

Department of Mathematics

Academic Calendar and Academic Plan for AY 2024-25 (ODD SEMESTER)

Semester -I Major & Minor

Full Marks: 100 (Theoretical ESE – 70 & Theoretical CA – 30)

Name of the Paper	Unit Number	Topic	Name of Teacher/s	To be completed during the month and year	No of Practical Classes	No of Theoretical Classes	Continuous Internal Assessment in the Month of
Classical Algebra, Calculus and Analytical Geometry (BSCMTMMJ101)	Classical Algebra: Unit 1	Complex numbers and complex functions	Ajay Kumar Das	August, 2024	NA	8	August, 2024
	Classical Algebra: Unit 2	Theory of equations	Ajay Kumar Das	September, 2024	NA	8	September, 2024
	Classical Algebra: Unit 3	Inequality	Ajay Kumar Das	November, 2024	NA	9	November, 2024
	Calculus: Unit 4	Differential calculus and its applications	Dr. Abul Hossain	September, 2024	NA	13	September, 2024
	Calculus: Unit 5	Integral calculus and its applications	Dr. Abul Hossain	November, 2024	NA	12	November, 2024
	Analytical Geometry: Unit 6	Two-dimensional geometry	Sagarika Nandy	September, 2024	NA	12	September, 2024
	Analytical Geometry: Unit 7	Three-dimensional geometry	Sagarika Nandy	November, 2024		13	November, 2024

- NA – Not Applicable

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Academic Calendar and Academic Plan for AY 2024-25 (ODD SEMESTER)

Semester -I: Skill Enhancement Course

Full Marks: 50 (Theoretical ESE – 35 & Theoretical CA – 15)

Name of the Paper	Unit Number	Topic	Name of Teacher/s	To be completed during the month and year	No of Practical Classes	No of Theoretical Classes	Continuous Internal Assessment in the Month of
Graph Theory (BSCMTMSE101)	Unit 1	Basic concepts of graph theory	Ajay Kumar Das, Dr. Abul Hossain & Sagarika Nandy	August, 2024		10	August, 2024
	Unit 2	Graph and subgraph	Ajay Kumar Das, Dr. Abul Hossain & Sagarika Nandy	September, 2024		20	September, 2024
	Unit 3	Application of graph theory	Ajay Kumar Das, Dr. Abul Hossain & Sagarika Nandy	November, 2024		15	November, 2024

- NA – Not Applicable

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Academic Calendar and Academic Plan for AY 2024-25 (ODD SEMESTER)

Semester -I Multi-Disciplinary

Full Marks: 50 (Theoretical ESE – 35 & Theoretical CA – 15)

Name of the Paper	Unit Number	Topic	Name of Teacher/s	To be completed during the month and year	No of Practical Classes	No of Theoretical Classes	Continuous Internal Assessment in the Month of
Business Mathematics Course (MD113)	Unit 1	Algebra	Ajay Kumar Das, Dr. Abul Hossain & Sagarika Nandy	August, 2024	NA	12	August, 2024
	Unit 2	Differential and Integral Calculus	Ajay Kumar Das, Dr. Abul Hossain & Sagarika Nandy	November, 2024	NA	24	September, 2024

- NA – Not Applicable

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Academic Calendar and Academic Plan for AY 2024-25 (ODD SEMESTER)

Semester -III Major

Full Marks: 100 (Theoretical ESE – 70 & Theoretical CA – 30)

Name of the Paper	Unit Number	Topic	Name of Teacher/s	To be completed during the month and year	No of Practical Classes	No of Theoretical Classes	Continuous Internal Assessment in the Month of
Real Analysis I (BSCMTMMJ301)	Unit 1	Properties of set of real numbers	Dr. Abul Hossain	September, 2024	NA	15	September, 2024
	Unit 2	Sequence of real numbers and sequence of real functions	Sagarika Nandy	October, 2024	NA	20	October, 2024
	Unit 3	Limit and continuity	Dr. Abul Hossain	November, 2024	NA	20	November, 2024
	Unit 4	Expansion of functions	Dr. Abul Hossain	December, 2024	NA	20	December, 2024

- NA – Not Applicable

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Academic Calendar and Academic Plan for AY 2024-25 (ODD SEMESTER)

Semester -III Major

Full Marks: 100 (Theoretical ESE – 70 & Theoretical CA – 30)

Name of the Paper	Unit Number	Topic	Name of Teacher/s	To be completed during the month and year	No of Practical Classes	No of Theoretical Classes	Continuous Internal Assessment in the Month of
Abstract Algebra-I and Number Theory (BSCMTMMJ302)	Unit 1	Relation, function and basics of group theory	Sagarika Nandy	November, 2024	NA	15	November, 2024
	Unit 2	Subgroup and normal subgroup	Sagarika Nandy	December, 2024	NA	20	December, 2024
	Unit 3	Number theory: Basic properties, Linear Diophantine equation, Theorems on Prime numbers, Goldbach conjecture, Twin-prime conjecture, Odd perfect numbers conjecture, Fermat and Mersenne primes	Ajay Kumar Das	September, 2024	NA	15	September, 2024
	Unit 4	Number theory: Modular arithmetic. Linear congruence and Chinese remainder theorem, Fermat's little theorem, Wilson's theorem, Number theoretic functions for sum and number of divisors, Multiplicative function.	Ajay Kumar Das	December, 2024	NA	15	December, 2024

