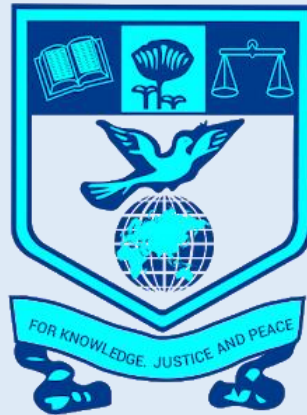# NEHRU MEMORIAL COLLEGE

(AUTONOMOUS)

NATIONALLY ACCREDITED WITH "A" GRADE BY NAAC

PUTHANAMPATTI, TRICHY – 621007

Mathematics

1.1.1 Curricula developed and implemented have relevance to the local, national, regional and global developmental needs

Name of the Programme	Course code	Title of Course	Need	Description
B. Sc. Mathematics	19M101	CC I – Calculus	Global	Derivatives are used to predict the shapes of curves, direction at any point of the curve and convex or concave nature of the curve
B. Sc. Mathematics	19M102	CC II – Trigonometry and Algebra	Global	Basic knowledge of circular and hyperbolic functions is needed to study problems in Science, Engineering and medical imaging and diagnosis.
B. Sc. Mathematics	19M205	CC III – Differential Equations and its Applications	Global	Modeling real life problems through ordinary differential equations and partial differential equations
B. Sc. Mathematics	19M206	CC IV – Laplace Transforms and Summation of Series	Global	Application of Laplace transform technique to solve linear ordinary differential equations and system of linear differential equations
B. Sc. Mathematics	19M308	CC V – Analytical Solid Geometry	Global	Basic knowledge of two dimensional and three dimensional figures is needed to study the concepts in vector calculus, statics, dynamics, fluid dynamics etc.,
B. Sc. Mathematics	19M411	CC VI – Vector Calculus , Fourier Series & Fourier Transforms	Global	Applications of Greens theorem, Divergence theorem and Stokes theorem in physics and engineering. Fourier Series and Fourier Transform techniques are used to solve partial differential equations and digital communication systems

B. Sc. Mathematics	19M412	CC VII– Numerical Methods	Global	Numerical methods are used to solve transcendental and algebraic system of equations
B. Sc. Mathematics	19M514	CC VIII – Modern Algebra	Global	Algebraic structures like groups, rings, fields and vector spaces are needed to study advanced algebra and related applied fields like field theory,cryptography,organic chemistry etc.,
B. Sc. Mathematics	19M515	CC IX – Real Analysis I	Global	Thorough knowledge of basic real analysis needed to study topics like continuity, differentiability and integrability.
B. Sc. Mathematics	19M516	CC X – Mechanics	Global	Fundamental ideas of statics and dynamics are very much important to study classical and fluid dynamics
B. Sc. Mathematics	19M517	CC XI – Graph Theory	Global	Study the fundamental and essential concepts of graph theory
B. Sc. Mathematics	19M619	CC XII – Real Analysis II	Global	Basic concepts needed to study Riemann integrals and Lebesgue integrals
B. Sc. Mathematics	19M620	CC XIII – Complex Analysis	Global	The concepts of analyticity and evaluation of contour integrals
B. Sc. Mathematics	19M621	CC XIV- Discrete Mathematics	Global	Acquiring the knowledge of propositional and predicate calculus ,logic, lattices and Boolean algebraic concepts is needed to study automation theory

B. Sc. Mathematics	19M622	CC XV – Mathematical Modeling	Global	Prediction of solutions to real life problems through Mathematical Modeling
B. Sc. Mathematics	19XM21L	SKBC I – MS Office	National	Preparing documents
B. Sc. Mathematics	19XM32L	SKBC II – SCI-LAB	Global	Learning the computational software essential for problem solving and Optimization
B. Sc. Mathematics	19M4N1	NMEC I – Quantitative Aptitude I	Regional	To practice the problems of competitive examinations
B. Sc. Mathematics	19M5N2	NMEC II – Quantitative Aptitude II	Regional	To practice the problems of competitive examinations
B. Sc. Mathematics	19M309A	AC IV – Probability Theory	Global	Basic Knowledge of discrete and continuous random variable, expectation and distributions needed to study advance probability theory
B. Sc. Mathematics	19M310A	AC V – Statistical Methods	Global	Techniques needed for data analysis
B. Sc. Mathematics	19M413AL	AC VI – R Programming Lab	Global	Programming language for data analysis
B. Sc. Mathematics	19M518aT/ L	EC I – Programming in C with Lab	Global	Developing programming skill
B. Sc. Mathematics	19M518b	EC I – Fuzzy Theory	National	The concepts of fuzzy set and its applications needed in fuzzy decision making
B. Sc. Mathematics	19M623a	EC II – Operations Research	Global	Optimization of LPP, Solving Transportation, Assignment problems and Job Sequencing problems

