COURSE OUTCOMES

2016 ONWARDS

DEPARTMENT : MATHEMATICS

PROGRAMME : M.Sc MATHEMATICS

SEMESTER I

COURSE CODE : MT01C01

COURSE NAME : LINEAR ALGEBRA

Sl. No.	DESCRIPTION
C101.1	Prove results in linear algebra using appropriate proof writing process
C101.2	Diagonalize and orthogonally diagonalize symmetric matrices
C101.3	Find Eigen values and Eigen vectors and use them in applications

COURSE CODE : MT01C02

COURSE NAME : BASIC TOPOLOGY

Sl. No.	DESCRIPTION
C102.1	Interpret the basic concepts of topology
C102.2	Analyse the concept of continuity in topological spaces
C102.3	Distinguishes various topological properties

COURSE CODE : MT01C03

COURSE NAME : MEASURE THEORY AND INTEGRATION

Sl. No.	DESCRIPTION
C103.1	Able to analyse the fundamentals of measure theory
C103.2	Apply the general principles of measure theory and integration in concrete subjects
C103.3	Analyse expectations and conditional expectations

COURSE CODE : MT01C04

COURSE NAME : GRAPH THEORY

Sl. No.	DESCRIPTION
C104.1	State the technical definitions of all terms related to graph
C104.2	Formulate graph theoretic models to solve real world problems
C104.3	Use theorems to construct solutions to problems or proofs

COURSE CODE : MT01C05

COURSE NAME : COMPLEX ANALYSIS

Sl. No.	DESCRIPTION
C105.1	Demonstrate understanding of the basic concepts underlying complex analysis
C105.2	Apply methods of complex analysis to evaluate definite integrals and infinite series
C105.3	Prove basic results in analysis

SEMESTER II

COURSE CODE : MT02C06

COURSE NAME : ABSTRACT ALGEBRA

Sl. No.	DESCRIPTION
C201.1	Analyse finite fields
C201.2	Factorise polynomials in certain extension fields
C201.3	Demonstrate the relationship between roots of Galois group

COURSE CODE : MT02C07

COURSE NAME : ADVANCED TOPOLOGY

Sl. No.	DESCRIPTION
C202.1	Interpret various characterisations of normality
C202.2	Analyse the concept of convergence in topology
C202.3	Distinguishes nets and filters

COURSE CODE : MT02C08

COURSE NAME : ADVANCED COMPLEX ANALYSIS

Sl. No.	DESCRIPTION
C203.1	Perform basic algebraic manipulation with complex numbers
C203.2	Compute definite integrals using residue calculus
C203.3	Interpret complex numbers geometrically

COURSE CODE : MT02C09

COURSE NAME : PARTIAL DIFFERENTIAL EQUATIONS

Sl. No.	DESCRIPTION
C204.1	To be familiar with partial differential equations, types and applications
C204.2	To solve Boundary value problems
C204.3	To form equations using variable separable methods

COURSE CODE : MT02C10

COURSE NAME : REAL ANALYSIS

Sl. No.	DESCRIPTION
C205.1	Analysis of the function of bounded variation
C205.2	Able to find and understand mean value theorems for Riemann- Stieltjes integrals
C205.3	To find infinite series, infinite products and power series

SEMESTER III

COURSE CODE : MT03C11

COURSE NAME : MUTIVARIATE CALCULUS AND INTEGRAL TRANSFORMS

Sl. No.	DESCRIPTION
C301.1	Ability to apply theorems in a correct Mathematical way.
C301.2	Analysing and solving problems in several core areas of Mathematics
C301.3	Interpret both continuous & diiferentiable functions geometrically and analytically and apply the mean value theorem.

COURSE CODE : MT03C12

COURSE NAME : FUNCTIONAL ANALYSIS

Sl. No.	DESCRIPTION
C302.1	Explain the fundamental concepts of functional analysis.
C302.2	Demonstrate capacity for mathematical reasoning through analysing, proving and explaining concepts from functional analysis.
C302.3	To get introduced to the theory of operators.

COURSE CODE : MT03C13

COURSE NAME : DIFFERENTIAL GEOMETRY

Sl. No.	DESCRIPTION
C303.1	To get introduced to concept of parameterised curves
C303.2	Sketching of various graphs, level curves, vector fields etc
C303.3	To find geodesics on various surfaces

COURSE CODE : MT03C14

COURSE NAME : NUMBER THEORY AND CRYPTOGRAPHY

Sl. No.	DESCRIPTION
C304.1	Prove results involving divisibility and greatest common divisors.
C304.2	Solve system of linear congruence.
C304.3	Demonstrate an understanding of various crypto systems.

COURSE CODE : MT03C15

COURSE NAME : OPTIMIZATION TECHNIQUES

Sl. No.	DESCRIPTION
C305.1	To get introduced to Gomorys cutting plane and branch and bound method
C305.2	Sketch the minimal spanning tree, maximum flow in networks
C305.3	Ability to analyse and interpret rectangular game as a linear programming problem

SEMESTER IV

COURSE CODE : MT04C16

COURSE NAME : SPECTRAL THEORY

Sl. No.	DESCRIPTION
C401.1	Demonstrate accurate and efficient use of spectral theoretic concepts
C401.2	Obtain an overview of spectral properties of bounded linear operators
C401.3	Distinguishes various types of operators on Hilbert spaces

COURSE CODE : MT04E01

COURSE NAME : ANALYTIC NUMBER THEORY

Sl. No.	DESCRIPTION
C402.1	Masters the basic concepts of analytic number theory
C402.2	Obtain an overview of Dirichlet products
C402.3	Analysis of equivalent conditions of Prime Number theorem

COURSE CODE : MT04E02

COURSE NAME : COMBINATORICS

Sl. No.	DESCRIPTION
C403.1	Conceptuailse arrangement and derangement
C403.2	Practical application of Pigeonhole principle
C403.3	Analysis of Pascals Triangle

COURSE CODE : MT04E05

COURSE NAME : MATHEMATICAL ECONOMICS

Sl. No.	DESCRIPTION
C404.1	Interpret economics in a mathematical manner
C404.2	Analyse the theory of consumer behaviour
C404.3	Demonstrate the production function

COURSE CODE : MT04E14

COURSE NAME : CODING THEORY

Sl. No.	DESCRIPTION
C405.1	Interpret the basic concepts of coding theory
C405.2	Masters arithmetic in finite fields
C405.3	Able to handle algorithms and techniques for coding and decoding

COURSE CODE : MT04P01

COURSE NAME : PROJECT

Sl. No.	DESCRIPTION
C406.1	Appreciate the usefulness, power and beauty of Mathematics
C406.2	Recognize that Mathematics permeates the world around us
C406.3	Develop the knowledge, skills and attitude necessary to pursue further studies in Mathematics
C406.4	Develop abstract , logical and critical thinking and ability to reflect critically upon their work and work of others