RM6201: Research Methodology (L-T-P-C: 3-1-0-4)

Module I (6 lecture hours) – Research method fundamentals: Definition, characteristics and types, basic research terminology, an overview of research method concepts, research methods vs. method methodology, role of information and communication technology (ICT) in research, Nature and scope of research, information based decision making and source of knowledge. The research process; basic approaches and terminologies used in research. Defining research problem and hypotheses framing to prepare a research plan.

Module II (5 lecture hours) - Research problem visualization and conceptualization: Significance of literature survey in identification of a research problem from reliable sources and critical review, identifying technical gaps and contemporary challenges from literature review and research databases, development of working hypothesis, defining and formulating the research problems, problem selection, necessity of defining the problem and conceiving the solution approach and methods.

Module III (5 lecture hours) - Research design and data analysis: Research design – basic principles, need of research design and data classification – primary and secondary, features of good design, important concepts relating to research design, observation and facts, validation methods, observation and collection of data, methods of data collection, sampling methods, data processing and analysis, hypothesis testing, generalization, analysis, reliability, interpretation and presentation.

Module IV (16 lecture hours) - Qualitative and quantitative analysis: Qualitative Research Plan and designs, Meaning and types of Sampling, Tools of qualitative data Collection; observation depth Interview, focus group discussion, Data editing, processing & categorization, qualitative data analysis, Fundamentals of statistical methods, parametric and nonparametric techniques, test of significance, variables, conjecture, hypothesis, measurement, types of data and scales, sample and sampling techniques, probability and distributions, hypothesis testing, level of significance and confidence interval, t-test, ANOVA, correlation, regression analysis, error analysis, research data analysis and evaluation using software tools (e.g.: MS Excel, SPSS, Statistica, R, etc.).

Module V (10 lecture hours) – Principled research: Ethics in research and Ethical dilemma, affiliation and conflict of interest; Publishing and sharing research, Plagiarism and its fallout (case studies), Internet research ethics, data protection and intellectual property rights (IPR) – patent survey, patentability, patent laws and IPR filing process.

Text and references:

C. R. Kothari, Research methodology: Methods and Techniques, 3rd Edn., New age International 2014.
Mark N K. Saunders, Adrian Thornhill, Phkip Lewis, “Research Methods for Studies, 3/c Pearson Education, 2010.
K.N. Krishnaswamy, apa iyer, siva kumar, m. Mathirajan, “Management Research Methodology”, Pearson Education, 2010.
Ranjit Kumar; “Research Methodology: A Step by Step Guide for Beginners; 2/e; Pearson Education, 2010.
Suresh c. Sinha, Anil K. Dhiman, ess ess, 2006 “Research Methodology” Panner Selvam .R. “Research Methodology”, Prentice Hall of India, New Delhi, 2004.
C.G. Thomas, Research methodology and scientific writing, Ane books, Delhi, 2015.
H. J. Ader and G. J. Mellenbergh, Research Methodology in the Social, Behavioural and Life Sciences Designs, Models and Methods, 3rd Edn., Sage Publications, London, 2000.