jump, energy dissipation due to the jump. Permanent structures for soil conservation and gully control. Water harvesting techniques: Classification based on source, storage and use.

UNIT III

Hydrology in water resources planning, rainfall, runoff and components of hydrologic cycle. Micro climate, estimation methods of evaporation, evapotranspiration and rainfall. Concept of hydraulic flood routing.

UNIT IV

Groundwater resources of World and India; Occurrence and movement of groundwater, aquifer and its types, Classification of wells, Darcy's law, determination of hydraulic conductivity.

UNIT V

Watershed- Introduction and characteristics; Watershed management- concept, objectives.Watershed planning based on land capability classes, hydrologic data for watershed planning. Application of remote sensing and GIS in watershed planning and management; Introduction to Remote Sensing and GIS.

UNIT VI

Major and medium irrigation schemes of India, purpose of irrigation, Soil-water-plant relationship: Surface methods of water application: Border, check basin and furrow irrigation- , Surface drainage, types and design, types of minor irrigation systems in India.

UNIT WISE ITEM COMPOSITION (TOTAL:50 Items)

UNIT-I : 09
UNIT-II : 08

UNIT-III: 08

UNIT-IV: 09

UNIT-V : 07

UNIT-VI : 09