



# DELHI TECHNOLOGICAL UNIVERSITY

(Established by Govt. of Delhi vide Act 6 of 2009)

(formerly Delhi College of Engineering)

Shahbad Daulatpur, Main Bawana Road,

Delhi – 110042

**(Academic-PG)**

F.No. 105-15/DTU/Acad-PG/SM-901/2021/161-169

Dated: 07/01/2022

## NOTIFICATION

**Sub: Regarding the Ph.D. Coursework in r/o Research Methodology (SM-901) and Research and Publication Ethics (SM-903)**

The Competent Authority is pleased to approve the new syllabus of Research Methodology (SM-901) for Ph.D Research Scholar(s) from the Even Semester (2022) and the details of course viz., code, name, structure, objectives, pre-requisites, outcomes, content(s) are as under:

Course Code	Course Name	Course Structure
SM-901	Research Methodology and IPR	L-T-P 3-1-0 Total Credit (04)
<b>Course Objectives:</b> <ul style="list-style-type: none"><li>To understand the basic techniques and tools for conducting systematic research</li><li>To develop an understanding of the relevant tools and techniques applicable in proposed area of research</li><li>To develop basic skills in design, implementation and evaluation of research methods to conduct objective research</li></ul>		
<b>Pre-requisites:</b> <ul style="list-style-type: none"><li>Basic understanding of fundamentals of quantitative techniques.</li></ul>		
<b>Course Outcomes:</b> CO1: To introduce research methods and processes. CO2: To formulate research problem statement and prepare the plan for investigations CO3: To apply various quantitative techniques for data analysis. CO4: To communicate and present research findings. CO5: To understand IPR and related aspects.		
<b>COURSE CONTENT:</b>		
<b>Unit – I:</b>	Introduction, Concepts of research, Meaning and objectives of research, Research process, Types of research, Research problem identification, Research proposal-contents, Funding agencies, Ethical aspects and Plagiarism detection tools.	
<b>Unit – II:</b>	Research design process, Need and types of research design, Literature survey, Use of internet and advanced search techniques, Various reputed publishers and their databases, Identification of research gaps, Measurement and scaling techniques, Data collection-types and methods, Processing and analysis of data, Design and analysis of experiment.	
<b>Unit – III:</b>	Quantitative techniques, sampling fundamentals, Type of hypothesis, Introduction and applications of Binomial, normal and Poisson distributions, Statistical tests: Chi-squared test, t-test, f-test etc., Multivariate analysis, Introduction to various statistical analysis software.	


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<b>Unit – IV:</b>	Computer applications in research, Pre-writing considerations, Principles of thesis and report writing, Formats for thesis, report and research papers, Documentation and presentation tools- introduction to LATEX and MS Office.
<b>Unit-V:</b>	Nature of Intellectual Property: Patents, Designs, Trade and Copyright, Process of Patenting and Development: technological research, innovation, patenting, development, New developments in IPR: National and international scenarios.
<b>Text Books:</b>	
[T1]:	Stuart Melville and Wayne Goddard, “Research Methodology: An Introduction for Science & Engineering Students”, Juta and Company Ltd.
[T2]:	Dr. C.R. Kothari, “Research Methodology: Methods and Techniques”, New Age International Publisher.
[T3]:	Wadehra B.L., “Law Relating to Patents, Trademarks, Copyright Designs and Geographical Indicators”, Universal Law Publishing.
<b>References:</b>	
[R1]:	Ranjit Kumar, “Research Methodology: A Step by Step Guide for Beginners”, 2 <sup>nd</sup> Edition, SAGE Publications Ltd.
[R2]:	G.C. Ramamurthy, “Research Methodology”, Dream Tech Press, New Delhi

Utmost two (02) faculty members shall be involved in the Teaching of RM-901 (Research Methodology and OPR).

2. Further, as per the UGC letter No. D.O. No. F.1-12018(Journal/CARE) dated Nil December, 2019, the UGC in its 543<sup>rd</sup> meeting held on 09/08/2019 approved a credit course for awareness about publication ethics and publication misconducts entitled “Research and Publication Ethics(RPE)” to be made compulsory for all Ph.D students for pre-registration course work. The DTU has already included the same in the Course work for DTU R/Scholars vide subject code SM-903 (Research and Publication Ethics(RPE)). **Now, the said course shall be made compulsory elective without contributing towards any credit for the coursework.**

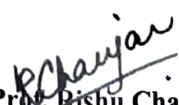
This issues with the approval of the Competent Authority.

  
(Prof. Suresh C. Sharma)  
Dean (Academic-PG)

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Copy to:

Dated: 07/01/2022

1. PA to VC for kind information of the Hon’ble Vice Chancellor, DTU.
2. PA to Registrar for kind information of the Registrar, DTU.
3. Dean (Academic-PG), DTU.
4. Dean (IRD), DTU.
5. All HOD(s), DTU.
6. COE, DTU.
7. Head (CC) with a request to upload on the DTU website.
8. Guard file
9. Case file

  
Prof. Rishu Chaujar  
Associate Dean (Academic-PG)