॥ सा विद्या या विमुक्तये ॥

स्वामी रामानंद तीर्थ मराठवाडा विद्यापीठ, नांदेड

'ज्ञानतीर्थ', विष्णुपुरी, नांदेड – ४३१ ६०६ (महाराष्ट्र राज्य) भारत

SWAMI RAMANAND TEERTH MARATHWADA UNIVERSITY, NANDED

'Dnyanteerth', Vishnupuri, Nanded - 431 606 (Maharashtra State) INDIA

Established on 17th September, 1994, Recognized By the UGC U/s 2(f) and 12(B), NAAC Re-accredited with'B++' grade

Fax : (02462) 215572

Phone: (02462)215542

Academic-1 (BOS) Section

website: srtmun.ac.

E-mail: bos@srtmun.ac.

विज्ञान व तंत्रज्ञान विद्याशाखेतील पदव्यूत्तर प्रथम वर्षातील Research Methodology या विषयाचा Common Syllabus शैक्षणिक वर्ष २०२३–२४ पासून लागू करण्याबाबत.

प रि प त्र क

या परिपत्रकान्वये सर्व संबंधितांना कळविण्यात येते की, दिनांक १६ जून २०२३ रोजी संपन्न झालेल्या मा. विद्यापरिषदेच्या बैठकीतील ऐनवेळचा विषय क्रमांक ०४/५६–२०२३ अन्वये मान्यता दिल्यानुसार विज्ञान व तंत्रज्ञान विद्याशाखे अंतर्गत राष्ट्रीय शैक्षणिक धोरणानुसार पदव्युत्तर प्रथम वर्षातील Research Methodology या विषयाचा Common Syllabus शैक्षणिक वर्ष २०२३–२४ पासून लागू करण्यात येत आहे.

सदरील परिपत्रक व अभ्यासक्रम प्रस्तुत विद्यापीठाच्या **www.srtmun.ac.in** या संकेतस्थळावर उपलब्ध आहेत. तरी सदरील बाब ही सर्व संबंधितांच्या निदर्शनास आणून द्यावी, ही विनंती.

'ज्ञानतीर्थ' परिसर,
विष्णुपुरी, नांदेड – ४३१ ६०६.
जा.क्र.:शै–१/एनइपी२०२०/S&T/RM/२०२३–२४/278

सहा.कुलसचिव
शैक्षणिक (१–अभ्यासमंडळ) विभाग

दिनांक : ०७.०७.२०२३.

प्रत : १) मा. कुलगुरू महोदयांचे कार्यालय, प्रस्तुत विद्यापीठ.
३) मा. आधिष्ठाता, विज्ञान व तंत्रज्ञान विद्याशाखा, प्रस्तुत विद्यापीठ.
४) मा. संचालक, परीक्षा व मुंल्यमापन मंडळ, प्रस्तुत विद्यापीठ.
१) मा. प्राचार्य, सर्व संबधित संलग्नित महाविद्यालये, प्रस्तुत विद्यापीठ.
२) मा. संचालक, सर्व संकुले परिसर व उपपरिसर, प्रस्तुत विद्यापीठ
५) सिस्टीम एक्सपर्ट, शैक्षणिक विभाग, प्रस्तुत विद्यापीठ. याना देवून कळविण्यात येते की, सदर परिपत्रक संकेतस्थळावर प्रसिध्द करण्यात यावे.

SWAMI RAMANAND TEERTH

MARATHWADA UNIVERSITY, NANDED - 431 606

TWO YEARS MASTER DEGREE PROGRAMME IN SCIENCE (M. Sc.)

