

Malaviya National Institute of Technology Jaipur

Course Code: MET 901

**Course: Research Methodology
(Proposed Syllabus)**

2-0-0

(Common to Engineering & Non Engineering Branches)

Unit-I Research formulation and Design

Definition and objective of research, types of research, steps in research process, research Design, concept and types of research design, defining and formulating the research problems, importance of literature review- primary and secondary sources, reviews, monographs, patent, research database, web sources, identifying gap areas from the literature and research data base, surveying synthesis, Interpretation.

Unit-II Sampling & Data Interpretation

Mathematical tools for analysis, statistical analysis of data, regression analysis, correlation, concept of best fit and exact fit, exact fit, theory, examples from linear regression with one and more unknowns

Unit-III Patent rights and IPR

Patents and its basics, process of filing patent at national and international level, Introduction and significance of intellectual property rights, commercialization, royalty, copyright, trade related aspects of IPR, Administration of patent system in India, licensing and transfer of technology, case studies

Unit-IV Research and Publication Ethics:

Research and Integrity, Scientific mis conduct: Falsification, Fabrication and Plagiarism (FFP), Conflict of research, Predatory publishers and Journals, Open access publication, citation and acknowledgement, reproducibility and accountability, software tools for similarity check

Unit-V Report Writing

Structure and components of research report, types of report, layout of research report, mechanism of writing a research report, referencing in academic writing, Abstracting, Bibliography

Text Books

1. C R Kothari, Research Methodology: methods and techniques, New Age International Publication Ltd
2. J W Creswell, Research Design, Sage South Asia Edition
3. D G Montgomery, Design and analysis of Experiments, John Willy India Edition
4. D.P. Mittal (Taxman Publication), Indian Patents Law and Procedure
5. B.L. Wadera, Patents, trademarks, copyright, Designs and Geographical Judications.
6. Neuman, W. Lawrence. 2000. Social research methods: qualitative and quantitative approaches. Boston: Allyn and Bacon

8. The Ethics of Teaching and Scientific Research by Miro Todorovich; Paul Kurtz; Sidney Hook.

Reference Books

1. Edward A. Bender, An Introduction to Mathematical Modeling.
2. A. C. Fowler, Mathematical Models in Applied Sciences, Cambridge University Press.
3. J. N. Kapoor, Mathematical Modeling, Wiley eastern Limited.
4. P. Narayanan (Eastern Law House), Intellectual Property Law
5. N.S. Gopalakrishnan & T.G. Agitha, Principles of Intellectual Property (2009), Eastern Book Company, Lucknow
6. Research Ethics: A Psychological Approach by Barbara H. Stanley; Joan E. Sieber; Gary B. Melton
7. Ethics and Values in Industrial-Organizational Psychology by Joel Lefkowitz Lawrence Erlbaum Associates, 2003.