

COMMON TO ALL ENGINEERING BRANCHES

Subject code: 18SPHDRM

RESEARCH METHODOLOGY

Module-1:

Meaning, Objectives and Characteristics of research - Research methods Vs Methodology - Types of research - Descriptive Vs. Analytical, Applied Vs. Fundamental, Quantitative Vs. Qualitative, Conceptual Vs. Empirical - Research process - Criteria of good research -Developing a research plan.

Defining the research problem - Selecting the problem - Necessity of defining the problem -Techniques involved in defining the problem - Importance of literature review in defining a problem - Survey of literature - Primary and secondary sources – Development of working hypothesis.

Module -2:

Research design and methods – Research design – Basic Principles- Need of research design — Features of good design – Important concepts relating to research design – Observation and Facts, Laws and Theories, Prediction and explanation, Induction, Deduction, Development of Models - Developing a research plan - Exploration, Description, Diagnosis, and Experimentation- Determining experimental and sample designs.

Module -3:

Sampling design - Steps in sampling design - Characteristics of a good sample design - Types of sample designs - Measurement and scaling techniques - Methods of data collection – Collection of primary data - Data collection instruments

Testing of hypotheses - Basic concepts - Procedure for hypotheses testing flow diagram for hypotheses testing - Data analysis with Statistical Packages – Correlation and Regression - Important parametric test - Chi-square test - Analysis of variance and Covariance

Module -4:

IPRs- Invention and Creativity- Intellectual Property-Importance and Protection of Intellectual Property Rights (IPRs) - A brief summary of: Patents, Copyrights, Trademarks, Industrial Designs- Integrated Circuits-Geographical Indications-Establishment of WIPO-Application and Procedures.

Module-5:

Interpretation and report writing - Techniques of interpretation - Structure and components of scientific reports - Different steps in the preparation - Layout, structure and language of the report - Illustrations and tables - Types of report - Technical reports and thesis

REFERENCES:

1. Garg, B.L., Karadia, R., Agarwal, F. and Agarwal, U.K., 2002. An introduction to Research Methodology, RBSA Publishers.
2. Kothari, C.R., 1990. Research Methodology: Methods and Techniques. New Age International. 418p.
3. Anderson, T. W., An Introduction to Multivariate Statistical Analysis, Wiley Eastern Pvt., Ltd., New Delhi
4. Sinha, S.C. and Dhiman, A.K., 2002. Research Methodology, EssEss Publications. 2 volumes.

5. Trochim, W.M.K., 2005. Research Methods: the concise knowledge base, Atomic Dog Publishing. 270p.
6. Fink, A., 2009. Conducting Research Literature Reviews: From the Internet to Paper. Sage Publications
7. Intellectual Property Rights in the Global Economy: Keith Eugene Maskus, Institute for International Economics, Washington, DC, 2000
8. Subbarau NR-Handbook on Intellectual Property Law and Practice-S ViswanathanPrinters and Publishing Private Limited.1998