Mathematics - CC1/GE1

CO-1 To understand the concept of De Moivre's Theorem and its application to complex numbers.

CO-2 To explain how derivatives represent rates of change and tangents to curves geometrically.

CO -3 To apply methods like exact equations, Euler's, Bernoulli's, and Clairaut's equations to solve first-order differential equations.

CO-4 To synthesize equations of pairs of straight lines, tangents, chords of contact, poles, polars, and polar equations of lines and circles.

POs	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8
COs	Disciplinary knowledge	Communication On Skills	Critical Thinking and Problem Solving	Analytical Reasoning	Cooperation/ Team work	Self-directed Learning	Moral and Ethics	Lifelong Learning
CO1	3					2		2
CO2	3					2		2
CO3	3	1	2	1		2		2
CO4	3	1		2		2		2
Avg(Target Attainment)	**3**	**1**	**2**	**1.5**	**-**	**2**	**-**	**2**

Mathematics - CC2/GE2

CO-1 To recall and apply fundamental concepts of sequences, series, and real-valued functions.

CO-2 To understand the classification and solution methods of differential equations.

CO-3 To analyse vector products and their applications in mechanics.

CO-4 To synthesize solutions to problems in boolean algebra, including boolean functions, logic gates, and circuit minimization

POs	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8
COs	Disciplinary knowledge	Communication On Skills	Critical Thinking and Problem solving	Analytical Reasoning	Cooperation/ Team work	Self-directed Learning	Moral and Ethics	Lifelong Learning

CO1	3					2		1
CO2	3		1			2		1
CO3	3		1			2		1
CO4	3	1	2	2	2	2		2
Avg.(Target Attainment)	3	1	1.33	2	2	2	-	1.25

Mathematics - CC3/GE3

CO-1 To remember and recall definite integral and improper integral.

CO-2 To apply numerical methods for solving integration and interpolation problems.

CO-3 To analyse different methods for solving numerical equations, including the tabular method, bisection method, and Newton-Raphson method.

CO- 4 To develop optimal solutions to linear programming problems using graphical methods, simplex method, and method of penalty.

Pos	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8
Cos	Disciplinary Knowledge	Communication On Skills	Critical Thinking and Problem Solving	Analytical Reasoning	Cooperation/ Team work	Self - directed Learning	Moral and Ethics	Lifelong Learning
CO1	3					2		2
CO2	3					2		2
CO3	3		1	2		2		2
CO4	3		1	2		2		2
Avg.(Target Attainment)	3	-	1	2	-	2	-	2

Mathematics - CC4/GE4

CO1 To understand the fundamental concepts of Group Theory and its applications.

CO2 To apply the definitions and examples of rings, fields, sub-rings, and sub-fields to solve problems.

CO 3 To analyze real quadratic forms involving not more than three variables.

CO4 To develop algorithms and flowcharts for solving problems and understand their utilities and important features

Pos	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8
Cos	Disciplinary Knowledge	Communication On Skills	Critical Thinking and Problem Solving	Analytical Reasoning	Cooperation /Teamwork	Self-directed Learning	Moral and Ethics	Lifelong Learning
CO1	3				2	1		2
CO2	3				2	1		2
CO3		1	2	1	-	1		1
CO4		1	2	1	2	1		1
Avg.(Target Attainment)	**3**	**1**	**2**	**1**	**2**	**1**	**-**	**1.5**

Mathematics SECA C Programming Language

CO-1 To recall history of computers and the architecture of computers.

CO –2 To apply knowledge of the character set, constants, variables, and data types in C programming.

CO-3 To analyze decision-making processes using if, if-else, and switch statements.

CO-4 To   create user-defined functions in C programming, including defining functions, managing variable scope, and handling return values.

Pos	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8
COs	Disciplinary Knowledge	Communication On Skills	Critical Thinking and Problem Solving	Analytical Reasoning	Cooperation /Team Work	Self-Directed Learning	Moral and Ethics	Lifelong Learning
CO1	1					2		3
CO2	1							3
CO3	1	1	1	2		2		3
CO4	1	1	2	1		2	2	3
Avg.(Target Attainment)	**1**	**1**	**1.5**	**1.5**	**-**	**2**	**2**	**3**

Mathematics SEC B Mathematical Logic

CO-1 To grasp the introduction to propositional logic, including propositions, truth tables, negation, conjunction, disjunction, implications, biconditional propositions, and the precedence of logical operators.

CO-2 To apply formal theories and techniques of propositional calculus to derive proofs, theorems, and deductions.

CO -3 To analyze predicate logic by symbolizing ordinary sentences into first-order formulae, identifying free and bound variables, and interpreting and evaluating models.

CO –4 To create formal theories for propositional and predicate logic, including deriving proofs, theorems, and deductions.

Pos	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8
Cos	Disciplinary Knowledge	Communication On Skills	Critical Thinking and Problem Solving	Analytical Reasoning	Cooperation /Team Work	Self-directed Learning	Moral and Ethics	Lifelong Learning
CO1	2			1		2	1	2
CO2	2			1		1	1	2
CO3	2	2	2	1		2	1	2
CO4	2	2	2	1		1	1	2
Avg.(Target Attainment)	**2**	**2**	**2**	**1**	**-**	**1.5**	**1**	**2**

Mathematics DSE –A Particle Dynamics

CO -1 To understand the fundamental principles governing the motion of particles in various coordinate systems.

CO- 2 To apply Newton's laws of motion to analyze the motion of particles and understand the concepts of work, power, and energy.

CO- 3 To analyze the motion of particles under various forces and conditions, including motion in one and two dimensions and central orbits.

CO -4 To synthesis the principles of mechanics to solve problems related to particle motion and central orbits.

Pos	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8
COs	Disciplinary Knowledge	Communication On Skills	Critical Thinking and	Analytical Reasoning	Cooperation /Team work	Self-directed	Moral and	Lifelong Learning

			Problem Solving			Learning	Ethics	
CO1	3					2		2
CO2	3			1		2		2
CO3		1	2	1	2	2	1	2
CO4			2		1	2	1	1
Avg.(Target Attainment)	**3**	**1**	**2**	**1**	**1.5**	**2**	**1**	**1.75**

Mathematics DSE –B Advanced Calculus

CO1: To recall pointwise and uniform convergence of sequences of functions and series of functions

CO2: To analyze the conditions for convergence of power series

CO3: To apply periodic Fourier series to analyze periodic functions and solve relevant problems

CO4:To evaluate the effectiveness of Laplace Transform in solving various types of diff equation

POs	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8
COs	Disciplinary Knowledge	Communication On Skills	Critical Thinking and Problem Solving	Analytical Reasoning	Co-operation /Teamwork	Self-directed Learning	Moral and Ethics	Lifelong Learning
CO1	2					2		1
CO2	2	1				2		1
CO3	2					2		1
CO4	2	1	1			2		1
Avg.(Target Attainment)	**2**	**1**	**1**	**-**	**-**	**2**	**-**	**1**