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MATHEMATICS

Course Specific Outcomes

Class	Subject	Learning Outcome
F. Y. BSc -I	Matrix Algebra	1. understand concepts on matrix operations and rank of the matrix. 2. understand use of matrix for solving the system of linear equations. 3. understand basic knowledge of the eigen values and eigen vectors. 4. apply Cayley-Hamilton theorem to find the inverse of the matrix. 5. know the matrix transformation and its applications in rotation, reflection, translation
F. Y. BSc -I	Calculus	1. understand basic concepts on limits and continuity. 2. understand use of differentiations in various theorems. 3. know the Mean value theorems and its applications. 4. make the applications of Taylor's, Maclaurin's theorem. 5. know the applications of calculus 6. understand basic concepts on limits and continuity. 7. understand use of differentiations in various theorems. 8. know the Mean value theorems and its applications. 9. make the applications of Taylor's, Maclaurin's theorem. 10. know the applications of calculus
F. Y. BSc -I	Co-ordinate Geometry	1. Students can visualize geometrical concepts and draw two dimensional figures and can find their standard forms by shifting and rotation of axes. 2. Students also can draw three dimensional figures and their equations particularly Sphere, Cone and Cylinder
F. Y. BSc -II	Ordinary Differential Equation	1. understand basic concepts in differential equations. 2. understand method of solving differential equations 3. understand use of differential equations in various fields.
F. Y. BSc -II	Theory of Equation	1. Students can find out roots of any equation of degree less than or equal to five. 2. Theory of equations is highly useful in various subjects like algebra, linear algebra, calculus, ordinary and partial differential equations etc.

F. Y. BSc -II	Laplace Transformation	1. understand basic concepts on Laplace and Inverse Laplace transforms. 2. Understand convolution theorem. 3. understand use of Laplace transform in solving Differential Equations.
S. Y. BSc -III	Calculus of Several Variables	1. limit and continuity of functions of several variables 2. fundamental concepts of multivariable Calculus. 3. series expansion of functions. 4. extreme points of function and their maximum, minimum values at those points. 5. meaning of definite integral as limit as sums. 6. how to solve double and triple integration and use them to find area by double integration and volume by triple integration.
S. Y. BSc -III	Group Theory	1. understand group and their types which is one of the building blocks of pure and applied mathematics. 2. understand Lagarnge, Euler and Fermat theorem 3. understand concept of automorphism of groups 4. understand concepts of homomorphism and isomorphism 5. understand basic properties of rings and their types such as integral domain and field.
S. Y. BSc -III	Set theory and logic	1. Uses of the language of set theory, designing issues in different subjects of mathematics 2. understand the issues associated with different types of finite and infinite sets via countable uncountable sets 3. knowledge of the concepts and methods of mathematical logic, set theory, relation calculus, and concepts concerning functions which are included in the fundamentals of various disciplines of mathematics 4. understanding the role of propositional and predicate calculus 5. able to provide the logical mathematical reasoning, formulate theorems and definitions
S. Y. BSc -IV	Complex Variables	1. The course is aimed to introduce the theory for functions of complex variables 2. Students will understand the concept of analytic function 3. Students will understand the Cauchy Riemann Equations 4. Students will understand harmonic functions 5. Students will understand complex integrations 6. Students will understand calculus of residues. 7. Students will acquire the skill of contour integrations.

S. Y. BSc -IV	Differential Equation	1. Students will aware of formation of differential equations and their solutions 2. Students will understand the concept of Lipschitz condition 3. Students will understand method of variation of parameters for second order L.D.E. 4. Students will understand simultaneous linear differential equations and method of their solutions 5. Students will understand Pfaffian differential equations and method of their solutions 6. Students will understand difference equations and their solutions
S. Y. BSc -IV	Vector Algebra	1. understand scalar and vector products 2. understand vector valued functions and their limits and continuity and use them to estimate velocity and acceleration of partials. 3. Calculate the curl and divergence of a vector field. 4. Set up and evaluate line integrals of functions along curves.