



MANGALORE INSTITUTE OF TECHNOLOGY AND ENGINEERING
(An ISO 9001:2015 Certified Institution)
Department of Mathematics
2021 SCHEME

Course Title : Calculus and Differential Equations

Course Code : 21MAT11

Course Index : C101

COURSE OUTCOMES (CO): At the end of the course the student will be able to:

CO	Course Outcome
C101.1	Apply the knowledge of calculus to solve problems related to polar curves and its applications in determining the bentness of a curve.
C101.2	Learn the notion of partial differentiation to calculate rates of change of multivariate functions and solve problems related to composite functions and Jacobians.
C101.3	Solve first order linear/nonlinear differential equations analytically using standard methods.
C101.4	Demonstrate various models through higher order differential equations and solve such linear ordinary differential equations.
C101.5	Test the consistency of a system of linear equations and to solve them by direct and iterative methods.

Course Title : Advanced Calculus and Numerical Methods

Course Code : 21MAT21

Course Index : C110

COURSE OUTCOMES (CO): At the end of the course the student will be able to:

CO	Course Outcome
C110.1	Apply the concept of change of order of integration and change of variables to evaluate multiple integrals and their usage in computing the area and volume.
C110.2	Illustrate the applications of multivariate calculus to understand the solenoidal and irrotational vectors and exhibit the inter dependence of line, surface and volume integrals.
C110.3	Formulate physical problems to partial differential equations and to obtain solution for standard practical PDE's.
C110.4	Apply the knowledge of numerical methods in the modelling of various physical and Engineering phenomena.
C110.5	Solve first order ordinary differential equations arising in Engineering problems.

Course Title : Transform Calculus, Fourier Series & Numerical Techniques

Course Code : 21MAT31

Course Index : C201

COURSE OUTCOMES (CO): At the end of the course the student will be able to:

CO	Course Outcome
C201.1	Solve ordinary differential equations using Laplace transform.
C201.2	Demonstrate Fourier series to study the behavior of periodic functions and their applications in system communications, digital signal processing and field theory.
C201.3	Make use of Fourier transform to analyze problems involving continuous time signals and to apply Z-transform techniques to solve difference equations.
C201.4	Solve Mathematical models represented by initial or boundary value problems involving partial differential equations.
C201.5	Determine the extremum of functionals using Calculus of Variations and solve problems arising in dynamics of rigid bodies and vibrational analysis.

Course Title : Mathematical Foundation for Computing, Probability & Statistics

Course Code : 21MATCS41 (For Computer Science Stream)

Course Index : C210

COURSE OUTCOMES (CO): At the end of the course the student will be able to:

CO	Course Outcome
C210.1	Apply the concepts of logic for effective computation and relating problems in the Engineering domain.
C210.2	Analyze the concepts of functions and relations to various fields of Engineering. Comprehend the concepts of Graph Theory for various applications of Computational sciences.
C210.3	Apply the discrete and continuous probability distributions to solve the probability models arising in engineering field.
C210.4	Make use of the correlation and regression analysis to fit a suitable mathematical model for the statistical data.
C210.5	Construct joint probability distributions and demonstrate the validity of testing the hypothesis.

Course Title : Complex Analysis, Probability and Statistical Methods

Course Code : 21MAT41 (For Electronics and Communication Branch)

Course Index : C210

COURSE OUTCOMES (CO): At the end of the course the student will be able to:

CO	Course Outcome
C210.1	Use the concepts of analytic function and complex potentials to solve the problems arising in electromagnetic field theory.
C210.2	Utilize conformal transformation and complex integral arising in aero foil theory, fluid flow visualization and image processing.

C210.3	Apply discrete and continuous probability distributions in analyzing the probability models arising in the Engineering field.
C210.4	Make use of the correlation and regression analysis to fit a suitable Mathematical model for the statistical data. Construct joint probability distributions.
C210.5	Demonstrate the validity of testing the hypothesis.

Course Title : Complex Analysis, Probability and Linear Programming

Course Code : 21MATME41 (For Mechanical Stream)

Course Index : C210

COURSE OUTCOMES (CO): At the end of the course the student will be able to:

CO	Course Outcome
C210.1	Use the concepts of analytic function and complex potentials to solve the problems arising in fluid flow.
C210.2	a) Understand the concept of conformal transformation and solve the problems on bilinear transformation. b) Apply the concept of line integral to solve the problems on Cauchy theorem and Cauchy integrals.
C210.3	Apply the discrete and continuous probability distributions to solve the probability models arising in the engineering field.
C210.4	Formulate linear programming problems and solve them by the simplex method.
C210.5	Solve transportation and assignment problems.