

Programme Outcomes – PG Mathematics

- PO1: Critical Thinking:** Inculcate critical thinking to carry out scientific investigation objectively. Formulate coherent arguments; critically evaluate practices, policies and theories by following scientific approach to knowledge development. Critically evaluate ideas, evidence and experiences from an open-minded and reasoned perspective.
- PO2: Knowledge Skill:** Equip the student with skills to analyse problems, formulate an hypothesis, evaluate and validate results, and draw reasonable conclusions thereof. Capacity to extrapolate from what one has learned and apply their competencies to solve different kinds of non-familiar problems, rather than replicate curriculum content knowledge.
- PO3: Scientific Communication Skills:** Imbibe effective scientific and / or technical communication in both oral and writing. Ability to show the importance of the subject as precursor to various scientific developments since the beginning of the civilization.
- PO4: Ethics:** Continue to acquire relevant knowledge and skills appropriate to professional activities and demonstrate highest standards of ethical issues in the subject concerned. Ability to identify unethical behaviour such as fabrication, falsification or misrepresentation of data and adoptive objective, unbiased and truthful actions in all aspects.
- PO5: Enlightened Citizenship:** Create awareness to become an enlightened citizen with commitment to deliver one's responsibilities within the scope of bestowed rights and privileges
- PO 6: Analytical Reasoning:** Ability to evaluate the reliability and relevance of evidence; identify logical flaws and holes in the arguments of others; analyse and synthesise data from a variety of sources; draw valid conclusions and support them with evidence and examples, and addressing opposing viewpoints.
- PO 7: Multicultural Competence:** Development of a set of competencies in order to enhance and promote the growth of multicultural sensitivity within universities. Integrating multicultural awareness such as race, gender, physical ability, age, income and other social variables, and by creating an environment that is, "welcoming for all students".
- PO 8: Lifelong Learning:** Ability to think, acquire knowledge and skills through logical reasoning and to inculcate the habit of self-learning throughout life, through self- paced and self- directed learning aimed at personal development, and adapting to changing academic demands of work place through knowledge/ skill development/ reskilling.
- PO9: Leadership Qualities:** Capability for mapping out the tasks of a team or an organization, and setting direction, formulating an inspiring vision, building a team who can help achieve the vision, motivating and inspiring team members to engage with that

vision, and using management skills to guide people to the right destination in a smooth and efficient way.

PO10: Research Skills: Prepare students for pursuing research or careers in industry in concerned subject and allied fields. Capability to use appropriate software to solve various problems and to apply programming concepts of C++ and Mathematica/ Matlab to various scientific investigations , problem solving and interpretation .

Programme Specific Outcomes -PG Mathematics

PSO1: Strong Foundation in Knowledge: Have strong foundation in core areas of Mathematics, and able to communicate Mathematics effectively.

PSO 2: Abstract Skills: Evaluate hypotheses, theories, methods and evidence within their proper contexts

PSO3: Problem Solving: Solve complex problems by critical understanding, analysis and synthesis

PSO4: Proficiency in Interdisciplinary Skills: Select, interpret and critically evaluate information from a range of sources that include books, scientific reports, journals, case studies and internet.

PSO 5: Application and Research Efficiency: Provide a systematic understanding of the concepts and theories of mathematics and their application in the real world- to an advanced level, and enhance career prospects in a huge array of fields, viz. in industry, commerce, education, finance and research.

PSO 6: Lifelong Practical Knowledge: Recognise the need to engage in lifelong learning through continuous education, and research leading to higher degrees like PhD, DSc etc.

Syllabus

- 1.1 Real Analysis
- 1.2 Linear Algebra
- 1.3 Abstract Algebra
- 1.4 Differential equations
- 1.5 Mathematical Methods I

- 2.1 Topology and Functional Analysis
- 2.2 Complex Analysis
- 2.3 Measure Theory and Probability Theory
- 2.4 Mathematical methods II
- 2.5 Classical Mechanics

- 3.1 Discrete Mathematics
- 3.2 Computer Programming In C
- 3.2 Computer Programming In C Lab
- 3.4 Research Methodology for Mathematical Sciences
- 3.5 Research Seminar
- 3.6 Elective I
- 3.7 Elective II
- 3.8 Service Learning and Community service

- 4.1 Elective III
- 4.2 Elective IV
- 4,3 Elective V
- 4.4 Research Project

Mapping of Cos to PO/PSO

	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PS01	PS02	PS03	PSO4	PSO5	PSO6
1.1	M	H	M			M		M		M	H	M	M		L	M
1.2	M	M	M	L		M			L	M	M		M	L	L	M
1.3		H	M			M	M	M	L	H	M		M		M	H
1.4	M	M	M		L	M				H	M	H	H	M	M	M
1.5	M	M	M	L	L	M			M		M	H	M		L	
2.1	H	H			L	M	L		L	M	M	H	H	M		M
2.2	M	H	M	M		M	M	M	L		H		M	M		M
2.3	H	H	M			M	M			M	H	M	H		M	M
2.4		H	M			M		M		M		M	M	M	M	M
2.5		H	M			M			L		H		M	M		
3.1	M	M				M	M						L		H	M
3.2		H	H			M		M		L			M		M	
3.3			H	M	M		M	M	M	L		H		M	L	L
3.4			M	M	M		L		M	L		M		M		L
3.5	M	H		M		M	M	M		M	H	H	M			M
3.6		M	M	L	L	M		M		H	M	M	M		M	H
3.7		M	H	L		M	L	M		M		M	M	M	H	M
3.8				H	H		M	M	M			M		M	M	
4.1	M	H		M		M	M	M		M	H	H	M			M
4.2		M	M	L	L	M		M		H	M	M	M		M	H
4.3		M	H	L		M	L	M		M		M	M	M	H	M
4.4			H	M	L		M		L	M		M		M		M