Unit I
Introduction to Philosophy: definition, nature and scope, concept, branches. Ethics: Definition, moral philosophy, nature of moral judgements and reactions


Publication Ethics: Best practices/standards setting initiatives and guidelines: COPE, WAME, etc. Conflicts of interest. Publication Misconduct: definition, concept, problems that lead to unethical behavior and vice versa, types. Violation of publication ethics, authorship and contributor ship. Identification of publication misconduct, complaints and appeals. Predatory publishers and journals

Unit II
Design and planning of Experiments: Aims and objectives, expected outcome, methodology to be adopted - importance of reproducibility of research work. Interpolation, Extrapolation, Types of errors, Error analysis and statistical principles. Objectives and basic principles of designs of experiments.

Unit III
Analysis and presentation data: using graphs, presenting data in tables, schemes and figures. Statistical tests, software for drawing, statistical analyses, bibliography using Mendeley and endnote. Software used in Science (LaTeX, Chemdraw, isis draw, Origin, statistical software (SPSS) etc. Familiarization of Spreadsheet Tools, Presentation Tools and Writing Tools. Presentation of Tables and Figures. Use and Format of Appendices, Indexing.

Unit IV
Databases and Research Metrics: Databases – Indexing databases, Citation databases: Web of Science, Scopus, etc. Research Metrics, Impact factor of journal as per journal citation report, SNIP, SJR, IPP, Cite Score. Metrics: h-index, g-index, 110 index, altmetrics.

Open access publications and initiatives. SHERPA/RoMEO online resource to check publisher copyright & self-archiving policies. Software tool to identify predatory publications. Journal finder/journal suggestion tools viz. JANE, Elsevier Journal Finder, Springer Journal Suggester, etc. Predatory publishers and journals.

Unit V
Communicating information: General aspects of scientific writing, reporting practical and project work, writing literature survey and reviews, organizing a poster display, oral presentation. Guidelines for writing the abstract, introduction, methodology, results and discussion, and conclusion sections of a manuscript. References, Citation and listing system of documents. Developing a Research Proposal – Thesis proposal. Format of research proposal. Research Report: Format of the research report, style of writing the report, references and bibliography.

IPR and cyber law: Patents, Patent laws, process of patenting a research findings, Intellectual property (IP), intellectual property right (IPR), copyright, trademarks, GI, cyber laws.

References:
5. Resnik, D.B (2011). What is ethics in Research & Why is it important? National Institute of Environmental Health Sciences