Sl No	Name of the paper	Course	Course outcome
		Code	
1.	ALGEBRA - I	MTH1C01	•Learn factor group computation.
			• Understand the notion of group action on a set.
			• Learn Sylow theorems and its applications.
			• Understand the notion of free groups.
			• Understand the concept rings of polynomials
			Learn group presentation.
2.	LINEAR	MTH1C02	• Learn basic properties of vector spaces.
	ALGEBRA		• Understand the relation between linear
			transformations and matrices.
			• Understand the concept of diagonalizable and
			triangulable operators and various fundamental results
			of these operators.
			• Understand Primary decomposition Theorem.
			• Learn basic properties inner product spaces.
3.	REAL ANALYSIS	MTH1C03	• Learn the topology of the real line
	Ι		• Understand the notions of Continuity, Differentiation
			and Integration of real functions.
			• Learn Uniform convergence of sequence of
			functions, equicontinuity of family of functions, and
			Weierstrass theorems.
4.	DISCRETE	MTH1C04	• Understand the fundamentals of Graph Theory
	MATHEMATICS		• Learn the structure of graphs and familiarize the
			basic concepts to analyze different problems in
			different branches.
			• Acquire a basic knowledge of formal languages,
			grammar and automata.
			• Learn equivalence of deterministic and
			nondeterministic finite accepters.
			• Learn the concepts of partial order relation and total
			order relation.
			Acquire a knowledge of Boolean algebras and
			Boolean function and understand how these concepts
			arise in real life problems.
5.	NUMBER	MTH1C05	• Be able to effectively express the concepts and
	THEORY		results of number theory.
			• Learn basic theory of arithmetical functions and
			Dirichlet multiplication, averages of some arithmetical
			functions. And
			• Understand distribution of prime numbers and prime
			number theorem.
			• Learn the concept of quadratic residues and
			Quadratic reciprocity laws.
	A 1 *1*/		• Get a basic knowledge in Cryptography
6.	Ability	MTHIA01	(1) Internship/(11) Class room seminar presentation/
	Enhancement		(111) Publications/(1v) Case study analysis/(v) Paper
	Course		presentation/(vi) Book reviews.
7.	ALGEBRA II	MTH2C06	• Learn different types of extensions of fields.
			• Learn automorphisms of fields.

			• Get a basic knowledge in Galois Theory.
			• Learn how to apply Galois Theory in various
			contexts
8	DEAL ANALVSIS	MTH2C07	• Learn why and for what the theory of measure was
0.	II	WIIII2C07	introduced
	11		Introduced
			• Learn the concept of measures and measurable
			functions • Learn Lebesgue integration and its various
			properties
			• Learn how to generalize the concept of measure
			theory. • Learn that a measure may take negative
			values.
9.	TOPOLOGY	MTH2C08	• Be proficient in the abstract notion of a topological
			space, where continuous function are defined in terms
			of open set not in the traditional $\varepsilon - \delta$ definition used
			in analysis.
			• Realize Intermediate value theorem is a statement
			about connectedness. Bolzano weierstrass theorem is a
			theorem about compactness and so on
			• Learn the concept of quotient topology
			• Learn five properties such as T0 T1 T2 T3 and T4
			of a topological space X which express how rich the
			open sets is. More precisely, each of them tells us how
			tightly a closed subset can be wrapped in an open set
10		MTHOCOO	ignity a closed subset can be wrapped in an open set.
10.	ODE AND	MTH2C09	• Learn the existence of uniqueness of solutions for a
	CALCULUS OF		system of first order ODEs.
	VARIATIONS		• Learn many solution techniques such as separation
			of variables, variation of parameter power series
			method, Frobeniious method etc.
			• Learn method of solving system of first order
			differential calculus equations.
			• Get an idea of how to analyze the behavior of
			solutions such as stability, asymptotic stability etc.
			Get a basic knowledge of Calculus of variation
11.	OPERATIONS	MTH2C10	• Learn graphical method and the simplex algorithm
	RESEARCH		for solving a linear programming problem.
			• Learn more optimization techniques for solving the
			linear programming models, transportation problem
			and integer programming problem.
			• Learn optimization techniques for solving some
			network related problems.
			• Learn sensitivity analysis and parametric
			programming which describes how various changes
			in the problem affect its solution
12	Professional	MTH2402	TECHNICAL WRITING WITH LATEX
12.	Competency Course	11112/102	I DETINICAL WRITING WITH LATEA
12	MIII TIVADIADI E	MTH2C11	• Be proficient in differentiation of functions of
15.			several variables. • Understand surves in plane and in
	CALCULUS AND		several variables. • Onderstand curves in plane and in
			Spart.
			• Get a deep knowledge of Curvature, torsion, Serret-
		1	Frenet formulae