Subject: Research Methodology

(M.Sc. first Year Common for all the Subject Syllabus)

Under the Faculty of

Science and Technology

Effective from Academic Year 2023 – 2024

(As per NEP-2020)

Course Structure:

SVECR401: *Research Methodology*

Course Code (2)	Course Name (3)	Theory				Practical		Total [Col (6+7) / Col (8+9)] (10)
		CA			ESA (7)			
		Test I (4)	Test II (5)	Avg (T1+T2)/2 (6)		CA (8)	ESA (9)	
SVECR401	Research Methodology	15	15	15	60	--	--	75

Teaching Scheme

Course Code	Course Name (Paper Title)	Teaching Scheme (Hrs.)		Credits Assigned		
		Theory	Practical	Theory	Practical	Total
SVECR401	Research Methodology	03	--	03	--	03

SVECR401: *Research Methodology*

Course pre-requisite:

- Any Science Graduate

Course objectives:

- To develop the research aptitude among the researchers
- To develop the most appropriate methodology for his/her research
- To make them familiar with different research methods and techniques

Course outcomes:

After completion of the course, students should be able to:

- Understand the meaning and importance of research
- Understand the concept of research design and survey methodology
- Collection of data, processing of data and descriptive measures of data
- Inferential analysis of data with hypothesis testing and multivariate techniques

Curriculum Details:

SVECR401: ***Research Methodology (03 credits, 45 Hours)***

Module No.	Unit No.	Topic	No. of hours required to cover the contents
1. 0		**Research Methodology**	**10 Hours**
	1.1	Meaning of research, Objectives of research, Types of research,	
	1.2	Research approaches, Significance of research, Research methods versus methodology, Research and scientific methods,	
	1.3	Research processes, Criteria for good research	
	1.4	Research problem, Selecting the problem, Necessity of defining the problem, Techniques involved in defining a problem	
2.0		**Research Design and Sample Surveys**	**12 Hours**
	2.1	Meaning and need for research design, features of a good design.	
	2.2	Important concepts relating to research design: Dependent and independent variables, Extraneous variables, Control, Research hypothesis, Experimental and non-experimental hypothesis – Testing research, Experimental and control group	
	2.3	Different research designs: Research design in case of exploratory research studies, Research design in case of hypothesis- testing research studies, basic principles of experimental designs, Important Experimental Designs	
	2.4	Sampling Design, steps in sample design, criteria of selecting a sampling procedure, characteristics of a good sample design, different types of sample design	
3.0		**Data Collection and Data Processing**	**12 Hours**
	3.1	Measurements in Research, Measurement Scales, Sources of errors in measurement	
	3.2	Collection of primary data: Observation Method, Interview Method, through questionnaires, through schedules, difference between questionnaire and schedule	
	3.3	Collection of secondary data, Selection of appropriate methods for data collection, Case study method	
	3.4	Data processing, processing operations: editing, coding, classification, tabulation, graphical representation, types of analysis, Statistics in research, Dispersion and Asymmetry, Measures of Relationship	
4.0		**Testing of Hypothesis and Chi-Square Test**	**11 Hours**
	4.1	Basic Concepts Concerning Testing of Hypotheses, Procedure and Flow diagram for Hypothesis Testing, Measuring the Power of a Hypothesis Test, Tests of Hypotheses , Hypothesis Testing of Correlation Coefficients and Limitations of the Tests of Hypotheses	
	4.2	Chi-Square Test: Chi-Square Test for Comparing Variance, Chi-square as a Non-parametric Test, Conditions for the Application of Chi-Square Test, Steps Involved in Applying Chi-square Test, Important Characteristics of Chi-Square Test and caution in using Chi-Square test. Relationship between Spearman's r's and Kendall's, Characteristics of Distribution-free or Non-parametric Tests	
		Total	**45 Hours**

Text Books:

1. **C. R. Kothari,** ***Research Methodology – Methods and Techniques, (Second Revised Edition),*** New Age International Publications

Reference Books:

1. **Michael Alley**, ***The Craft of Scientific Writing (3rd Edition)***, Springer, New York, 1996
2. **Philip Reubens** (General editor), ***Science and Technical Writing – A Manual of Style (2nd Edition)***, Routledge, New York, 2001