

LESSON PLAN (DR. SUDESH RATHI)

VECTOR CALCULUS (B.A/B.SC Sem 2) (2022-23)

Week 1 Scalar and vector product of three vectors, Product of four vectors, Reciprocal vectors

Week 2 vector differentiation, scalar valued & vector valued point functions.

Week 3 Derivative along a curve, directional derivatives, assignment

Week 4 Gradient of a scalar point function

Week 5 Div and ~~gradient~~ and curl of vector point functions., Test

Week 6 Examples & Exercise discussion of weeks

Week 7 Laplacian operator and related sums.

Week 8 orthogonal curvilinear coordinates, condition for orthogonality., assignment

Week 9 & 10 Gradient, Div, curl & Laplacian operator in terms of orthogonal curvilinear coordinates, cylindrical coordinates, Spherical coordinates.

Week 11 vector Integration, line integration

Week 12 Surface Integral, volume Integral

Week 13 Theorems of Green, Gauss, Stokes & Sums based on them.

Week 14 Revision

Sudesh
(Dr. Sudesh Rathia)

- Week 1 Jacobians, Beta function
- Week 2 Gamma function, Double Integral
- Week 3 Triple Integral, Dirichlet's Integral,
- Week 4 Change of order of Integration, Test
- Week 5 Fourier series
- Week 6 Parseval's Identity, Fourier series for odd and even functions
- Week 7 Half range series, Change of Intervals.
- Week 8 Extended complex plane, stereographic presentation of complex nos., Assignment
- Week 9 Continuity of & Diff. of Complex functions
- Week 10 Analytic functions, C.R. equations, Harmonic function
- Week 11 Translation, magnification and inversion mapping, Assignment
- Week 12 Conformal mappings, Mobius transformation
- Week 13 Fixed points, Cross Ratio, Inverse points
- Week 14 Critical mappings. Test.


(Dr. Sudesh Rather)

SYLLABUS PLAN (DR. SUDESH RATHEE) 2022-23
(B.A/B.SC Sem 6) DYNAMICS

- week 1 velocity and acceleration along radial, tangential, transverse, tangential and normal directions.
- week 2 Relative velocity and acceleration
- week 3 Simple Harmonic motion
- week 4 Elastic Strings, Assignment
- week 5 mass, momentum & force
- week 6 Newton's Laws of motion
- week 7 Work power and energy, Test
- week 8 motion on smooth & rough Plane curves
- week 9 Projectile motion of a particle in a plane
- week 10 vector angular velocity.
- week 11 General motion of a rigid body, Assign
Central orbits
- week 12 Kepler's law of motion, Test
- week 13 motion of particle in three dimension
- week 14 Acceleration in terms of different
coordinate systems. , Revision

Sudesh
(Dr. Sudesh Rathee)
Deptt. of Math-S.