- NA – Not Applicable

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Academic Calendar and Academic Plan for AY 2024-25 (ODD SEMESTER)

Semester -III MINOR

Full Marks: 100 (Theoretical ESE – 70 & Theoretical CA – 30)

Name of the Paper	Unit Number	Topic	Name of Teacher/s	To be completed during the month and year	No of Practical Classes	No of Theoretical Classes	Continuous Internal Assessment in the Month of
Real Analysis and Complex Analysis (BSCMTMMN301)	Unit 1	Sequences and its convergence	Dr. Abul Hossain	October, 2024	NA	15	October, 2024
	Unit 2	Infinite series and its convergence	Dr. Abul Hossain	December, 2024	NA	8	December, 2024
	Unit 3	Limit and continuity	Ajay Kumar Das	October, 2024	NA	12	October, 2024
	Unit 4	Differentiation. Expansion of functions.	Ajay Kumar Das	December, 2024	NA	15	December, 2024
	Unit 5	Algebra of complex numbers, Stereographic projection, Cauchy-Riemann equations, Bilinear transformation	Sagarika Nandy	October, 2024	NA	20	October, 2024
	Unit 6	Complex integration	Sagarika Nandy	December, 2024		5	December, 2024

- NA – Not Applicable

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Academic Calendar and Academic Plan for AY 2024-25 (ODD SEMESTER)

Semester -III Multi-Disciplinary

Full Marks: 50 (Theoretical ESE – 35 & Theoretical CA – 15)

Name of the Paper	Unit Number	Topic	Name of Teacher/s	To be completed during the month and year	No of Practical Classes	No of Theoretical Classes	Continuous Internal Assessment in the Month of
Indian Mathematics (MD305)	Unit 1	Multiplication: Ekadhiken Purven method, Urdhva Tiragbhyam method, Nikhilam Navtashchramam Dashtaha	Ajay Kumar Das	December, 2024	NA	12	December, 2024
	Unit 2	Division and Divisibility: Part A: Division: Nikhilam Navtashchramam Dashtaha, Paravartya Yojyet method Part B: Divisibility: Ekadhikenpurven method, Eknunenpurven method	Dr. Abul Hossain	November, 2024	NA	12	November, 2024
	Unit 3	LCM and HCF	Sagarika Nandy	September, 2024	NA	2	September, 2024
	Unit 4	Power and Root: Power: (i) Square, (ii) Cube. Root: (i) Square root (ii) Cube root	Sagarika Nandy	December, 2024	NA	10	December, 2024
	Unit 5	Work of Indian Mathematicians in Arithmetic 1. Aryabhata 2. Brahmagupta	Dr. Abul Hossain	December, 2024	NA	2	December, 2024

- NA – Not Applicable

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Academic Calendar and Academic Plan for AY 2024-25 (ODD SEMESTER)

Semester -V CORE COURSE-11

Full Marks: 50 (Theoretical ESE – 35 & Theoretical CA – 15)

Name of the Paper	Unit Number	Topic	Name of Teacher/s	To be completed during the month and year	No of Practical Classes	No of Theoretical Classes	Continuous Internal Assessment in the Month of
Set Theory and Metric Spaces (BSCHMTMC501)	Unit-1	Theory of Sets	Dr. Abul Hossain	September, 2024	NA	5	September, 2024
	Unit-2	Concepts in Metric Spaces	Dr. Abul Hossain	November, 2024	NA	5	November, 2024
	Unit-3	Complete Metric Spaces and Continuous Functions	Dr. Abul Hossain	November, 2024	NA	10	November, 2024
	Unit-4	Compactness	Dr. Abul Hossain	December, 2024	NA	5	December, 2024
	Unit-5	Connectedness	Dr. Abul Hossain	December, 2024	NA	5	December, 2024

- NA – Not Applicable

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Academic Calendar and Academic Plan for AY 2024-25 (ODD SEMESTER)

Semester -V CORE COURSE-12

Full Marks: 50 (Theoretical ESE – 35 & Theoretical CA – 15)

