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**