

# **DM504 Research Methodology and Field Visit (2-0-2-6)**

## **Course Content**

Philosophy of doing research and scientific ethics; Sources of information; Review of literature; Approaches for high quality research; Importance of reasoning in research; Planning research and fine tuning the research problem; Development of experimental and theoretical research frameworks; Formulation of research problem, hypothesis, various methods of conducting on field Research: data gathering, sampling techniques, Customization of research to infrastructural and intellectual capabilities; Generation, analysis, interpretation and presentation of results. Planning and preparation for writing; Scientific writing structures for conference and journal articles, M. Tech and Ph.D. theses; Art of effective writing through sectioned approach – introduction, literature review, novelty, objectives, materials and methods, results and discussion, conclusions, future work, bibliography, appendix, nomenclature, abstract, and synopsis; Refinement approaches for the enhancement of article quality – order of words, structure of sentences and paragraphs, concise writing, removal of redundancy, ambiguity and vagueness, hedging and criticism, functional English, complexity of hypothesis, and level of reasoning; Methods to avoid plagiarism; Intellectual property rights and permissions.

## **Text/ References**

1. Thomas, C. G., **Research Methodology and Scientific Writing**, Ane Books, Delhi, 2015.
2. Wallwork, A., **English for Writing Research Papers**, Springer, New York, 2011.
3. Lester, J. D., Lester, J. D. (Jr.), **Writing Research Papers: A Complete Guide**, Longman, London, 2014.
4. Day, R. A., Gastel, B., **How to Write & Publish a Scientific Paper**, Greenwood Press, Connecticut, 2011.
5. Glasman-Deal, H., **Science Research Writing for Non-Native Speakers of English**, Imperial College Press, London, 2009.
6. Strunk, W., and White, E. B., **Elements of Style**, Allwyn and Bacon. 1999.