

NO.	Course	YEAR	GRADE / SCORE OBTAINED	SHORT DESCRIPTION/ SYLLABUS	COURSE INSTRUCTOR	BOOKS USED / REFERENCE
1.	ALGEBRA I	2017	A	Algebraic Structures, Introduction to Group Theory, Cyclic Groups, Lagrange's Theorem, Permutation groups. Theory of Polynomials.	Dr. Sabyasachi Dutta	Contemporary Abstract Algebra(Joseph Gallian) Higher Algebra(SK Mapa)
2.	Algebra II	2018	A+	Group Actions, Cayle's Theorem, Sylow's Theorem. Introduction to Ring Theory, Polynomial Rings, PID, Chinese Remainder Theorem	Dr. Angsuman Das	Abstract Algebra by Dummit & Foote
3.	Metric Topology	2018	A	Metric Spaces, Continuity, Compactness, Connectedness in Metric Topology, Banach Contraction. Introduction to Point set Topology, Countability Axioms, Separation Axioms,	Dr. Ritu Sen	Topology of Metric Spaces by S. Kumaresan

4.	Geometry I	2019	A+	Introduction to Differential Geometry, Plane Curve, Space Curve, Curvature, Reparametrization, Smooth surfaces, smooth maps.	Dr. Supriya Pan	Elementary Differential Geometry by Andrew Pressley
5.	Complex Analysis	2019	A	Complex Numbers, Cauchy- Riemann Equation, Cauchy's Integral formula, Contour Integration, Cauchy-Goursat Theorem, Meromorphic Function and logarithm, Singularities, Residue Integration, Casorati-Weirstrass Theorem.	Dr. Kuntal Banerjee	Functions of Complex Variable by John B. Conway Complex Analysis by Stein & Shakarchi
6.	Discrete Mathematics and Number Theory	2019	A+	Basic Combinatorics, Graph Theory, Generating Functions, Elementary Number Theory	Dr. Avishek Adhikary	Applied Combinatorics by Fred Roberts An Introduction to Graph Theory by D.B West An Introduction to Theory of Numbers by Niven, Zuckerman and Montgomery
7.	Geometry II	2019	A	Graphs and level sets, Vector Fields, The Tangent Space, Surfaces, Orientation, The Gauss Map, Geodesics, Parallel Transport, The Weingarten Map, The Gauss-Bonnet Theorem.	Dr. Shubhabrata Das	Elementary topics in Differential Geometry

				Differential forms in \mathbb{R}^n , Line Integrals, Differentiable Manifolds, Integration on Smooth Manifolds, Stokes Theorem & Poincare Lemma		Differential Forms by Manfredo Pedigao Do Carmo
8.	Representation Theory of Finite Groups	2021	C+	Representations and Characters, Subrepresentations, Irreducible Representations, Schur's Lemma, Induced Representations, Mackey Criteria, Artin's Theorem, Brauer's Theorem	Dr. Saikat Chatterjee	Linear Representation Theory of Finite Groups by Jean P. Serre
9.	Fields, Modules, and Algebras	2021	A	Field Extensions, Algebraic Extensions, Splitting Fields, Separable Extensions, Galois Extensions, Fundamental Theorem of Galois Theory, Finite Fields. Introduction to Module Theory, Tensor Products, Nakayama Lemma, Finitely Generated Modules.	Dr. Sarbeswar Pal	Abstract Algebra by Dummit & Foote Introduction to Commutative Algebra by Atiyah & Macdonald
10.	Commutative Algebra	2022	C+	Rings and Modules, Localization, Primary decomposition , Integral Dependence and Valuations, Chain Conditions, Noetherian & Artin Rings, DVR, Completions, Dimension Theory(Hilbert	Dr. Viji Thomas	Introduction to Commutative Algebra by Atiyah & Macdonald Commutative Ring Theory by Hideyuki Matsumura

				<p>Functions & Regular local rings)</p> <p>Homological Algebra, Projective & Injective Modules, Flat Modules, Projective Resolution.</p>		An Introduction to Homological Algebra by Charles Weibel
11.	Algebraic Topology	2023	A	<p>Review of General Topology-Final and Quotient Topology, Homotopy Equivalence, Fundamental Groups, Brower Fixed Point Theorem, Borsuk-Ulam Theorem , Covering Spaces, Path Lifting, Monodromy Theorem, Van Kampen Theorem and its Applications, Generalised homology theory, Eilenberg-Steenrod Axioms, Singular and Simplicial Homology, H-Groups and H-Cogroups.</p>	Dr. Viji Thomas	<p>Algebraic Topology by Allen Hatcher</p> <p>Algebraic Topology by Edwin Spanier</p> <p>An Introduction to Algebraic Topology by Joseph Rotman</p> <p>Algebraic Topology by Tammo tom Dieck</p>