B. Sc. Mathematics	19M623b	EC II – Astronomy	Global	The basic astronomy concepts needed to solve Kepler' equation, finding lunar and solar eclipse
B. Sc. Mathematics	19M624aT/ L	EC III – Object Oriented Programming in C++ with Lab	Global	Developing programming skill
B. Sc. Mathematics	19M624b	EC III – Number Theory	Global	Understanding the algorithms in number theoretic functions
B. Sc. Mathematics	19EXC1L	EXC I –GIMP Lab	Local	Image editing
B. Sc. Mathematics	19EXC2L	EXC II – Inkscape Lab	National	Drawing the graphs and figures
B. Sc. Mathematics	19EXC3	EXC III – Mathematics for Competitive Examinations	National	To practice aptitude problems
B. Sc. Mathematics	19EXC4L	EXC IV – LaTeX Lab	Global	Documentation practice
B. Sc. Mathematics	19EXC5T/L	EXC V – Basic Accountancy	National	Preparing various accounts with computerized practical's
B. Sc. Mathematics	19EXC6	EXC VI – Group Project (Using C, C++)	Local	To do innovative projects
B Sc., Physics / Chemistry	19P103A/19 Y103A	AC I - Allied Mathematics I	Global	Multiple Integral and Fourier series used in Mathematical Physics
B Sc., Physics / Chemistry	19P104A/19 Y104A	AC II - Allied Mathematics II	Global	The concept of optimization of functions of more than one variable is used in mathematical physics / chemistry

B Sc., Physics / Chemistry	19P206A/19Y206A	AC III - Allied Mathematics III	Global	Differential equations and Laplace transform, derivative of integrals, vector differentiation and integration are used in solving the problems in mathematical physics and chemistry
B Sc., Computer Science	19S103A	AC I - Basic Mathematics	Global	Laplace transform used to solve ODE
B Sc., Computer Science	19S104A	AC II - Operation Research	Global	Optimization of LPP, Solving Transportation, Assignment problems and Job Sequencing problems
B Sc., Computer Science	19S207A	AC III - Numerical and Statistical Methods	Global	Numerical methods are used to solve transcendental and algebraic system of equations
BCA	19A103A	AC I - Statistical Method	Global	Statistical methods are used to solve transcendental and algebraic system of equations
BCA	19A104A	AC II - Operation Research for Computer Applications	Global	Optimization technique needed for solving OR problems
BCA	19A207A	AC III - Algebra and Calculus	Global	The concept of algebra and calculus used to solve Laplace transforms
BBA	19B411A	AC - Operation Research	Global	Optimization of LPP, Solving Transportation, Assignment problems and Job Sequencing problems
M.Sc. Mathematics	19PM101	Linear Algebra	Global	To study the Linear Transformation and elementary matrix
M.Sc. Mathematics	19PM102	Real Analysis-I	Global	To study the behavior of real numbers

M.Sc. Mathematics	19PM103	Ordinary Differential Equation	Global	Solving the system of first and second order equations
M.Sc. Mathematics	19PM104	Integral Equations, Calculus of variations and Fourier Transforms	Global	To study the variation problems on fixed and moving boundaries
M.Sc. Mathematics	19PM105	Classical Dynamics	Global	To gain the knowledge of the Mechanical system
M.Sc. Mathematics	19PM206	Algebra	Global	Learning advanced concept of Group theory and Ring theory
M.Sc. Mathematics	19PM207	Real Analysis-II	Global	Evaluating the directional derivative, total derivative and Jacobian functions
M.Sc. Mathematics	19PM208	Topology	Global	The concept of continuity, connectedness and compactness are used to study Topological spaces and their properties
M.Sc. Mathematics	19PM209	Partial Differential Equation	National	Solving bounded value problems
M.Sc. Mathematics	19PM310	Complex Analysis	Global	To study advanced topics in singularities and maximum principal
M.Sc. Mathematics	19PM311	Differential Geometry	Global	Tangent spaces, Gauss map, Geodesics on surfaces are examined and studied
M.Sc. Mathematics	19PM312	Measure Theory and Integration	Global	The study of lebesgue measure
M.Sc. Mathematics	19PM313EA	Number Theory	Global	Understanding the algorithms in number theoretic functions

M.Sc. Mathematics	19PM313EB	Fuzzy Mathematics	Global	The concepts of fuzzy set and its applications needed in fuzzy decision making
M.Sc. Mathematics	19PM313EC	Graph Theory	National	Study the fundamental and essential concepts of graph theory
M.Sc. Mathematics	19PM414	Functional Analysis	Global	The concept of normed spaces are used in spectral theory
M.Sc. Mathematics	19PM415	Stochastic process	National	Markov process and queuing models are used to solve the real life problems
M.Sc. Mathematics	19PM313ED	Numerical Analysis	National	Solving mathematical problems by using quantitative approximation
M.Sc. Mathematics	19PM416EA	Optimization Techniques	National	Solving integer dynamic and nonlinear programming problems
M.Sc. Mathematics	19PM416EB	Probability Theory	National	The concept of random variables used for finding estimation
M.Sc. Mathematics	19PM416EC	Coding Theory	National	The coding concepts are used to write linear block codes, cyclic codes, rings and polynomial codes
M.Sc. Mathematics	19PM416ED	Fluid Dynamics	Global	To study the applications of complex analysis in the flow of fluids
M.Sc. Mathematics	OEC1	Mathematical Modeling and Simulation	National	Prediction of solutions to real life problems through Mathematical Modeling
M.Sc. Mathematics	OEC2	Statics	Local	Fundamental ideas of statics and dynamics are very much important to study classical and fluid dynamics