

**KARNATAKA SCIENCE AND TECHNOLOGY ACADEMY [KSTA]**  
Department of Science and Technology, Govt. of Karnataka

and  
**VISVESVARAYA TECHNOLOGICAL UNIVERSITY [VTU]**

*Jointly Organizing*  
**FIVE DAY WORKSHOP**

# RESEARCH METHODOLOGY & DATA ANALYSIS



**DATE: 13-17 DECEMBER, 2022 [TUESDAY - SATURDAY]**

**TIME: 10.00 AM - 5.00 PM**

## Introduction

Research is the cornerstone to broaden the horizon of our knowledge through systematic investigation. It will establish or confirm facts or reaffirm results of previous work or solve new or existing problem or support theorems or develop new theories. Further, it could also be an extension of previous works in the field. In view of this, it is essential to design a sound research methodological process to overcome challenges, while carrying out research. A good research methodology is a key to get quality output.

In this context, it is necessary to expose PG Students and Research Scholars to Research Methodology. Hence, a short term training workshop has been designed to cover fundamentals of research methodology, focusing on various aspects related to defining research problems, designing of research method, sampling design, testing of hypothesis, Intellectual Property Rights (IPRs), interpretation & report writing etc. as per Visvesvaraya Technological University (VTU) syllabus. Thus, the proposed workshop intends to provide an opportunity to participants to broaden the horizon of their knowledge in research methodology as well as to enrich their skills in conducting quality research.

