Dr. V. Ravindranath,
M.Sc.(iitkgp), Ph.D.(iitd)
Director (R & D) and OSD&
Professor of Mathematics

Date: 12-04-2019

To
The Research Scholars,
Admitted batch in 2018-19 and earlier batches,
JNT University, Kakinada
Kakinada

Dear Research Scholar,

Sub: Classwork for Credit Course on Research Methodology during 1st -31st May 2019
- Applications Invited – reg.

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All the Research Scholars admitted in 2018 are required to attend the classwork for Research Methodology course during 1st -31st May 2019. They have to apply in the prescribed form enclosed to this circular. Please email the scan copy of the duly signed application form to pa2rdjntuk@gmail.com on or before 25.04.2019. Original application along with enclosures is to be submitted in the R & D office before the commencement of the classwork.

The Research Scholars of 2015 or earlier who could not fulfil the requirement of audit and credit course may also be permitted to the above course subject to the eligibility.

Yours faithfully,

Director (R & D)

Encl:
1. Applicatioon Form Pre-Ph.D. Course Work
2. Bio-data Proforma
3. Joining Report
4. Research Methodology Credit Course Syllabus
5. List Pre-Ph.D. Papers

RESEARCH METHODOLOGY

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.
   Problem Identification & Formulation – Research Question – Investigation Question – Measurement Issues – Hypothesis – Qualities of a good Hypothesis –Null Hypothesis & Alternative Hypothesis. Hypothesis Testing – Logic & Importance.

2. **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.
   Qualitative and Quantitative Research: Qualitative research – Quantitative research – Concept of measurement, causality, generalization, replication. Merging the two approaches.

3. **Measurement**: Concept of measurement– what is measured? Problems in measurement in research – Validity and Reliability. Levels of measurement – Nominal, Ordinal, Interval, Ratio.
   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.

4. **Data Analysis**: Data Preparation – Univariate analysis (frequency tables, bar charts, pie charts, percentages), Bi-variate analysis – Cross tabulations and Chi-square test including testing hypothesis of association.
   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. Use of Encyclopedias, Research Guides, Handbook etc., Academic Databases for Computer Science Discipline.
   Use of tools / techniques for Research: methods to search required information effectively, Reference Management Software like Zotero/Mendeley, Software for paper formatting like LaTeX/MS Office, Software for detection of Plagiarism.

   Books Recommended:-
   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

Directorate of Research & Development

JAWAHARLAL NEHRU TECHNOLOGICAL UNIVERSITY KAKINADA

Application for New / Renewal user Instructor license of Turnitin Software

(Scan copy of the filled in application must be emailed to pa2rdjntuk@gmail.com on or before 04.05.2019
and original application may be sent by post to Director, R&D, JNTUK)

1. Name	:	C	LVRSV	Prasad	
		Surname	Mid Name	First Name	

2. Designation   :   Principal

3. Department   :   Mechanical

4. College / School   :   GMR Institute of Technology, Rajam

5. College Code   :   34

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6. Research Center (s)   :   ✓   **Yes or No**

✓
(Please put   mark)

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7. Contact Mobile No.s   :   1. 9441406014   2.

8. Email Address   :   prasad.clvrsv@gmrgroup.in

(Institutional Email id preferred)

9. If existing instructor user (Provide Login Id)

Name and Signature of the Principal / Director
(with Seal)

Dr. CLVRSV Prasad
PRINCIPAL
GMR Institute of Technology
GMR Nagar Rajam 532127 AP

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R&D Office