Course Code: SCO 308 Course Title: Research Methods and Technical Writing

Program: BSc. Computer Science

WEEK	Topic
Week 1/2	**Introduction to Research** This module helps in understanding the concept and types of research. It will also include ethics of research. Through this module, students will be able to understand the individual values of the researcher relating to honesty and frankness and personal integrity. The module will also help to orient the students regarding the researcher's treatment of other people involved in the research, relating to informed consent, confidentiality, anonymity and courtesy. Further, the course will draw focus on the differentiation between qualitative and quantitative research. • Types of research • Qualitative Vs quantitative research • Need and application of research • Ethics of research • Practical exercises (reading and discussion)
Week 3/4	**Designing Research Proposal** Through this module the student shall be familiarized with the various steps involved in developing a research proposal. The student shall be asked to identify a research problem and develop a proposal. • Defining the research problem • Developing research objectives and questions • Literature review • Choosing the appropriate methods • Sample and sampling methods • Ethical considerations and researcher's role • Expected research impact
Week 5/6	**Qualitative Research Tools and Techniques** This module focuses on techniques for data collection in research. The method of preparation of interview and discussion guides, and questionnaire for survey shall be discussed in this module. The students will be encouraged to think on the research problem that they have proposed in the previous module and develop a plan for the field work. • Structured, semi-structured and in-depth interview • Focus Group Discussion • Survey and Questionnaire Design
Week 7/8	**Data Collection and Analysis** This module focuses on qualitative data collection and analysis through practical exercises on transcription and content analysis. Subjectivity in interpretation and evaluator biases and its impact on research outcomes are also explained. • Developing data collection and management plan • Steps of analysing data • Analysis of text and documents • Using software to analyse data

Week 9/10	**Technical writing and research communication** ☐ Plagiarism and similarity
	• Understanding different styles of writing
	• Writing project report, dissertation, proposal, blogs and newspaper articles
	   a. Audience, purpose and strategy
	   b. Use of infographics (tables, graphs, charts and visuals)
	   c. Reference styles – Using referencing software
	   d. Understanding the peer review process
	• Writing Detailed Project Report (DPR)
	• Preparing presentation and presentation skills
	• Practical exercise - Developing articles, blogs etc. through class assignments, developing research reports