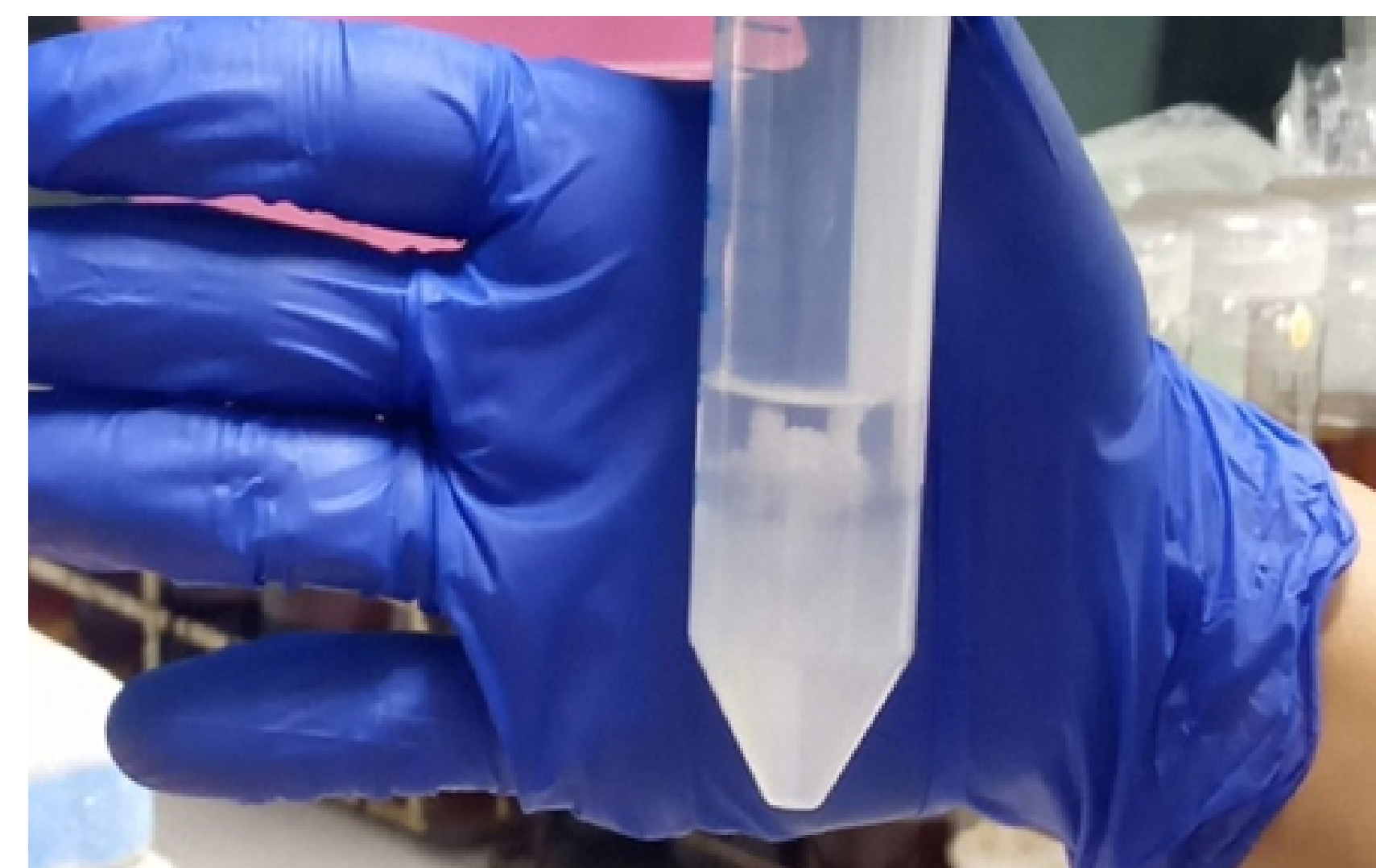
## Objective

- To enable participants to understand various aspects of Research Methodology
- To expose the participants to new & emerging trends in research
- To enable the participants to understand how to define a research problem and to learn about Qualitative & Quantitative Research Techniques
- To help participants to know the various stages of research process and to prepare Research Papers /Reports

## ABOUT KSTA

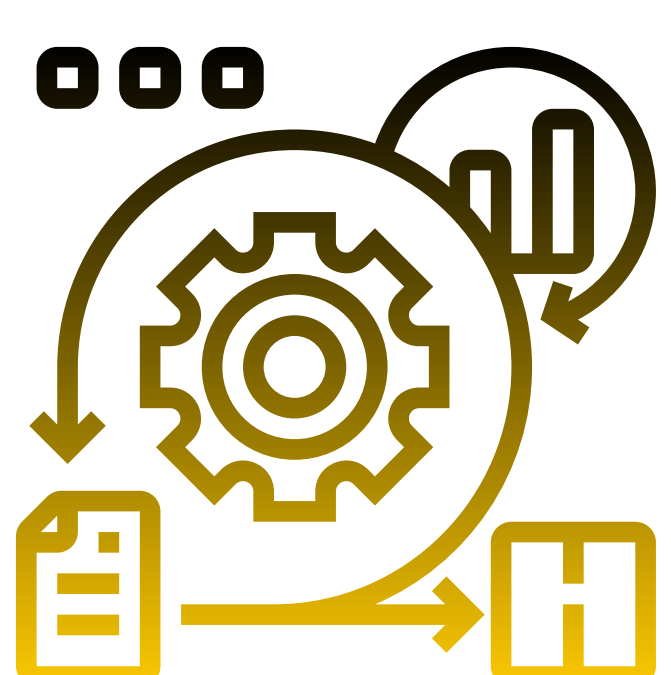
Karnataka Science and Technology Academy (KSTA), an autonomous organization under the Department of Science and Technology, Govt. of Karnataka was established in the year 2005 under the Chairmanship of Padma Vibhushan Awardee Prof. U.R. Rao, Former Chairman, ISRO/Secretary, DOS, GOI. Presently, KSTA is chaired by Padma Shri Awardee Prof. S. Ayyappan, Former Director General of ICAR/Secretary, DARE, GOI & Chancellor of Central Agricultural University, Imphala.

KSTA was established with an objective of fostering STEAM (Science, Technology, Agriculture, Engineering and Mathematics) education at different levels in an educational pyramid as well as to popularize science among general public in the State.



## CONTACT

Prof. U R Rao Vijnan Bhavan, GKVK Campus, Major Sandeep Unnikrishnan Road, Opp. Doddabettahalli Layout Busstop, Vidyanayapura Post, Bengaluru – 560097  
Phone: +91-80-29721550 ; 29721549  
Email: [ksta.gok@gmail.com](mailto:ksta.gok@gmail.com);  
Website: [www.kstacademy.in](http://www.kstacademy.in)  
Facebook: [kstacademy](https://www.facebook.com/kstacademy)  
Twitter: [@kstacademy](https://twitter.com/kstacademy)



