

COURSE CURRICULUM FRAMEWORK UNDER AUTONOMY

Program: B.Sc.

Department: Mathematics

Semester V		
Course code	Course Title	Credits
SMAT501	Integral Calculus 1) Multiple Integral 2) Line Integral 3) Surface Integral	4
SMAT502	Abstract Algebra-I 1) Introduction to Groups 2) Group Homomorphism 3) Normal and quotient groups	4
SMAT503	Metric Spaces-I 1) Introduction to Metric Spaces 2) Open and Closed sets 3) Sequences in a Metric Space	4
SMAT504	Data Analytics-III 1) Introduction to Data Processing 2) Supervised and unsupervised Machine Learning 3) Principle component analysis	4
SMAT5PR1	Based on SMAT501 AND SMAT502	4
SMAT5PR2	Based on SMAT503 AND SMAT504	4
SMAT5AC	Python and R-programming-I 1) Introduction to codes using Python 2) Loops and control statements 3) Introduction to R programming 4) Statistical modeling and Graphics	2.5
SMAT5ACPR	Based on SMAT5AC	2.5
Semester VI		
SMAT601	Real and Complex Analysis 1) Sequences and series of functions 2) Introduction to complex analysis 3) Complex power series	4
SMAT602	Abstract Algebra-II 1) Introduction to Ring Theory 2) Ring Homomorphism 3) Polynomial rings and factorization	4
SMAT603	Metric Spaces-II 1) Continuity 2) Completeness 3) Connectedness	4
SMAT604	Data Analytics-II 1) Introduction to AI	4

	2) Introduction to Neural Networks 3) ANN, CNN, RNN	
SMAT6PR1	Based on SMAT601 AND SMAT602	4
SMAT6PR2	Based on SMAT603 AND SMAT604	4
SMAT6AC	Python and R-programming-II 1) Functions and Modules in Python 2) Object Oriented programming 3) Descriptive Statistics using R 4) Regression using R	2.5
SMATACPR	Based on SMAT6AC	2.5
Semester-III		
SMAT301	Calculus-III 1) Series of real numbers 2) Multivariate calculus 3) Second order differential equations	3
SMAT302	Linear Algebra-I 1) Vector spaces and subspaces 2) Linear transformations 3) Determinants	3
SMAT303	Data Analytics-I 1) Measures of central tendency and dispersion 2) Discrete probability distribution 3) Continuous probability distribution	3
SMAT3PR	Based on SMAT301, SMAT302, SMAT303	2.5
Semester-IV		
SMAT401	Calculus-IV 1) Riemann Integration 2) Application of Riemann Integration 3) Beta and Gamma functions	3
SMAT402	Linear Algebra-II 1) Inner Product Spaces 2) Eigen-values and Eigen-vectors 3) Diagonalization	3
SMAT403	Data Analytics-II 1) Testing of Statistical Hypothesis 2) Statistical Learning 3) Supervised and unsupervised learning	3
SMAT3PR	Based on SMAT401, SMAT402, SMAT403	2.5
Semester-I		
SMAT101	Calculus-I 1) Real number system 2) Sequences	2

	3) First Order Differential Equations	
SMAT102	Algebra-I 1) Sets and functions 2) Divisibility in Integers 3) Congruence	2
SMAT1PR	Based on SMAT101, SMAT102	2
Semester-II		
SMAT201	Calculus-II 1) Continuous Functions 2) Differentiable Functions 3) Application of differentiability	2
SMAT202	Algebra-II 1) System of Linear Equations 2) Permutations 3) Polynomials	2
SMAT2PR	Based on SMAT201, SMAT202	2