Department of _____   The LNM IIT, Jaipur

Course code: Course name

Programme:Ph.D.   Year:2019   Semester: II
Course: Tw&RM   Credits: 03   Hours: 47

Course Context and Overview (100 words):It is to provide to M.Tech and Ph.D. students a comprehensive guide to research and how it is conducted. If research is seen as a continual journey then the aim of this course is to provide a road-map for the beginner.

The course covers every facet of the research process: finding and defining a suitable problem, performing literature surveys, conducting the research, analyzing the results, and reporting the findings in form of research papers, dissertations etc. **For the purpose, it provides extensive knowledge of statistical methods such as: Designs of an experiment, Probability and Sampling distributions, Regression Analysis, Methods of estimation, and Testing of hypotheses.**

Prerequisites Courses: NIL

(Course name and course code)

Course outcomes (COs):

On completion of this course, the students will have the ability to:
CO1 identify the research area and research problems and topic.
CO2 review the literature of their area of interest
CO3 design their experiment to analyze the experimental data through statistical methods.
CO4 interpret various measures and to draw conclusions of study.
CO5 write and present their work in form of research papers, dissertations and at the conferences

Course Topics:

Topics	Lecture Hours	
UNIT – I **1. Topic**: Research Process		6
1.1 Research objectives, types of Research, Motivation	1	
1.2 Literature Survey	1	

Course Design Template version 1.0

1.3 Research Area and Research problems	2	
UNIT - II **2. Topic :Research Design and Sampling Design**		6
2.1 -Basic principles of Designs	1	
2.2 CRD,RBD,LSD	2	
2.3 Sampling Designs and Sample Size problems	1	
UNIT - III **3. Topic: Data Collection and Scaling Techniques**		4.5
3.1 Methods of data collections	1	
3.2 Sampling and Non-sampling Errors and their measures.	1	
3.3 Scaling Techniques	1	
3.4		
3.5		
UNIT - IV **4. Topic: Methods of data analysis**		12.5
4.1 Basic measures,	2	
4.2 Correlation and regression analysis	3	
4.3 Probability and sampling Distributions	3	
UNIT-V **5. Topic: Testing of Hypothesis and TW**		18
5.1 Large Sample Tests and Confidence Intervals	3	
5.2 Small Sample Tests	2	
5.3 Technical Writings	7	
Note: Each period is of 90 minutes	31	

Textbook references (IEEE format):
Text Book:

Referrence books: 1.Research Methods for Engineers by David V.Theil.Cambridge University press

2.Research Methodology and scientific Writing by C.G.Thomas.Ane Books Pvt.Ltd.

3. Basic statistics by B.L.Agarwal. new Age Int.pub.

Additional Resources (NPTEL, MIT Video Lectures, Web resources etc.):

Evaluation Methods:

Item	Weightage
ASSIGNMENTS 10 %	25%
Case Studies 5%	
Test 10%	
Midterm 25%	25%
Final Examination	50%

Prepared By: Course Instructor name
Last Update: _____