**PARTICIPANTS** PG Students/Faculty Members/Research Scholars of Science and Engineering Disciplines

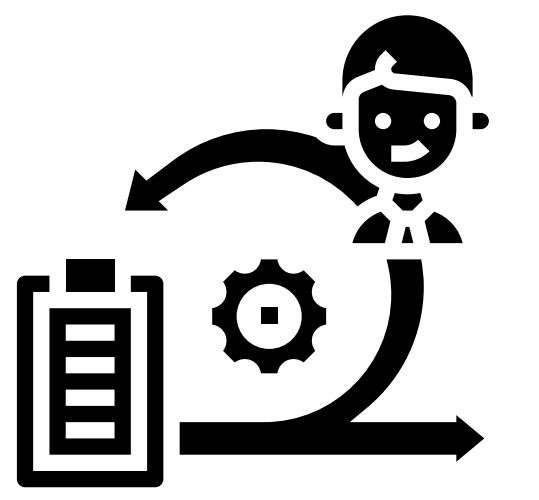
## REGISTRATION FEES

- PG/Research Students: **Rs. 3,000/-** with accommodation & **Rs. 2000/-** without accommodation
- Teaching Faculty/Mid Career Scientist: **Rs. 5,000/-** for Faculty with accommodation and **Rs. 4,000/-** without accommodation

The registration fee covers Breakfast, Tea/Coffee, Lunch and Dinner on the training days. The mode of payment of fee will be through online.

**REGISTRATION FEE - NON REFUNDABLE**





# Topics to be Covered

## DAY 1 – Dec. 13, 2022 (Tuesday): Basic Concepts in Research Methodology

- Introduction, Meaning of Research, Objectives, Approaches
- Types of Research & their Significance
- Research Process, Scientific Method in Research
- Research Problem, Criteria of Good Research & Problems of Researchers

## DAY 2 – Dec. 14, 2022 (Wednesday): Literature review & Source of Information

- Importance of Literature reviews in defining Research Problem
- Identifying the gap areas from literature review, Short listing Reviews Style
- Sources of Information (Primary & Secondary Sources)
- Developing a conceptual framework
- Need & Meaning of Research Design

## DAY 3 – Dec. 15, 2022 (Thursday): Design of Sample surveys & Data Collection

- Introduction to Sampling Design, Sampling & Non-Sampling Errors
- Sample Survey versus Census Survey, Types of Sampling Designs
- Qualitative & Quantitative Research (Observation, Focus Group, Projective Techniques, Descriptive Research, Survey Methods, Experimentation Research v/s lab experiments)
- Selection of Appropriate Method for Data Collection & Case Study Method

## DAY 4 – Dec. 16, 2022 (Friday): Testing of Hypothesis & Data Analysis

- Basic Concept of Testing of Hypothesis, Test Statistics & Critical Region
- Procedure of Hypothesis Testing, Mean, Proportion, Variance
- Exposure Visit to Some of Reputed Research Laboratories in Bengaluru
- P-Value approach, Power of Test & Limitations
- Chi-square Test, Correlation & Regression
- Parametric & non-parametric tests
- Introduction to statistical concepts & its application for Data Processing
- Individual Hands-on training with R-Software



## DAY 5 – Dec. 17, 2022 (Saturday): Interpretation & Report Writing

- Latex and Bibliography management
- Research Proposal Writing, Structure of Scientific Research Paper/Article
- Research Report Writing Structure
- Thesis & Dissertation, Research Presentation Techniques
- Research Proposals and Grant Writing
- Intellectual Property Rights (IPR) & IPR Systems in India



### PATRONS

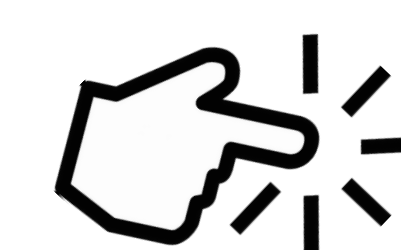
Prof. S Ayyappan  
Chairman, KSTA

Dr. Vidyashankar S  
Vice Chancellor, VTU

Dr. B E Rangaswamy  
Registrar - I/c, VTU

Dr. A M Ramesh  
Chief Executive Officer, KSTA

Dr. Uttam Kumar  
Professor, IIIT- Bangalore



## REGISTRATION

<https://forms.gle/k8JHefedfhSWVsd38>

### SCAN & PAY



**Last Date for Registration :  
December 10, 2022 [Saturday]**

**RSVP**

**Mr. V K Srinivasu - 9620767819**

**Mr. K C Umesha - 9008675123**