

Government College ,Mahendergarh,Haryana,123029

Name of Assistant Professor: Dr.Vijaya Bai

Department of Mathematics

Class and Semester:B.Sc. Semester- 2nd

Session:2021-22

Subject:- Vector Calculus

Lesson Plan:(21, March to 15 June 2022)

Week1 (21 to 26 March)

- Scalar and Vector product of three vectors, Product of four vectors,

Week2 (28 to 31 March)

Reciprocal vectors. Vector differentiation, Scalar valued point functions,

Week3 (1 to 2 April)

Vector valued point functions, derivative along a curve,

Week4 (4 to 9 April)

directional derivatives.

Week5 (11 to 16 April)

Gradient of a scalar point function, geometrical interpretation of grad , character of Gradient as a point function

Week6 (18 to 23 April)

Divergence and curl of vector point function, characters of $\text{div } f$
and $\text{curl } f$ as point function, examples

Week7 (25 to 30 April)

Gradient, divergence and curl of sums and product and
Their related vector identities.

Week8 (2 May to 7 May)

Laplacian operator

Week9 (9 to 14 May)

Orthogonal curvilinear co-ordinates. Conditions for orthogonality. Fundamental triad of mutually orthogonal unit vectors

Week10 (16 to 21 May)

Gradient, divergence, curl and laplacian operators in terms orthogonal curvilinear co-ordinates,

Week11 (23 to 28 May) cylindrical co-ordinates, spherical co-ordinates.

Week12 (30 to 31May)

Vector integration, line integral, surface integral

Week13 (1 to 4 June)

volume integral Theorem of Gauss,

