# RESEARCH METHODOLOGY

Course Code	20EC2701A	Year	IV	Semester	I
<b>Course Category</b>	Open	Branch	Commo	Course Type	Theory
	Elective-III		n to All		
Credits	3	L-T-P	3-0-0	Prerequisites	Nil
Continuous	30	Semester	70	Total	100
Internal		End		Marks:	
<b>Evaluation:</b>		<b>Evaluation:</b>			

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Course Outcomes					
Upon successful completion of the course, the student will be able to					
CO1	Understand basic concepts and its methodologies (L2)				
CO2	Demonstrate the knowledge of research processes (L3)				
CO3	Apply research articles in their academic projects (L3)				
CO4	Analyze various types of testing tools used in research (L4)				
CO5	Design a research paper (L4)				

Mapping of course outcomes with Program outcomes (CO/ PO/PSO Matrix)														
Note: 1- Weak correlation 2-Medium correlation 3-Strong correlation														
* - Average value indicates course correlation strength with mapped PO														
CO/PO &	DO1	DO1	DO2	DO 4	DO.5	DOC	DO7	DOG	DOO	DO10	PO	DO12	DCO1	DCO2
PSO	PO1	POZ	POS	PO4	POS	PU6	PO/	PU8	PO9	PO10	11	PO12	PSOI	PSO2
CO-1	2							2		2		2		
CO-2	3							3		3		3		
СО-3	2							2		2		2		2
CO-4		3			3	3		3		3		3	3	3
Average*		2						2		2		2		
(Rounded														
to nearest														
integer)														

	Syllabus					
Unit No.	Contents	Mapped CO				
	<b>Introduction</b> : Meaning of Research, Objectives of Research, Types of Research, Research Approaches.					
Ι	<b>Research Ethics:</b> Objectives, codes, policies, conventions of publications, ethics for editors, reviewers and publishers, IPR.	CO1, CO2				
	<b>Research Problem:</b> What is a Research Problem?, Selectingthe	CO1, CO2				
	Problem, Necessity of Defining a problem.					

	Research Design –Features of Good Design, Important Concepts related to Research Design, Basic Principles of Experimental Designs.	
II	<ul> <li>Sampling Design –Sample Design, Sampling and Non- Sampling errors, Goodness of Measurement scales, Sources of error in measurement.</li> <li>Data Collection Methods – Collection of Primary Data – Collection of Secondary data.</li> <li>Data Preparation: Data Preparation Process, Some problems in Preparation Process, Missing Values and Outliers, Types of Analysis, Statistics in Research.</li> </ul>	CO1-CO3
III	Descriptive Statistics: Measures of Central Tendency, Measures of Dispersion, Measures of Skewness, Kurtosis, Measures of Relationship, Association in case of Attributes,  Other Measures	CO1, CO4
IV	Sampling and Statistical Inference: Parametric vs Statistic, Sampling and Non-Sampling errors, Sampling Distribution, Degrees of Freedom, Standard Error.  Testing of Hypothesis: What is a Hypothesis, Basic Concepts Concerning Testing of Hypothesis, Testing the Hypothesis, Test Statistic and Critical Region, Critical Value and Decision Value, Procedure for Hypothesis Testing.	CO1, CO4
V	Interpretation and Report Writing: Meaning of Interpretation, Techniques of Interpretation, Precautions in Interpretation Significance of Report Writing, Different Steps in Writing Report, Layout of a Research Paper, Types of Reports, Oral Presentation, Mechanics of Writing a Research Report,  Precautions for Writing Research Reports.	CO1, CO5

## **Learning Resources**

#### **Text Books:**

- 1. C.R.Kothari, Research Methodology: Methods and Techniques, 2<sup>nd</sup> Ed., New Age International Publishers,2014.
- 2. Garg, B.L., Karadia, R., Agarwal, F. and Agarwal, An introduction to Research Methodology, RBSA Publishers, U.K., 2002

# References:

- 1. Day, R.A., How to Write and Publish a Scientific Paper, Cambridge University Press,1992
- 2. Anthony, M., Graziano, A.M. and Raulin, M.L., Research Methods: A Process of Inquiry, Allyn and Bacon, 2009

## e- Resources & other digital material

- 1. https://www.youtube.com/watch?v=8iFfzYVuCuM
- 2. https://onlinecourses.nptel.ac.in/noc22\_ge08
- 3. https://www.youtube.com/watch?v=GSeeyJVD0JU