Semester III

Course Title: Teaching & Research Methodologies	**Code: PGCSE 301**
Type of Course: Theory	**Course Designation: Compulsory**
Semester: 3rd	**Contact Hours: 3L/week**
Credit: 3	
Continuous Assessment: 20+20 Marks	**Final Exam: 60 Marks**

PREREQUISITES:

Course Title	Code

COURSE OUTCOMES (COs)

On completion of the course students will be able to

Course Outcomes	Details	Action Verb	Bloom's Level
CO1	Describe basic concepts of research and its methodologies	Remember	L1
CO2	Identify appropriate research topics and set up hypothesis	Remember	L1
CO3	Perform literature review using library and internet resources	Understand	L2
CO4	Design experiments/surveys, collect data and represent data in tables/figures	Create	L6
CO5	Analyze data with appropriate software tools, interpret results and draw conclusion	Analyze	L4
CO6	Write scientific report/review/thesis and prepare seminar/conference presentations	Create	L6
CO7	Understand the methods of citation and referencing styles, check plagiarism, and get insight of intellectual property rights.	Understand	L2

SYLLABUS:

Unit	Content	Hrs/ Unit	Text/Reference book serial no.
1.	Foundations of Research: Meaning, Objectives, Motivation, Utility. Concept of theory, empiricism, deductive and inductive theory. Characteristics of scientific method – Understanding the language of research – Concept, Construct, Definition, Variable. Research Process	4	T1,T2
2.	Problem Identification & Formulation – Research Question – Investigation Question – Measurement Issues – Hypothesis – Qualities of a good Hypothesis –Null Hypothesis & Alternative Hypothesis. Hypothesis Testing – Logic & Importance	5	T1, T2
3	Research Design: Concept and Importance in Research – Features of a good research design – Exploratory Research Design – concept, types and uses, Descriptive Research Designs – concept, types and uses. Experimental Design: Concept of Independent & Dependent variables.	5	T1, T3
4	Qualitative and Quantitative Research: Qualitative research – Quantitative research – Concept of measurement, causality, generalization, replication. Merging the two approaches.	4	T1,T3
5	Measurement: Concept of measurement– what is measured? Problems in measurement in research – Validity and Reliability. Levels of measurement – Nominal, Ordinal, Interval, Ratio.	4	T1,T3
6	Sampling: Concepts of Statistical Population, Sample, Sampling Frame, Sampling Error, Sample Size, Non Response. Characteristics of a good sample. Probability Sample – Simple Random Sample, Systematic Sample, Stratified Random Sample & Multi-stage sampling. Determining size of the sample – Practical considerations in sampling and sample size.	5	T1, T2
7	Data Analysis: Data Preparation – Univariate analysis (frequency tables, bar charts, pie charts, percentages), Bivariate analysis – Cross tabulations and Chi-square test including testing hypothesis of association.	4	T1, T3
8	Interpretation of Data and Paper Writing – Layout of a Research Paper, Journals in Computer Science, Impact factor of Journals, When and where to publish? Ethical issues related to publishing, Plagiarism and Self-Plagiarism.	5	T1, T2

Text Books:

1. Business Research Methods – Donald Cooper & Pamela Schindler, TMGH, 9th edition
2. Business Research Methods – Alan Bryman & Emma Bell, Oxford University Press.
3. Research Methodology – C.R. Kothari