

# PH.D. IN SPECIAL EDUCATION

## Syllabus based on M.Ed. Special Education

Total 100 Marks

Paper I (50 marks)

### RESEARCH METHODOLOGY AND STATISTICS

#### 1. Scientific Knowledge and Research

- Sources and philosophy of knowledge
- Scientific thinking and research
- Role of theory in research
- Need for research in Education and Special Education
- Ethics in research

#### 2. Types and Methods of Research

- Types of research- Quantitative, Qualitative, Fundamental, Applied, Action
- Methods of Research: Descriptive, Correlational, Ex-post facto, Experimental Designs (Pre-experimental, Pre-Post designs, Quasi Experimental design, single subject design)
- Variables- Types and threats
- Process of research- Selection of problem, Review of literature, Sampling ( Types and selection process), Hypothesis, Instruments ( tests, questionnaire, interview, observation schedule, rating scales), Data collection and analysis
- Standardization of research instrument- Selection of items, reliability and validity and norms

#### 3. Methods of Quantitative Analysis

- Parametric and non-parametric tests: Concept and difference
- Descriptive Statistics:
  - Measures of Central Tendency
  - Correlations: Product-moment, Biserial-r, Point-biserial, Phi-coefficient, Regression analysis
- Inferential statistics
  - Underlying concepts: Sampling error, standard error of mean, confidence level, degrees of freedom, one tail-two tail test, type I and type II errors
  - Student t- test, ANOVA, Ancova, Chi-square, Sign Test, Mann Whitney U test, Kruskal-Wallis test

- Computer applications for analysis
- Tabulation and graphic representation

#### **4. Qualitative Research Methods and Analysis**

- Grounded theory
- Ethnography and case study
- Narrative/discourse and visual methodologies
- Mixed method
- Themes, coding and presentation

#### **Unit 5: Preparing Research Proposal & Report**

- Components of research proposal
- Presentation of proposal
- Writing of thesis/dissertation
- Writing technical paper for publication
- Research management