Departments of Applied Mathematics
Lesson Plan for II Sem. B. Tech. (Common)
Session: 2018-2019
Subject: Mathematics II
Part I: I (Vector Calculus and Fourier series)
Course No.: AMC12101
Number of Lecturers/Tutorials per week: 1-1/3

Sr. No.	Topics	Expected no. of Lectures
1.	Vector Calculus, Scalar and Vector, Level Surfaces, Differentiation of Vectors, Direction Derivatives, Gradient, Divergent, Curl and Physical meaning	4
2.	Vector Operators, Expansion Formula, Line, Surface and Volume Integrals	3
3.	Greens, Gauss and Stokes Theorems, Applications of Vector calculus in engineering problems	2
4.	Orthogonal curvilinear coordinates and expansion of gradient, divergence and curl in curvilinear coordinates	2
5.	Periodic functions, Euler Formula, Dirichlet Conditions, Expansion of Odd and Even functions, Half range sine and cosine series	2
6.	Perseval's formula, Complex form of Fourier series	1
Total		14

Syllabus
Vector Calculus and Fourier series (Part I):   **L-T-P: 1-1/3-0**
Vector Calculus: Scalar and Vector, Level Surfaces, Differentiation of Vectors, Direction derivatives, Gradient, Divergent, Curl and Physical meaning, Vector Operators, Expansion Formula, Line, Surface and Volume Integrals, Greens, Gauss and Stokes Theorem, Applications of Vector calculus in engineering problems, Orthogonal curvilinear coordinates and expansion of gradient, divergence and curl in curvilinear coordinates
Fourier Series: Periodic functions, Euler Formula, Dirichlet Conditions, Expansion of Odd and Even functions, Half range sine and cosine series, Perseval's formula, Complex form of Fourier series.

Reference Books:
1. E-Kreysiz- Advance Mathematics, Wiley Publication, 2009
2. Spiegel-Vector Analysis (Schaum outline series), Tata McGraw Hill, 2001
3. G. F. Simmons- Introduction to Differential Equation and Fourier Series, Tata McGraw Hill, 2007
4. B. S. Grawel Higher Engineering Mathematics

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