



# MATS UNIVERSITY

Main Campus – Gullu (Aarang), Raipur – 493 441 CG

Raipur Campus - MATS Tower, Pandri, Raipur – 492 002 CG

Tel: 0771 – 4078995, 4078996 Fax: 0771 – 4078997

E-mail: [info@matsuniversity.ac.in](mailto:info@matsuniversity.ac.in), Website: [www.matsuniversity.ac.in](http://www.matsuniversity.ac.in)

## MATS UNIVERSITY

UNIVERSITY CAMPUS, AARANG  
SCHOOL OF BASIC SCIENCES



### SYLLABUS

### M.Sc. (Mathematics)

(2 YEARS FULL TIME POST GRADUATE COURSE)

### SEMESTER PATTERN

(2025- 2027)



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Teaching and Learning Schemes  
Master of Science (Mathematics)

## Course \*Credits

	Theory + Practical
<b>I. Core Course (13 Papers)</b>	$13 \times 4 = 52$
<b>II. Core Course with practical (02 Papers)</b>	$2 \times 3 = 6$
<b>I. Core Course Practical / Tutorial*(02 Papers)</b>	$2 \times 2 = 4$
<b>II. Elective Course (4 Papers)</b>	$4 \times 4 = 16$
<b>III. Dissertation</b>	$1 \times 6 = 6$
Total Credit	84

## Objective of the Program

The Mathematics Education route is for anyone with a research or professional interest in mathematics education at Post graduate level, wanting to undertake advanced study in a world-class setting as well as in research.

The Mathematics Education route develops students' understanding of a number of important issues in the field of mathematics education. Students learn to interpret and critically engage with ideas and debates in mathematics education research in following ways:

- Through taught sessions in mathematics education;
- Through work on course assignments under the supervision of a member of the teaching team.
- Through participation in seminars led by students on the route and in project workshops.



## Program Outcomes (POs)

On successful completion, Post graduates will be able to:

**PO1.** Students will be able to gain fundamental knowledge of skills.

**PO2** Students will be able to apply knowledge, concepts to solve issues related to their course.

**PO3** Solve problems through analytical thinking.

**PO4.** Apply knowledge of mathematics to solve various real-life problems.

**PO5.** Formulate mathematical models to interpret and analyze data for interdisciplinary research and development.

**PO6.** Solve various mathematical problems by using relevant mathematical and statistical software.

**PO7.** Exhibit strong ethical and professional responsibility.

**PO8.** Post Graduate holders will have the knowledge for the need of sustainable development.

**PO9.** Post Graduate holders will have the knowledge of ethics and regulatory norms of their respective course.

**PO10.** The students will get wide range of Mathematical skills, including problem-solving, project work and presentation; they may enable to take prominent roles in a wide spectrum of employment in academics and research.



## Program Specific Objectives (PSOs)

The Post Graduates will be able to:

**PSO-1.** Get a strong knowledge in mathematical sciences which include courses from Mathematics.

**PSO-2.** Select a successful career in the sectors such as teaching, research, banking, planning and higher education, administrative service and for the advance study.

**PSO-3.** Exhibit professionalism, ethics, communication skills, team work in their profession and adapt to current scenario by engaging in lifelong learning for the service of the society.



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## M.Sc. (Mathematics)

### First Semester

Subject Code	Name of Subject	Credit Theory	Credit Lab/Tutorial	ESE Marks	Internal Marks	Total Marks
MSCM101	ALGEBRA	4		70	30	100
MSCM102	REAL ANALYSIS	4		70	30	100
MSCM103	DIFFERENTIAL EQUATIONS	4		70	30	100
MSCM104	DISCRETE MATHEMATICS	4		70	30	100
MSCM105	ELECTIVE 1	4		70	30	100
Total		20				500



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## Second Semester

Subject Code	Name of Subject	Credit Theory	Credit Lab/Tutorial	ESE Marks	Internal Marks	Total Marks
MSCM201	COMPLEX ANALYSIS	4		70	30	100
MSCM202	PARTIAL DIFFERENTIAL EQUATIONS	4		70	30	100
MSCM203	LINEAR ALGEBRA	4		70	30	100
MSCM204	MATLAB	3		70	30	100
MSCM205	MATLAB (PRACTICAL)		2	35	15	50
MSCM206	ELECTIVE 2	4		70	30	100
Total		19	2			550



## Third Semester

Subject Code	Name of Subject	Credit Theory	Credit Lab/Tutorial	ESE Marks	Internal Marks	Total Marks
MSCM301	TOPOLOGY	4		70	30	100
MSCM302	MATHEMATICAL METHODS	4		70	30	100
MSCM303	FUNCTIONAL ANALYSIS	4		70	30	100
MSCM304	LATEX & MATHEMATICA	3		70	30	100
MSCM305	LATEX & MATHEMATICA (PRACTICAL)		2	35	15	50
MSCM306	ELECTIVE 3	4		70	30	100
Total		19	2			550



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## Fourth Semester

Subject Code	Name of Subject	Credit Theory	Credit Lab/Tutorial	ESE Marks	Internal Marks	Total Marks
MSCM401	NONLINEAR DIFFERENTIAL EQUATION	4		70	30	100
MSCM402	OPERATION RESEARCH	4		70	30	100
MSCM403	FUZZY SETS THEORY	4		70	30	100
MSCM404	ELECTIVE 4	4		70	30	100
MSCM405	PROJECT/DISSERTATION	6				200
Total		22				600





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## List of Electives

Elective 1	<b>NUMERICAL METHODS</b>	<b>MATHEMATICAL STATISTICS</b>	<b>DIFFERENTIAL GEOMETRY</b>
Elective 2	<b>DISTRIBUTION THEORY</b>	<b>INFORMATION THEORY</b>	<b>MECHANICS</b>
Elective 3	<b>GRAPH THEORY</b>	<b>MATHEMATICAL BIOLOGY</b>	<b>NUMBER THEORY &amp; CRYPTOGRAPHY</b>
Elective 4	<b>APPROXIMATION THEORY</b>	<b>METRIC SPACES AND FIXED POINT THEORY</b>	<b>MATHEMATICAL MODELING</b>