

SEMESTER VI
FACULTY OF SCIENCE
PROJECT: MATHEMATICS
w. e. f 2024 -25 AY

Scheme of Instruction	Scheme of Examination
Course Code: BRMMP-6-MM-22T	Course Title: Research Methodology for Mathematics Project (Theory)
Credits : 4	Max. Marks : 100
Category : DSET	Internal Examination : Test 20 Marks and Project 20 Marks
Hours/Week :4	External Examination : Project 60 Marks
Total duration Hrs : 60	External Exam Duration :3 Hrs
Instruction Mode: Lecture Method/Using software	

Course Objective: Describe what your research project intends to accomplish. They should guide every step of the research process, including how you collect data, build your argument, and develop your conclusions.

Course Outcomes: By the end of the course the student would be able to

CO1: Understand the psychology of research which includes different perspectives and necessity of research.

CO 2: Apply the research knowledge to formulate a suitable problem statement by adopting different research methods and models.

CO 3: Analyze the research outcome by using suitable statistical tool.

CO 4: Write or present a scientific report and research proposal by adopting copyright based ethical values.

Unit-I – Introduction to Research [15 Hrs.]


Definition- Scientific Research- Meaning and importance of Research – Selection and formulation of Research Problem – Research Design Motivation and objectives – Defining and formulating the research problem - Basic Principles- Need of research design, features of good design important concepts relating to research design, Observation and Facts, Laws and Theories, Prediction and explanation.

Unit-II – Research Design (8 Hrs)

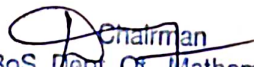
The nature of research design, formulation of research design and classification of research designs: Descriptive, experimental, exploratory, diagnostic, correlative, action and evaluation.

Report Writing [7 Hrs.]

Structure and components of scientific reports, types of report, Significance, Different steps in the preparation, layout, structure and language of typical reports, illustrations and tables, bibliography



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Suggested Readings:

1. An introduction to Research Methodology; Garg B.L., Karadia, R., Agarwal, F. and Agarwal, U.K., 2002., RBSA Publishers.
2. Research Methodology: Methods and Techniques, Kothari C.R., 1990. New Age International.
3. Research Methodology; Sinha S.C. and Dhiman, A.K., 2002. Ess Publications. 2 volumes.
4. Research Methods: the concise knowledge base; Trochim W.M.K., 2005. Atomic Dog Publishing. 270p.
5. Research Methodology; Panneerselvam R., PHI, Learning Pvt. Ltd., New Delhi - 2009
6. Research Methodology: Concepts and cases, Chawala D. and N. Sondhi ; Vikas Publishing House Pvt. Ltd.

Additional Suggestion:

1. Research Methods: A Process of Inquiry Anthony, M., Graziano, A.M. and Raulin, M.L., 2009., Allyn and Bacon.
2. Proposal Writing; Coley, S.M. and Scheinberg, C. A., 1990, Sage Publications.
3. Marathi Reference books related to the paper.


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w. e. f. 2024 -25 AY
MATHEMATICS III YEAR
Title: Project Work – Project

Project objective:

The objective of project work is to prepare the students for systematic independent study of the subject and make accurate use of concepts in the broad area of his/ her specialization.

Each student is required to

1. Submit two copies of synopsis of the project
2. Submit a **Pen Drive** that includes PPT, complete documentation software before viva-voce.
3. Each student has to give two Seminars in the concerned topic
4. Seminar should include power point presentation along with analysis and design of the project
5. Documentation
6. Project Submission for verification
7. Attend Project viva

Mode of Evaluation:

Internal:

S. No	Particulars	Max. Marks
1	Abstract	5
2	Seminar – I (Synopsis, Content & Explanation)	7
3	Seminar –II (Viva, Documentation & PPT)	8
	Total	20

External:

S. No	Particulars	Max. Marks
1	Final Seminar Presentation with PPT-DVD	20
2	Final Documentation	25
3	Viva-voce	15
	Total	60

Total Marks: Internal + External = 20 + 60 = 80 Marks


• **PROJECT EVALUATION-GRADES AND GRADE POINTS:**


% of Marks	Grade Letter	Grade Point	Qualitative Meaning
85 and above	O	10	Outstanding
70-84	A	9	Excellent
60-69	B	8	Good
55-59	C	7	Average
50-54	D	6	Moderate
40-49	E	5	Pass
Less than 40	F	0	Fail

Projects

1. Mathematics Used in Photography
2. Mathematics in Bungee Jump
3. Ten Most Beautiful Mathematical Equations and Constants
4. Mathematics in Crime
5. Applications in Mathematics in Road Highways
6. Applications of Mathematics in Development of Video Games
7. Application of Golden Ratio
8. Mathematics in Climate
9. Mathematical Equations
10. Few Applications of Trigonometry
11. Introduction to Matrices
12. Conic Sections
13. 21st Century Indian Mathematicians
14. Role of Mathematics in the Development of Society
15. Antiquity of Decimals System
16. Tangent line Problem
17. Sub Sutras in Vedic Math's
18. Pythagorean triples
19. Mathematical Records
20. Vector and Parametric Equations
21. Bitcoin
22. Commercial Mathematics
23. Number theoretic functions
24. Congruences and its application
25. Women Mathematicians of 19th & 20th Century
26. Cosmology
27. Fermat's Last Theorem
28. Rubik's cube
29. Role of Mathematics in Agriculture
30. Combinatorics
31. Fields Medal
32. Mathematics in Indoor and Outdoor Games
33. Different kinds of Primes
34. Numerical Methods in Partial Differential Equations
35. Works of Harish Chandra and Shreeram Shankar Abhyankar
36. Circle method
37. Famous Mathematicians and Their Contributions
38. Mathematical Solutions for Periodic Railway Transportation
39. Mathematics in Art and Fashion
40. Geometry and War
41. Mathematics In Various Fields
42. Latin Squares and Their Applications
43. The Math of Rubik's Cube
44. Periodic Table of Mathematicians
45. Mathematical Representation in Social Networks
46. The Beauty and Types of Bridges
47. Eric Temple Bell
48. Mathematics for Carpentry and Construction
49. Mathematicians and Their Contributions
50. Special Types of Numbers

51. Mathematics in Biology
52. Carl Friedrich Gauss
53. The Laplace Transformation and Its Applications
54. Combinatorics and Its Applications
55. Mathematical Modelling of Satellite Antenna
56. Mathematical Modelling of Online Shopping
57. Application of Mathematics in Voting
58. Mathematics in artificial Intelligence
59. Cryptography applications in mathematics
60. Role of mathematics in Investing and Trading in stock market
61. Application of SIR
62. Epidemiological model: New trends
63. Mathematical model for detecting diabetes in the blood
64. Mathematical Model on Distribution of COVID
65. Mathematical Model on impact of COVID
66. Number Theory
67. Mathematics in Game Theory and its Types
68. Role of Mathematics in Artificial Intelligence
69. Great Women Mathematicians who changed the World
70. Image Processing Mathematical methods and Applications
71. Mathematics in Cinematography
72. Implementation and Analysis of a Simple
73. Cryptography
74. Algorithm based on modular Arithmetic
75. Effects of Geoboard on Students
76. Foundations of Geometry
77. Applications of Mathematics in Pharmacy and Life Sciences
78. Linear Algebra in Data Science
79. Mathematics in Solar Energy
80. Mathematics in Robotics
81. Our Legendary Scientist
82. Mathematics in Weather Forecasting
83. Mathematics in Cybersecurity
84. Applications of Art and Architecture
85. Mathematics and Astronomy in Ancient India
86. Applications of Geometry


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