

Course Code: SMTC
ADVANCED EDUCATIONAL RESEARCH AND STATISTICS

Course Objectives:

The prospective teacher-educators will be able to:

1. understand the process of conducting research
2. acquire knowledge about the quantitative research designs
3. understand the different types of qualitative research designs
4. understand the mixed methods of research
5. acquire knowledge about the action research
6. know the process of collecting, analyzing, interpreting quantitative data
7. know the process of collecting, analyzing, interpreting qualitative data
8. recognise the different types of parametric tests
9. comprehend the different types of non-parametric tests
10. comprehend the various components in the research report

Unit I: The Process of Conducting Research

Definition of Research- Steps in the process of Research- Characteristics of Qualitative and Quantitative research- Skills needed to design and conduct Research.

Unit II: Quantitative Research Designs

Survey designs - Correlational designs - Experimental designs.

Unit III: Qualitative Research Designs

Grounded Theory designs - Ethnographic designs - Narrative Research designs.

Unit IV: Mixed Methods Design

Meaning- Purpose- Types of Mixed methods design - Key Characteristics of Mixed Method designs- Steps in conducting a mixed methods study.

Unit V: Action Research Design

Meaning of Action Research – Purpose of Action Research- Types of Action Research Designs- Key Characteristics of Action Research- Steps in conducting Action Research.

Unit VI: Collecting, Analyzing, Interpreting Quantitative Data

Steps in the process of data collection - Information to be collected - Formulating research questions and hypotheses - Operational definition of variables - Choosing types of data - Developing suitable instruments - Administering the data collection - Steps in the process of quantitative data analysis - Preparing data analysis - Analyzing in the data: Descriptive analysis and inferential analysis - Preparing and interpreting the results.

Unit VI: Collecting, Analyzing, Interpreting Quantitative Data

Steps in the process of data collection - Information to be collected - Formulating research questions and hypotheses - Operational definition of variables - Choosing types of data - Developing suitable instruments - Administering the data collection - Steps in the process of quantitative data analysis - Preparing data analysis - Analyzing in the data: Descriptive analysis and inferential analysis - Preparing and interpreting the result

Unit VIII: Parametric Tests

't' test, 'F'-ratio, ANCOVA, Correlation, Regression and Factor analysis.

UNIT IX: Non-parametric Tests

Chi-square test, Mann-Whitney test, Kruskal-Wallis test, Cochran's Q-test and their statistical applications.

Unit X: Research Report

Writing the research report - Format of the Research Report: Title page, introduction, review of literature, methodology, analysis and interpretation of data, discussion and conclusion, references and appendices.

Suggested Activities:

1. Discussion on the quantitative and the qualitative research designs.
2. Conduct SPSS workshop in your institution.
3. Presentation on style of writing the review of related literature.
4. Discussion on parametric and non-parametric tests.
5. Prepare a model research report.

References

1. Bryman, Alan. (2008). Social research methods. 4th Edition, New Delhi: Oxford University Press.
2. Cohen, Louis. et.al (2008). Research methods in education. London: Routledge.
3. Cresswell, John W. (2012). Educational research. New Delhi: Pearson Education.
4. Cresswell, John W. (2014). Research design. 4th Edition, New Delhi: Sage Publications.
5. Henry E. Garrett. (2008). Statistics in psychology and education. 1st Indian Print. Delhi: Surjeet Publications.
6. John W. Best and James V. Kahn. (2012). Research in education, 10th Edition. New Delhi: PHI Learning Private Limited.

