

Course title: Research Methodology and Thesis Writing				
Course code: NRE 173	No. of credits: 2	L-T-P: 28-2-0	Learning hours: 30	
Pre-requisite course code and title (if any):				
Department: Energy and Environment				
Course coordinator(s): Dr Swarup Dutta		Course instructor(s): Dr Swarup Dutta		
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Course type: Elective		Course offered in: Semester 2		
Course description The course aims to build scientific perspective, attitude and skills for systematic enquiry by developing understanding of philosophical foundations of research, various elements of research design and methods and tools for data collection and analysis. The course will enable comprehension of principles and elements of research methodology, to formulate research problem, objectives and questions. It will introduce students to various methods, tools and techniques related to research. The course has a strong practical component. The students will write research proposal and submit a full-length review article based on secondary data.				
Course objectives				
<ul style="list-style-type: none"> • Introducing students to the fundamental concepts and terminology of research, types of research • Orienting students with the ethical concerns of the research • Prepare the student to write research proposal by identifying research problem, formulating research questions and hypothesis • Developing a skill of reviewing literature and analysing secondary data sources. • Understanding various tools and techniques for data collection and fieldwork • Orienting students regarding thesis writing 				
Course content				
Module	Topic	L	T	P
1	Introducing Research and Research Methodology The main aim of this module is to understand the nature of approach that must be considered for research. In simple terms, the students will be oriented about the research process and the ways in which data should be collected, analysed and used. In first discussion, concept of research paradigm will be explained, followed by methodology and methods of research. In the second part of the discussion, various types of research and research ethics will be discussed. Hence following topics will be covered in this module – <ul style="list-style-type: none"> • Understanding its epistemological roots and methodological options • Introduction to different perspectives and types of research [qualitative, quantitative and mixed] • Research Ethics 	2		
2	Designing Research and Developing Research Proposal Purpose of this module is to make a framework or blueprint for conducting the research after getting proper understanding on research philosophy. It details the procedures necessary for obtaining the information needed to structure or solve relevant research problems. Through this module the students will be competent enough to understand what research problem is and what is not. Eventually, they will be able to formulate hypothesis, objectives and research questions, reviewing literatures, etc. The following topic will be covered under this module: <ul style="list-style-type: none"> • Defining the Research Problem and Objectives 	12	2	

	<ul style="list-style-type: none"> • Developing Research Questions • Hypothesis & Types of hypotheses • Sampling • Literature Review • Writing concept note research problem 			
3	<p>Data Collection and Analysis</p> <p>The purpose of this module is to understand various tools and techniques of data collection and various procedure of data analysis. The researcher requires respective tools or techniques to serve the purpose of the research. Tools may vary in complexity, interpretation, design and administration. In the second part of the discussion, the students will be able analyse the qualitative data in which content analysis will be emphasized. The following topics will be covered accordingly:</p> <ul style="list-style-type: none"> • Conducting survey and asking questions: closed and open format questions/ questionnaire and survey method • Conducting interviews (structured, semi-structured and unstructured) • Observation • Focus groups • Case Study • Steps in analysing qualitative data • Analysis of text, documents and discourse • Identifying limitations of research 	12		
4	<p>Research Proposal and Thesis Writing</p> <p>Main aim of this section is to orient students regarding thesis writing with special attention on format of thesis. They will be explained what the thesis looked like upon completion.</p>	2		
	Total	28	2	
<p>Evaluation criteria</p> <p>Test 1: Submission of Research Problem Statement (20 %)</p> <ul style="list-style-type: none"> • Identification of Research Problem (2) Identification of Research Paradigm; 3) formulating the objectives and hypothesis (maximum 1200 words) <p>Test 1: Submission of a Reviewed Article (80%)</p> <ul style="list-style-type: none"> • Details: Collation and ‘re-production’ of the existing knowledge with marginal additions through a Literature Review of 5000 words <ul style="list-style-type: none"> i) Structure: 1) Statement of Research problem 2) Significance of Research 3) Research Objectives and questions (3) how the research questions have been addressed in the literature; (4) Identification of gaps while addressing the question--in scope, method, data or tools. • Indicators for assessment: (a) Identification of research problem; (b) Identification of research objectives and question(s); (c) Structure and form; (d) Content, language, clarity (Academic Merit); (e) Sincerity. 				
<p>Learning outcomes</p> <ul style="list-style-type: none"> • From the Assignment 1 the students will be able to write research proposal and initiate a process in order to carry out independent research pertaining to any specific issue. They will be able to design a research, justifying use of various methods/tools to carry out the same • From the Assignment -2, students will be enabled to review literature and write review article 				
<p>Pedagogical approach</p> <p>In order to support active learning, the lectures in this course are supplemented with practical work. The</p>				

emphasis of these practical hours (secondary data analysis/ literature review) is to encourage the active involvement of students in undertaking tasks that help them better understand concepts / methods / tools in social research. Students practice and learn by doing. Interviewing, focus groups, participatory exercises and survey method are practiced, and evaluated, in the form of role play, in-class activities and group exercises.

Course Reading Materials

- Bryman, Alan. (2012) Social Research Methods, Oxford University Press, New Delhi
- Corbetta P. (2003) Social Research, Theory, Methods and Techniques, Sage Publication, New Delhi
- Cresswell JW (2014) Research Design, Qualitative, Quantitative and Mixed Method Approach, Sage: New Delhi
- Czaja, R. and Blair, J., 2005, Designing surveys: A guide to decisions and procedures, 2nd edition, Thousand Oaks and London: Pine Forge.
- Flick, Uwe. (2014) The Sage Hand Book of Qualitative Data Analysis (Edited). Sage: New Delhi
- Grosh, M. and Glewwe, P., 2000, eds., Designing household survey questionnaires for developing countries: Lessons from 15 years of the living standards measurement study. Washington, D.C.: World Bank.
- Groves, RM., Floyd Fowler J. Jr., Couper MP., Lepkowski James M., Singer E., Tourangeau R. 2009, Survey methodology, 2nd edition, Hoboken: Wiley.
- Hammersley, M., 1992, What's wrong with ethnography? London: Routledge. Scheyvens R. and Storey, D., 2003, eds., Development fieldwork: A practical guide, London: Sage (chapter 4).
- Kothari CR (2004) Research Methodology, Methods and Techniques, New Age International Publication Limited: New Delhi
- Robson C., 1993, Real world research: A resource for social scientists and practitioner-researchers. Oxford: Blackwell (chapter on analysing qualitative data). Sarantakos, S. (1998) Social Research. Macmillan Press: Australia
- Walliman, N. (2011) Research Methods, The Basics. Routledge: UK
- Silverman D. 2006, Interpreting qualitative data: Methods for analyzing talk, text and interaction, 3rd edition, London: Sage

Student responsibilities

The students are expected to submit assignments in time and come prepared with readings when provided.

Course Reviewers