			• Learn Fundamental theorem of curves in plane and
			space.
			• Learn the concept of Surfaces in three dimension
			smooth surfaces, surfaces of revolution
			• Learn explicitly tangent and normal to the surfaces.
			• Get a thorough understanding of oriented surfaces
			first and second fundamental forms surfaces gaussian
			curvature and geodesic curvature and so on
14	COMPLEX	MTH3C12	• Learn the concept of (complex) differentiation and
17.		WITHSC12	integration of functions defined on the complex plane
	MALISIS		and their properties
			• Be thorough in power series representation of
			• De thorough in power series representation of
			Theorem
			Cot on idea of singularities of analytic functions and
			• Get an idea of singularities of analytic functions and
			• Learn different versions of maximum modulus
1.5		MTH2C12	theorem.
15.	FUNCTIONAL	MIH3C13	• Learn the concept of normed linear spaces and
	ANALYSIS		Hilbert spaces.
			• Learn various properties operators defined on both
			normed and Hilbert spaces.
			• Understand the concept dual space.
			• Learn the completeness of the space bounded linear
			operators.
16.	PDE and Integral	MTH3C14	• Learn a technique to solve first order PDE and
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16. 17. 18.	PDE and Integral Equations MEASURE AND INTEGRATION ADVANCED FUNCTIONAL	MTH3C14 MTH3E03 MTH4C15	 Learn a technique to solve first order PDE and analyse the solution to get information about the parameters involved in the model. Learn explicit representations of solutions of three important classes of PDE Heat equations Laplace equation and wave equation for initial value problems. Get an idea about Integral equations. Learn the relation between Integral and differential Equations. Learn how a measure will be helpful to generalize the concept of an integral. Learn how a smallest sigma algebra containing all open sets be constructed on a topological space which ensures the measure alled Borel measure is defined on this sigma algebra which ensures the integrability of a huge class of continuous functions. Understand the regularity properties Borel measures. Realize a measure may take real values even complex values. Learn product measure and their completion Understand the notions of Fredholm theory of compact Operators and their properties

			 Apply the theory to understand and solve some problems of integral equations at an appropriate level of difficulty. Describe the construction of the spectral integral. Recognize the fundamentals of Banach spaces and Democh Algebras.
19.	COMMUTATIVE ALGEBRA	MTH4E08	 Banach Algebras. Basic properties of commutative rings, ideals and modules over commutative rings, Learn uniqueness theorem for a decomposable ideal. Learn integrally closed domain and valuation ring. Understand the basic theory of Noetherian and Artin Rings
20.	DIFFERENTIAL GEOMETRY	MTH4E09	 Understand how calculus of several variables can be used to develop the geometry of n-dimensional oriented n- surface in Rn+1. Understand locally n- surfaces and parametrized n-surfaces are the same. Develop a knowledge of the Gauss and Weingarten maps and apply them to apply them to describe various properties of surfaces
21.	GRAPH THEORY	MTH4E11	 Learn different types of graphs. Learn the concept matching in graphs and related results. Understand what is meant by coloring. Learn Planar Graphs.
22.	Project	MTH4P01	·