LESSON PLAN: (Engg.Mathematics-III)		
Discipline :	**Electrical Engineering**	
Faculty :	**DR. SAURI NARAYAN PRADHAN**	
Semester :	**3RD**	
Duration :	**14 WEEKS (15th September 2022 to 22nd December 2022)**	
Work Load :	**Lecture :**	**4 Lectures per week (50 minutes per Class)**
Week	Week Day	Theory
1st	1st	Complex numbers(Fundamentals, Conjugate, Modulus, Amplitude)
	2nd	Complex numbers(Geometrical Representation and Properties)
	3rd	Complex numbers(Cube root of Unity and its Properties)
	4th	Complex numbers (problems on ω)
2nd	5th	Complex numbers (De Moivre's Theorem)
	6th	Complex numbers (Problems on De Moivre's Theorem)
	7th	Matrices (Rank of a Matrix and Problems)
	8th	Matrices (Elementary row transformation and rank of the matrix)
3rd	9th	Matrices (Rouche' Theorem and consistency of a system of linear equations)
	10th	Matrices (Solving equations in three unknowns testing consistency)
	11th	Differential Equations(Define Homogeneous and non- Homogeneous D.E. with constant coefficients with examples
	12th	Differential Equations(Solutions of Homogeneous Differential Equations, Rules for finding C.F.)
4th	13th	Differential Equations (Problems on Solutions of Homogeneous Differential Equations)
	14th	Differential Equations (Derive rule for finding P.I. f(x) = e^{ax} , f(x) = x^m and problems)
	15th	Differential Equations (Derive rule for finding P.I. f(x) = sin (ax+b)/ cos (ax+b) and problems)
	16th	Differential Equations Derive rule for finding P.I. f(x) = e^{ax}v(x) and problems)
5th	17th	Differential Equations(General solution of non- homogeneous differential equations)
	18th	Differential Equations(Define P.D.E, Formation of P.D.E by eliminating arbitrary constants and arbitrary functions)
	19th	Differential Equations(P.D.E.of the form Pp+ Qq = R)
	20th	Differential Equations (Solve P.D.E.of the form Pp+ Qq = R)
6th	21st	Laplace Transforms (Gamma function and its Problems)
	22nd	Laplace Transforms (Define Laplace Transform and Inverse Laplace Transform, Derivation of L.T.of standard functions)
	23rd	Laplace Transforms (Existence of L.T., Explanation of linear and ist shifting property)
	24th	Laplace Transforms (Problems on Laplace Transforms)
7th	25th	Laplace Transforms (L.T. of derivative, Integrals and its Problems)
	26th	Laplace Transforms (Multiplication by t^n,Division by t and its Problems)

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	27th	Laplace Transforms (Problems on Laplace Transforms)
	28th	Laplace Transforms (Inverse Laplace Transform)
8th	29th	Laplace Transforms (Rules for finding Inverse Laplace Transform)
	30th	Laplace Transforms (Inverse Laplace Transform by Partial Fraction)
	31st	Laplace Transforms (Convolution Theorem and its Problems)
	32nd	Laplace Transforms (Solve problems on Inverse Laplace Transform)
9th	33rd	Fourier Series (Define Periodic function and its examples)
	34th	Fourier Series((Dirichlet' condition for the Fourier expansion of a function and its convergence)
	35th	Fourier Series(Euler' Formula for finding Fourier series)
	36th	Fourier Series (Fourier series of continuous functions)
10th	37th	Fourier Series(Fourier series of functions having point of discontinuity)
	38th	Fourier Series (Problems on Fourier series)
	39th	Fourier Series (F.S. of functions with arbitrary intervals)
	40th	Fourier Series (Problems on F.S. of functions with arbitrary intervals)
11th	41st	Fourier Series (define odd/even function ,Find Fourier series of odd/even function)
	42nd	Fourier Series (Examples on Fourier series of odd/even function)
	43rd	Fourier Series (Half range series and its Problems)
	44th	Fourier Series (Examples on Half range series)
12th	45th	Numerical Methods (Derive iterative formula for finding solutions of Algebric equations by Bi-section formula)
	46th	Numerical Methods (Problems on bi-section method)
	47th	Numerical Methods (Solution by Newton's Raphson method)
	48th	Numerical Methods (Problems on Newton's Raphson method)
13th	49th	Finite difference & Interpolation (Forward and backward difference and its table)
	50th	Finite difference & Interpolation (Shift operator and relation between E, Δ, ∇ and related problems)
	51st	Finite difference & Interpolation (Newton's forward and backward difference formula and its related problems)
	52nd	Finite difference & Interpolation (Lagrange's interpolation formula for unequal intervals and its related problems)
14th	53rd	Finite difference & Interpolation (Newton's cotes formula , Numerical integration by Trapezoidal Rule)
	54th	Finite difference & Interpolation(Numerical integration by simpson 1/3 rule)

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	55th	Finite difference & Interpolation(Problems on Numerical integration)
	56th	Finite difference & Interpolation(Problems on Numerical integration)