Integrated M.Sc. (Mathematics)

SEMESTER I
Communicative English
Language Paper I
Calculus
Discrete Structures
Problem Solving and Computer Programming
Physics / Introduction to Management and Finance
Problem Solving and Computer Programming Lab
Physics / PC Software Lab
Cultural Education I

SEMESTER II
Professional Communication
Language Paper II
Real Analysis
Groups and Rings
Advanced Computer Programming
Chemistry / Basics of Accountancy
Advanced Computer Programming Lab
Chemistry Lab / Accounting Lab
Cultural Education II

SEMESTER III
Rings, Vector Spaces and Fields
Real Analysis in Higher Dimension
Vector Calculus
Differential Equations
Statics
Environmental Science and Sustainability
Life Skills I
Amrita Values Programme I

SEMESTER IV
Linear Algebra
Probability and Statistics
Numerical Methods
Fourier Series and Integral Transforms
Dynamics
Open Elective A*

Numerical Methods Lab (MATLab)
Life Skills II
Amrita Values Programme II

SEMESTER V
Operations Research
Applied Statistics
Basic Graph Theory and Combinatorics
Complex Analysis
Number Theory
Statistics Lab
Live-in-Lab.@ / Open Elective B*
Life Skills III

SEMESTER VI
Optimization Theory
Topology
Special Functions
Formal Languages and Automata Theory
Calculus of Variations
Seminar
Project (for Exit-option students)

SEMESTER VII
Advanced Algebra
Advanced Real Analysis
Ordinary Differential Equations
Stochastic Process
Mathematics Lab
Elective I

SEMESTER VIII
Advanced Complex Analysis
Advanced Topology
Partial Differential Equations
Measure Theory
Numerical Analysis
Numerical Computations Lab

SEMESTER IX
Advanced Graph Theory

Functional Analysis
Basic Fluid Dynamics
Elective II
Elective III
Seminar

SEMESTER X
Operator Theory
Elective IV
Dissertation

ELECTIVES (any one Stream)

Algebra Stream
Algebraic Geometry
Algebraic Topology
Coding Theory
Commutative Algebra
Lie Algebra
Theory of Manifolds
Linear Algebra and its Applications

Analysis Stream
Fixed Point Theory
Fractals
Harmonic Analysis
Nonlinear Partial Differential Equations
Wavelet Analysis
Mathematical Physics

Statistics Stream
Queuing Theory and Inventory Control Theory
Statistical Pattern Classifications
Statistical Quality Control and Six Sigma Quality Analysis
Theory of Sampling and Design of Experiments
Time Series Analysis
Statistical Techniques for Data Analytics

Fluid Mechanics Stream
Advance Boundary Layer Theory
Computational Fluid Dynamics

Finite Element Methods
Magneto-Hydro Dynamics
Mathematical Foundations of Incompressible Fluid Flow
Introduction to Fluid Dynamics

COMPUTER STREAM

Data Structures & Algorithms
Algorithms For Advanced Computing
Computer Aided Design of VLSI Circuits
Cryptography
Fuzzy Sets and its Applications
Introduction to Soft Computing
Object-Oriented Programming and Python