Name of the Paper	Unit Number	Topic	Name of Teacher/s	To be completed during the month and year	No of Practical Classes	No of Theoretical Classes	Continuous Internal Assessment in the Month of
Advanced Algebra (BSCHMTMC502)	Unit-1	Automorphism, Commutator subgroup and its properties. Group actions, applications of group actions. Generalized Cayley's theorem	Sagarika Nandy	September, 2024	NA	10	September, 2024
	Unit-2	Class equation, p-groups, Sylow's theorems and Cauchy's theorem	Sagarika Nandy	November, 2024	NA	8	November, 2024
	Unit-3	Elementary properties of rings, Ring homomorphisms and isomorphisms, Wilson and Fermat's theorems	Sagarika Nandy	November, 2024	NA	8	November, 2024
	Unit-4	Polynomial rings over commutative ring, Euclidean domain, principal ideal domain, and unique factorization domain	Sagarika Nandy	December, 2024	NA	8	December, 2024
	Unit-5	Extension of a field, Algebraic element of a field, Perfect field, Classification of finite fields.	Sagarika Nandy	December, 2024	NA	6	December, 2024

- NA – Not Applicable

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Academic Calendar and Academic Plan for AY 2024-25 (ODD SEMESTER)

Semester -V DISCIPLINE SPECIFIC ELECTIVE (DSE)

Full Marks: 50 (Theoretical ESE – 35 & Theoretical CA – 15)

Name of the Paper	Unit Number	Topic	Name of Teacher/s	To be completed during the month and year	No of Practical Classes	No of Theoretical Classes	Continuous Internal Assessment in the Month of
Integral Transforms and Fourier Analysis (BSCHMTMDSE502)	Unit-1	Fourier Series	Ajay Kumar Das	September, 2024	NA	10	September, 2024
	Unit-2	Fourier Transforms	Ajay Kumar Das	November, 2024	NA	8	November, 2024
	Unit-3	Laplace Transforms	Ajay Kumar Das	November, 2024	NA	8	November, 2024
	Unit-4	Applications of Integral Transforms and Fourier Analysis	Ajay Kumar Das	December, 2024	NA	10	December, 2024

- NA – Not Applicable

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Academic Calendar and Academic Plan for AY 2024-25 (ODD SEMESTER)

Semester -V DISCIPLINE SPECIFIC ELECTIVE (DSE)

Full Marks: 50 (Theoretical ESE – 35 & Theoretical CA – 15)

Name of the Paper	Unit Number	Topic	Name of Teacher/s	To be completed during the month and year	No of Practical Classes	No of Theoretical Classes	Continuous Internal Assessment in the Month of
Linear Programming and Game Theory (BSCHMTMDSE503)	Unit-1	Introduction to linear programming problem. Theory of simplex method, Big-M method	Ajay Kumar Das	September, 2024	NA	12	September, 2024
	Unit-2	Theory of Duality, Dual Simplex method.	Dr. Abul Hossain	November, 2024	NA	6	November, 2024
	Unit-3	Transportation problem, assignment problem, Travelling salesman problem.	Sagarika Nandy	November, 2024	NA	8	November, 2024
	Unit-4	Game theory	Dr. Abul Hossain	December, 2024	NA	10	December, 2024

- NA – Not Applicable

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Semester -V DISCIPLINE SPECIFIC ELECTIVE (DSE)

Full Marks: 50 (Theoretical ESE – 35 & Theoretical CA – 15)

Name of the Paper	Unit Number	Topic	Name of Teacher/s	To be completed during the month and year	No of Practical Classes	No of Theoretical Classes	Continuous Internal Assessment in the Month of
Mechanics (BSCPMTMDSE501)	Unit-1	Rectilinear motion	Ajay Kumar Das	September, 2024	NA	12	September, 2024
	Unit-2	Simple harmonic motion, Hook's law, Particle attached to a horizontal/vertical elastic string	Ajay Kumar Das	December, 2024	NA	12	December, 2024
	Unit-3	Projectiles, motion in resisting medium	Dr. Abul Hossain	November, 2024	NA	8	November, 2024
	Unit-4	Central orbit. Kepler's laws of motion. Motion under inverse square law	Sagarika Nandy	December, 2024	NA	8	December, 2024

- NA – Not Applicable

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Academic Calendar and Academic Plan for AY 2024-25 (ODD SEMESTER)

Semester -V SKILL ENHANCEMENT COURSE (SEC - 3)

Full Marks: 50 (Theoretical ESE – 35 & Theoretical CA – 15)

Name of the Paper	Unit Number	Topic	Name of Teacher/s	To be completed during the month and year	No of Practical Classes	No of Theoretical Classes	Continuous Internal Assessment in the Month of
Number Theory (BSCPMTMSE501)	Unit-1	Division algorithm, Lagrange's theorem, Linear Diophantine equation, statement of prime number theorem, Goldbach conjecture, binary and linear congruences, complete set of residues.	Dr. Abul Hossain	November, 2024	NA	15	November, 2024
	Unit-2	Number theoretic functions, and properties of the Dirichlet product, the Mobious inversion formula, Euler's phi-function	Ajay Kumar Das	December, 2024	NA	10	December, 2024

- NA – Not Applicable