PROGRAMME SPECIFIC OUTCOMES (PSO)

MATHEMATICS (HONOURS)

2018-2019

PSO1: At the end of the course the students are capable of applying mathematical modelling as required in various subjects such as physical sciences, economics and business studies.

PSO2: The students are capable of expressing and formulating applied problems in terms of mathematical and statistical languages.

PSO3: The students are able to use computational and algorithmic versions to solve real life problems.

PSO4: The students study mathematical logic which develops the spirit of analytical thinking in them.

PROGRAMME OUTCOMES (PO)

MATHEMATICS (HONOURS)

2018-2019

	PROGRAMME OUTCOME	DESCRIPTION
PO$_1$	Critical Thinking	Upon completion of the course in mathematics the student will understand the fundamental role of the concepts of limit, continuity, derivability and apply them in solving problems arising in physical and social sciences.
PO$_2$	Effective Communication	The language of mathematics is the universal language to formulate, analyze, and derive conclusions of problems solvable through traditional as well as computational methods.
PO$_3$	Social Interaction	The student will be able to identify and describe the underlying principles behind mathematical techniques relevant to academia, industry and government.
PO$_4$	Ethics	Students will appreciate the central role of mathematics in our society and use this as a basis for ethical behaviour in issues facing mathematicians including an understanding of rational handling of modern computational and numerical methods, environmental issues and key issues facing our society in energy and bio mathematical modelling.
PO$_5$	Environment and Sustainability	Mathematics is crucial to finding sustainable solutions to far-reaching challenges, including space science, earth sciences, healthcare and environmental protection.
PO$_6$	Self-directed and Life-long Learning	Mathematics plays the key role to facilitate the evolution of our modern society. This area helps B.Sc. mathematics graduates to express theoretical and applied concepts through effective writing and oral communication skills.

COURSE OUTCOMES (CO)

MATHEMATICS(HONOURS)

2018-2019

MODULE	PAPER		COURSE OUTCOME
MI	Classical Algebra	CO1	Integers, Complex Numbers, Polynomials, Theory of Equations, Inequalities
MI,MIV MV,MX	Abstract and Linear Algebra	CO2	Set, mapping and algebraic structure, Group, Ring, Field, Vector Space, Linear Transformation and Theory of Matrices, Homomorphism and Isomorphism of Groups
MII	Analytical Geometry of Two Dimensions	CO3	Transformation of axes, Invariants,General Equation of Second Degree, Classification of Conics, Pair of Straight Lines, Polar Equation,Circle,Parabola,Ellipse,Hyperbola
MII, MVIII	Analytical Geometry of Three Dimensions	CO4	Coordinates in space,Equation of Plane,Straibht lines in space,Sphere,Cone,Cylinder,Ellipsoid,Hyperboloid,Paraboloid, Tangent Planes,Normals,Enveloping Cone,Surface of Revolution,Transformation of rectangular axes,Cylindrical,Polar and Spherical polar coordinates
MII	Vector Algebra	CO5	Vector and Scalar,Position Vector,Product of two or more vectors,Applications of Vector algebra
MIII, MVI, MIX, MXIII	Analysis	CO6	Real number system,Sets in R,Sequence,Countability of sets,Continuity,Infinite Series,Derivatives,Compactness,Riemann integration,Sequence and Series of functions,Multivariate Calculus
MIV, MXI	Vector Calculus	CO7	Vector differentiation and applications,Scalar and Vector fields,Gradient,Divergence,Curl,Laplacian,Greens theorem,Stoke's theorem ,Divergence theorem
MVI, MX	Differential Equations	CO8	Significance of ODE,Equations of first order and first degree,first order linear equations,Equations of first order but not of first degree,Orthogonal trajectory,Higher order linear equations ,Eigen value problems,Simultaneous linear ODE,PDE
MV	LPP & Game Theory	CO9	Definition and formation of LPP,Hyperplane and Convex set,Simplex method,Two phase method,Duality,Transportation & Assignment,Game Theory
MVIII, MXI	Analytical Statics	CO10	Friction,Astatic Equilibrium,C.G.,Virtual work,Stable and unstable equilibrium,Forces in three dimensions
MVIII, MXI	Analytical Dynamics of a particle	CO11	Newton's laws,SHM,Work and Power,Impact of elastic bodies,Tangent and normal acceleration,Radial and cross-radial acceleration,Damped SHM,Projectile in a resisting medium,Central forces,Kepler's laws,Varying mass,Dynamical Systems

MXII	Hydrostatics	CO12	Perfect fluid,pressure,Centre of Pressure,Equilibrium of fluids,Rotating fluids,Floating bodies,Pressure of gases
MXII	Rigid Dynamics	CO13	Equimomental system,Motion about a fixed axis,Motion in two dimension,Impulsive forces
MXIV	Probability &Statistics	CO14	Mathematical Probability and mathematical statistics
MXV	Numerical Analysis	CO15	Errors,Operators,Interpolation,numerical differentiation and integration,solution of nonlinear equations,system of linear equations,eigen value problems,numerical solution of ODE
MXV	Computer programming	CO16	Computer fundamentals,Programming with FORTRAN or C
MXVI	Practical	CO17	Numerical analysis using calculator and computer programming