Course objectives:

CO1: To familiarize with basics of research, literature survey, formulate research problem and develop skills for meaningful interpretation to the data and the research process.

CO2: To develop understanding on various kinds of research, objectives of doing research, and research designs.

CO3: To understand ethical issues while conducting research.

CO4: To understand various stages of preparing publishing research articles.

Syllabus

Unit 1: Research process, Research questions, Research design, Approaches to research: Quantitative vs. Qualitative approach, Building and validating theoretical models, Exploratory vs. Confirmatory Research, Experimental vs Theoretical Research, Importance of reasoning in research.

Unit 2: Importance of literature survey, planning a literature search, Identifying key concepts and key words, locating relevant literature, Reliability of a source.

Unit 3: Problem formulation, Understanding modelling & simulation, Experimental research: Cause effect relationship, Development of hypothesis, Measurement systems analysis, Error propagation, Validity of experiments, Statistical design of experiments, Field experiments, Data/Variable types & classification, Data collection, Numerical and graphical data analysis: Sampling, Observation, Surveys, Inferential Statistics, and Interpretation of Results; Hands-on training on R-software for statistical analysis.


REFERENCES:

Modes of Evaluation:

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