Program Outcomes – UG Programme

PO1. Disciplinary Knowledge: Capable of demonstrating comprehensive knowledge and understanding of one or more other disciplines that form a part of an undergraduate programme of study.

PO 2. **Critical Thinking**: Take informed actions after identifying the assumptions that frame our thinking and actions, checking out the degree to which these assumptions are accurate and valid, and looking at our ideas and decisions (intellectual, organizational, and personal) from different perspectives. Critically evaluate practices, policies and theories by following scientific approach to knowledge development.

PO3: Communication Skills: Ability to express thoughts and ideas effectively in writing and orally; communicate with others using appropriate media; confidently share one's views and express herself/ himself; demonstrate the ability to listen carefully; and present complex information in a clear and concise manner to different groups.

PO 4. Social Interaction: Ability to work effectively and respectfully with diverse teams; facilitate cooperative or coordinated effort on the part of a group and act together as a group or a team in the interests of a common cause. Elicit views of others, mediate disagreements and help reach conclusions in group settings.

PO 5. Effective Citizenship: Demonstrate empathetic social concern and equity centred national development, and the ability to act with an informed awareness of issues and participate in civic life through volunteering.

PO 6. Moral and Ethical Awareness: Ability to embrace moral/ ethical values in conducting one's life, possess knowledge of the values and beliefs of multiple cultures and a global perspective; and capability to effectively engage in a multicultural society and interact respectfully with diverse groups.

PO 7: Environment and Sustainability: Understand the issues of environmental contexts and sustainable development.

PO 8. **Self-directed and Life-long Learning**: Acquire the ability to engage in independent and life- long learning in the broadest context socio- technological changes. Critical sensibility to lived experiences, with self-awareness and reflexivity of both and society.

PO 9: Information and Digital Literacy: Capability to use ICT in a variety of learning situations. Demonstrate ability to access, evaluate and use a variety of relevant information sources; and use appropriate software for analysis of data.

PO10: **Research –related skills: A** sense of inquiry and capability for asking relevant/ appropriate questions, problematizing, synthesizing and articulating; Ability to recognize cause- and- effect relationships, define problems, formulate hypotheses, interpret and draw conclusions from data, ability to plan, execute and report the results of an experiment or investigation. Ability to apply one's learning to real life situations.

Programme Specific Outcomes - B.Sc (Hons) Mathematics

PSO1: **Solid Foundation in Knowledge:** Bachelor Degree in Mathematics is the culmination of in-depth knowledge of many core branches of mathematics, viz. Algebra, Calculus, Geometry, Differential Equations, Mechanics, Real and Complex Analysis including some related areas like Computer Science and Statistics. Thus, this programme helps students in building a solid foundation for further higher studies and research in Mathematics.

PSO2: **Competency in Skills:** The skills and knowledge gained has intrinsic beauty, which leads to proficiency in analytical reasoning, critical understanding, analysis and synthesis in order to solve theoretical and practical problems. This can orient students towards applications of mathematics in other disciplines and moreover, can also be utilised in modelling and solving real life problems.

PSO 3:**Problem Solving:** Students undergoing this programme learn to logically question assertions, to recognize patterns and to distinguish between essential and irrelevant aspects of problems. This helps them to learn behave responsibly in a rapidly changing interdependent society.

PSO4: **Interdisciplinary and Research Skills**: Students completing this programme will be able to present mathematics clearly and precisely, make vague ideas precise by formulating them in the language of mathematics, describe mathematical ideas from multiple perspectives and explain fundamental concepts of mathematics to non-mathematicians.

PSO 5: **Proficiency in Employments**: This programme will help students to enhance their employability for Government jobs, jobs in banking, insurance and investment sectors, data analysis jobs, and jobs in various other public and private enterprises.

Syllabus

1.1 Calculus
1.2 Algebra
1.3 English Communication
1.4 Generic Elective 1

2.1 Elementary Real Analysis

2.2 Differential Equations

2.3 Environmental Studies

2.4 Generic Elective 2

3.1 Theory of Real Functions

3.2 Group Theory I

3.3 Multivariable Calculus

3.4 Skill Enhancement Course

3.5 Generics Elective 3

4.1 Partial Differential Equations

4.2 Numerical Methods

4.3 Mechanics I

4.4 Skill Enhancement Course 2

4.5 Generic Elective 4

5.1 Metric Space and Complex analysis

5.2 Ring Theory and Linear Algebra I

5.3 Discipline Specific Elective 1

5.4 Discipline Specific Elective 2

6.1 Riemann Integration and series of functions

6.2 Ring Theory and Linear Algebra II

6.3 Discipline Specific Elective 3

6.4 Discipline Specific Elective 4

6.5 Project work

Mapping of Cos to PO/PSO

	PO1	PO 2	PO 3	PO 4	PO 5	PO 6	PO 7	PO 8	PO 9	PO 10	PS 01	PS 02	PS 03	PS 04	PS 05
1.1	H	M							L	M	H	L			M
1.2	M	M						L		L	M	M		H	
1.3			H	M		M		L							H
1.4	M	M								L		M		M	L
2.1	M	H	M		L						M	M		L	
2.2		M					H			M	H	M	L		
2.3				L	M	M	H					M			M
2.4	M	M								L		M		M	L
3.1	M	M	L						L	L	H	M	L		M
3.2	M	M	L	L			L				M	M		M	
3.3	H	H	M	M			L			L	M	M	H		L
3.4		M						L	H			H	M	L	M
3.5		M	L						M	M		M	M	M	
4.1	M		L				H		L	H	M	M	M	M	
4.2		M	M					M	M	H	M	H	L		M
4.3	M	M	L			L		L		M	H	M			
4.4			M	L	M	H						H	M		M
4.5		M	L						M	M		M	M	M	
5.1	H	H	M					M		M	M		H	L	
5.2	M	M		L					L	H	M	M		H	
5.3		M	M	L				H		M		H	M	M	L
5.4		M	M	L				H		M		H	M	M	L
6.1	M	M	L							M	M	M	L		
6.2	M	M		L					L	H	M	M		H	
6.3		H	M			M	M		M	H	M	H	M		M
6.4		H	M			M	M		M	H	M	H	M		M
6.5	M	M	M	M	M	M	M	M	M	H	M	H	M	M	M