Ref No. Sathyabama/Centre for Research/ Ph. D Course work - Circular

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CENTRE FOR RESEARCH
CIRCULAR
Course Work Registration

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For recommended candidates (Based on their performance in Entrance examination and Screening Presentation) an official letter of Provisional Registration for admission will be issued. The First DC meeting will be conducted at **Col.Dr.Jeppiaar Research Park,** Sathyabama Institute of Science and Technology.

As per the recommendations by Supervisor/ DC members in the First DC meeting, all candidates have to undergo 4 course works.

Note: Before the conduct of First DC Meeting, candidate has to refer to the syllabus **(Only PG)** offered in Departments

(subjects which are relevant to their area of research). The link for syllabus is given below

https://www.sathyabama.ac.in/academics/curriculum-syllabus

4 Course works - Total credits to be earned :12

1. Research methodology Tools, Techniques, Research Publication and Ethics (4 credits) – Core Course work
A core paper where every candidate has to undergo this course work by attending the classes conducted in the University every semester. It will be conducted through our official zoom channel.
(Syllabus enclosed below)
2. Special Elective Course Works (subjects from PG syllabus) which can be taken through NPTEL also.
3. Directed Study Course work (3 credits) (Syllabus to be designed by the Supervisor related to candidate's area of Research)
A request letter from the supervisor along with syllabus set by him/ her should be addressed to Director (Research) and sent to deanresearch@sathyabama.ac.in The syllabus will be reviewed and approval letter will be issued. In case, if reviewer comments suggest modification, it should be resubmitted. Once approved, candidate can then register for examination. Directed study cannot be taken as the first subject.

- ➢ After conduct of First DC meeting, candidate should register for course work immediately.
- ➢ Course work registration (Form 2) along with the hall ticket should be submitted.
- ➢ Course work registration fee of Rs 500/- per subject is to be transferred online.

S/d
Dr.B.Sheela Rani
Director (Research)

SREX5002	Research methodology tools techniques, Research Publication and Ethics	L	T	P	CREDITS	TOTAL MARKS
		4	0	0	4	100

UNIT1   INTRODUCTION TO RESEARCH METHODOLOGY   4 HRS

Research Methodology- Definition and significance- Types of research - Exploratory research, Conclusive research, Modeling research, Algorithmic research, Casual research, Theoretical and Empirical research, Cross-Sectional research and Time Series research, Research process-, Research problem- Objectives, Characteristics, Hypothesis and research in evolutionary perspective. Research Design- Definition, Types- Descriptive and Experimental Questionnaire preparation- prerequisites of a good questionnaire, Data Collection methods in research -Primary data and Secondary data.

UNIT 2   MEASUREMENT, SCALING AND SAMPLING TECHNIQUES AND RESEARCH REPORT PRESENTATION   4 HRS

Validity and Reliability-Definition, importance, types of validity, types of reliability-- Construction and Validation of questionnaire, Cronbach alpha test, Measurement – definition- significance – types Nominal, Ordinal, Interval and Ratio ,Scaling- Importance, Scaling techniques. Sampling methods- Probability sampling methods and Non - Probability sampling methods, Report writing – importance , guideline to write an academic report, Basics of report presentation- Content of an Academic Research report, Content on a Research Article, Steps to publish an article, Research Metrics: Significance of Journal Impact Factor, SNIP, SJR, IPP, Cite Score, Metrics: h-index, g index, i10 index,

UNIT 3   APPLICATION OF MATHEMATICAL TOOLS FOR ANALYSIS AND RESEARCH REPORT WRITING   8HRS

Non parametric tests- One sample tests- one sample sign test. Kolmogorov- Smirnov test , Run test for randomness, two sample tests- tow sample sign test, Mann-Whitney U test, K sample test- Kruskal Wallis test (H- test). Hypothesis testing – Testing of hypothesis concerning means (one mean and difference between two means – one tailed and two tailed tests), Concerning Variance – One tailed Chi square test, Analysis of Variance(anova) , Introduction to Discriminant , Factor analysis, cluster analysis, multi-dimensional scaling , conjoint analysis, multiple regression and correlation, application for statistical software for data analysis.

UNIT 4 PHILOSOPHY ,ETHICS AND SCIENTIFIC CONDUCT   7HRS

Introduction to philosophy: definition, nature and scope, concept, branches, Ethics: definition, moral philosophy, nature of moral judgments and reactions', Ethics with respect to science and research, Intellectual honest and research integrity, Scientific misconduct: falsification, fabrication, and plagiarism, Redundant publications: duplicate and overlapping publications, salami slicing, Selective reporting and misrepresentation of data.

UNIT 5 PUBLICATION ETHICS   7hrs

 Publication ethics: definition, introduction and importance, Best practices/standards setting initiatives and guidelines: COPE, WAME, etc. Conflicts of interest, Publication misconduct: definition, concept, problems that lead to unethical behavior and vice verse, types, Violation of publication ethics, authorship and contributor ship, Identification of publication misconduct, complaints and appeals, Predatory publishers and journals

PRACTICE SESSION

UNIT 6 OPEN ACCESS PUBLISHING, PUBLICATION MISCONDUCT, DATABASES AND RESEARCH METRICS PRACTICE
                                                                              15 HRS
Open access publishing :Open access publishing and initiatives, SHERPA/RoMEO online resource to check publisher copyright and self-archiving policies, Software tool to identify predatory publications developed by SPPU, Journal finder/ journal suggestion tools viz. JANE, Elsevier Journal Finder, Springer Journal Suggester, etc., Publication misconduct(Group Discussion):Subject specific ethical issues, FFP, authorship, Conflicts of interest, Complaints and appeals: examples and fraud from India and abroad, Software tools:Use of plagiarism software like Turnitin, Urkund and other open source software tools, Databases : Indexing databases, Citation databases: Web of Science, Scopus, etc. Research Metrics: Impact Factor of journal as per journal citation report, SNIP, SJR, IPP, Cite Score, Metrics: h-index, g index, i10 index, altmetrics.

TEXT / REFERENCE BOOKS

1. Ana smith Iltis," Research Ethics", Publisher: Routledge, ISBN: 0415701589 ,2016 by HAN LUO - 2012
2. Dr.Tripathi, P.C, Research Methodology, 1st Edition, Prentice Hall Inc., 2009.
3. Garg, B.L.Karadia, R.Agarwal, &F.Agarwal, U.K 2002. An introduction to research methodology , RBSA Publishers
4. Introducing Research Methodology: A Beginner's Guide to Doing a Research Project by FLICK, UWE. HAN LUO. Northwestern University.
5. Kothari, K.C. and Gaurav Garg Research Methodology: Methods And Techniques (Multi Colour Edition,
6. Mr.Suber Peter, Open Access (MIT Press Essential Knowledge series), New age international publishers, 2019
7. Oliver Paul, "The Student's guide to research ethics", McGraw-Hill Education (UK), Second edition 2010

8. The Ethics of Online Research (Advances in Research Ethics and Integrity Book 2) Kindle Edition by Kandy Woodfield (Editor), 2017.
9. William G.Zikmund, Business Research Methods, 7th Edition, Tata Mc Graw Hill, 2009.

End semester question paper pattern

Max Marks :100

PART A : 5 Questions to be answered out of 8 questions , each question carrying 6 marks   5*6= 30 MARKS
PART B : Answer all (2 Questions from each unit of internal choice ,each carrying 14 marks   14*5=70 MARKS

Note:
Syllabus to be followed by January 2020 registered batch
Unit 6 is practice session and not included for the theory exam.