Course Code	Course Name	Credits
26EC555	RESEARCH METHODOLOGY IN ECONOMICS AND AI	04

Course Objectives

- To find out new fact or solution which is hidden and to invent new things.
- Advancement in the existing stock of knowledge
- To provide the opportunities to achieve new insights in to the problem
- Invent new thinking or solutions against different problems with decision making reliability.
- Explore AI and machine learning techniques for economic modelling.

Learning Outcomes

Upon successful completion of this course it is intended that a student will be able to:

- Enable to know the individual behaviour in relation to the society.
- Enable to solve and evaluate social problem and their effects on society.
- To provide support to political plans and programmes.
- Develop in skill in data collection analysis and visualization
- Apply statistical method using modern software.

Unit 1 – Research Methods and Introduction (12Hrs)

Meaning of research, objectives, purpose, research vs. Scientific methods, Induction and deduction, types of research; Significance of research in social science, criteria of good research.

Unit 2 –Research Process and Design (12Hrs)

Formulating of research problem. Preparation of research design; its elements and types, need and features of good designs. Research proposal and paper integrating AI tools. AI and machine learning for economic modelling.

Unit 3 – Sampling Technique and Sources of Data (12Hrs)

Base and terms used in sampling, sampling and non-sampling errors, sampling methods, probability and non-probability sampling. Primary secondary, quantitative and qualitative data, coding scaling and tabulation of data. Methods of data collection; questionnaire, schedule and interview methods. AI powered data visualization and dashboards.

Unit 4 – Testing of Hypothesis and Statistics in Research (12Hrs)

Concepts of testing of hypothesis, null and alternative hypothesis, type I and type II errors, Statistics in research; mean, correlation standard deviation, t' statistics, ANOVA, regression, $\square^2$ test, parametric and non-parametric test.

Unit 5 –Report Writing and Application of Computer in Research (12Hrs)

Methods of report writing and different steps, quality of good report. Computer application in research, MS word, excel, power point, graphs, SPSS in data analysis. Research ethics, Plagiarism, data privacy, responsible AI Use

Reference Books:

1. Research Methodology methods and Techniques. CR Kothari, Gaurav Garg, New Age International Publishers. London, New Delhi, Nairobi.
2. Research Methodology. Dr. Promod Kr Naik, Dr. Pushkar Dubey, S.B Nangia A.P.H Publishing Corporation, New Delhi.
3. MLA Handbook for writers of Research Papers. Modern Language Association, Rekha Printers Pvt ltd., New Delhi 110020.

Websites and eLearning Sources:

1. https://www.scribd.com/document/892366565/
2. https://www.euacademic.org/BookUpload/9.pdf
3. https://www.scribd.com/document/916551849/Research-Methodology-for-Economics

COs and Bloom's Taxonomy Mapping – 26EC555		
Course Outcomes	**On successful completion of this course, students will be able to**	**BTL**
CO1	Enable to know the individual behaviour in relation to the society.	K1, K2, K3
CO2	Help to improve the quality of human life.	K2, K3
CO3	Enable to solve and evaluate social problem and their effects on society and to find possible solution.	K4, K5
CO4	Enable to achieve new insights in to the problem.	K5
CO5	To provide support to political plans and programmes.	K5, K6

BTL (Bloom's Taxonomy Level) - K1 – Remembering, K2 – Understanding, K3- Applying, K4 – Analyse, K5- Evaluate and K6 - Create

Relationship Matrix – 26EC555													
Course Outcomes	**Programme Outcomes (POs)**						**Programme Specific Outcomes (PSOs)**						**Mean Score of Cos**
	PO1	**PO2**	**PO3**	**PO4**	**PO5**	**PO6**	**PSO1**	**PSO2**	**PSO3**	**PSO4**	**PSO5**	**PSO6**	
CO1	2	3	3	2	1	2	2	2	1	2	3	3	2.1
CO2	3	3	2	1	2	3	1	3	2	2	3	3	2.3
CO3	2	2	3	2	2	3	2	3	3	3	3	2	2.5
CO4	2	3	2	2	3	3	2	1	3	2	3	3	2.4
CO5	3	2	1	3	2	3	3	3	2	2	3	3	2.5
												Total	2.36

Mean Score: 3- High, 2- Medium/Moderate, 1-Low