COURSE OUTCOMES

I-YEAR SEMESTER-I PAPER-I

Course Title:Differential and Integral calculus

On Completion of this course the students will be able to:

- Define ordinary and partial differential equation.
- Understand Euler's theorem for homogeneous functions.
- Find radius of curvature and centre of curvature.
- Find maxima and minima of function of two variables.
- Evaluate the volume of solids using cross sections.
- Evaluate the area of surfaces of revolution.
- Calculate the length of an arc of a curve when whose equations are given in parametric and polar form.

I-YEAR SEMESTER-II PAPER-II

Course Title:Differential Equations

On successful completion of the course, Students will be able to:

- Define differential equation,order and degree of the differential equation.
- Solve first order differential equation, utilizing standard techniques of a seperable ,exact and linear homogeneous equations
- Find complete solution of non homogeneous differential equations as linear combination of complementary function and particular solution.
- Students will have a working knowledge of basic application problems described by second order linear differential equations with constant coefficient.
- Identify different types of differential equations and solve them.
- Solve the partial differential equation using lagrange's method

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II-YEAR SEMESTER-III PAPER-III

Course Title:Real Analysis

After completing the course students are expected to be able to:

- Describe the basic difference between the rational and realnumbers.
- Give the difination of concepts related to metric spaces such ascontinuity
  - , compactness, convergent etc.
- Give the essence of the proof of bolzanoweistrass theorem thecontraction theorem as well as existence of convergent subsequence using equicontinuity.
- Evaluate the limits of wide class of realsequences.
- Determine whether or not real series are convergent by comparisionwith standard series or using the ratiotest.
- Understand and perform simpleproofs.
- Students will be able to demonstrate basic knowledge of key topics in classical realanalysis.
- The course pervious the basic for further studies with in functionanalysis, topology & functionTheory.

II-YEAR SEMESTER-IV PAPER-IV

Course Title:Abstract Algebra

After completing the course students are expected to be able to:

- Learn about the fundamentals concept of Groups, Sub groups,normal
- subgroups, isomorphism theorems, Cyclic and permutationsgroups
- To classify numbers into numbersets
- To combine Polynomial by Addition orSubtraction
- To Solve problems of simpleinequalities
- Interpret basic absolute valueExpression
- To simplify algebraic expression using the commutative, Associativeand distributiveProperties

III-YEARSEMESTER-V PAPER-V

COURSE TITLE:LINEAR ALGEBRA

After completing the course students are expected to be able to:

- Define vector space andsubspace
- Understand the concept of base and dimension of thevectorspace
- Understand algebraic and geometric representations ofvectors
- Describes coordinates of a vector relative to a givenbasis
- Discuss spanning sets s forvectors
- Use characteristic polynomial to compute eigenvalues and eigenvectors
- Explain the relationship between the row space and column space ofa matrix
- Recognize and use basic properties of subspaces and vectorspace

COURSETITLE:SOLIDGEOMETRY PAPER:VI(A)

After completing the course students are expected to be able to:

- To understand geometrical terminology for sphere,cones,concoidand cylinder.
- Able to recognize line and rotationalsymmetries.
- Use geometric results to determine unknownangles.
- Get basic knowledge about circle, cone ,sphere , concoid andcylinder.
- Understand the concepts and advance topics related to two andthree dimensional geometry.
- Find the area of triangles, quadrilaterals and circles and shapes basedon these.

SEMESTER:VI PAPER:VII

COURSE TITLE:NUMERICAL ANALYSIS

After completing the course students are expected to be able to:

- The theoretical and practical aspects of the use of numericalanalysis.
- Proficient in implementing numerical methods for a varietyof multidisciplinary applications.
- To establish the limitations, advantages,and disadvantages ofnumerical analysis.
- To derive numerical methods for various mathematical operations and tasks, such 5.As interpolation, differentiation,integration, the solution of linear and non linear equations, and the solution of differentialequations.
- To understand of common numerical analysis and how they are usedto obtain approximate solution to otherwise intractable mathematical problems.
- To understand appropriate numerical methods to solve probability basedproblems.

SEMESTER:VI PAPER:VIII(A)

COURSE TITLE:VECTOR CALCULUS

After completing the course students are expected to be able to:

- Define vector equations for lines andplanes
- Compute limits or derivatives of functions of two and threevariables
- Analyze vector functions to find limits,derivatives andintegrals
- Determine gradient vector fields and find potentialfunction
- Apply fundamental theorem of line integrals,green,s anddivergence theorem to evaluateintegrals
- Compute partial derivatives,derivatives of vector valued functionand gradient functions
- Calculate directional derivatives andgradient
- Explain the concept of conservative vector field anddescribes applications tophysics

Course Title	HPW
Linear Algebra and Vector Calculus	3T+3P

III- YEAR PAPER III [ANNUAL]

On successful completion of the course, students will be able to:

- Understand the combination of two important aspects ofmodern mathematics via **Linear Algebra** and **VectorCalculus.**
- Linear Algebra emphasizes the concept of vector spaces and linear transformations which are essential in simplifying variousscientific problems.
- It aims at inculcating problem solving skills within students toenable them compute large linearsystems.
- The practical applicationsof"LinearAlgebra" are in demography, archaeology, electricalengineering,fractalgeometry and traffic analysis.
- Vector calculus motivates the study of vector differentiationand integration in two and three dimensionalspaces.
- Itiswidelyaccepted as a prerequisite in various fields of science and engineering.
- It offers important tools for understanding functions (both real& complex) non-Euclidean geometry andtopology.
- These tools are employed successfully in different branches of engineering and physics (such as electromagnetic fields, fluid flow and gravitationalfields).

Course Title	HPW
Numerical Analysis	3T+3P

III-YEAR PAPER IV[ANNUAL]

On successful completion of the course, students will be able to:

- Solve an algebraic or transcendental equation using anappropriate numerical method
- Approximate a function using an appropriate numericalmethod.
- 3.Solve a differential equation using an approximate numericalmethod
- Evaluate a derivative at a value using an appropriate numericalmethod
- Solve a linear system of equations using an appropriate numericalmethod
- Perform an error analysis for a given numericalmethod
- Prove results for numerical root findingmethods
- Calculate a definite integral using an appropriate numericalmethod
- Code a numerical method in a modern computerlanguage.

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