

Discipline: Bsc. & H/M	Semester: 3rd	Name of the Teaching Faculty: Sandhya Priya Baral	
Subject: Engg math-III	No. of Days/Week Class Allotted: 4	Semester from date: 15th Sept to	No. of Weeks:
WEEK	Class Day	Theory Topics	
1st 15.09.22 to 17.09.22	1st	Complex numbers: Basics & Real & Imaginary numbers. Introduction of Complex numbers.	
	2nd	Derive Complex numbers & Conjugate Complex numbers.	
	3rd	Modulus & amplitude of a complex number. Geometrical representation of complex no.s & properties.	
	4th		
	5th		
2nd 19.09.22 to 24.09.22	1st	Determination of three cube roots of unity & their properties.	
	2nd	De-Moivre's theorem.	
	3rd	Introduction of matrices & discuss some definitions of matrix.	
	4th	Define rank of a matrix & perform elementary row transformations to determine rank.	
	5th		
3rd 26.09.22 to 1.10.22	1st	Rank of a matrix & state Rouché's theorem for consistency of a system of linear eq ⁿ in n unknown	
	2nd	Solve equations in three unknowns testing consistency.	
	3rd	Introduction of LDE & discuss order & degree of LDE.	
	4th	Discussion homogeneous & non-homogeneous linear differential eq ⁿ s with constant coefficients	
	5th		

WEEK	Class Day	Theory Topics
4th 10-10-22 to 15-10-22	1st	Find general solution of LDE in terms of C.F & P.I. (Introduction)
	2nd	Solve problem based on P.I & C.F.
	3rd	Derive rules for finding C.F in terms of Operator D.
	4th	Derive rules for finding P.I in terms of operator D, excluding $\frac{1}{f(D)} x^n$.
	5th	
5th 17-10-22 to 22-10-22	1st	Introduction of partial differential equations
	2nd	Form PDE by eliminating arbitrary constants
	3rd	Form PDE by eliminating arbitrary functions
	4th	Solve partial DE of the form $Pp + Qq = R$
	5th	
6th 24-10-22 to 29-10-22	1st	Introduction of Laplace transforms.
	2nd	Define gamma functions & $\Gamma(n+1) = n!$ & $\Gamma(1/2) = \sqrt{\pi}$
	3rd	Define Laplace transform of a function $f(t)$
	4th	Introduction of Inverse Laplace transform
	5th	

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Subject:	<i>Engg math- III</i>	No of Days/Week Class Allotted: _____	Semester Limit dates: _____ To _____	No. of Weeks: _____

WEEK	Class Day	Theory Topics
<i>7th</i> <i>31.10.22</i> <i>to</i> <i>05.11.22</i>	1st	Derive L.T of standard fun ⁿ s & explain existence cond ⁿ s of L.T.
	2nd	Explain lineare shifting property of L.T.
	3rd	Formulate L.T of derivatives with examples.
	4th	Formulate L.T of Integrals with examples.
	5th	
<i>8th</i> <i>07.11.22</i> <i>to</i> <i>12.11.22</i>	1st	Multiplication by t^n & division by θ .
	2nd	Convolution theorem (statement & proof)
	3rd	Derive formulae of inverse L.T.
	4th	explain method of partial fractions.
	5th	
<i>9th</i> <i>14.11.22</i> <i>to</i> <i>19.11.22</i>	1st	Introduction of fouriere series & Periodic functions.
	2nd	state Dirichlet's cond ⁿ for the fouriere expansion of a fun ⁿ & it's convergence.
	3rd	express periodic fun ⁿ $f(x)$ satisfying Dirichlet's Cond ⁿ s.
	4th	state Euler's formulae.
	5th	

WEEK	Class Day	Theory Topics
10th 21.11.22 to 26.11.22	1st	Define even functions with examples.
	2nd	Find Fourier series in $(0 \leq x \leq 2\pi \ \& \ -\pi \leq x \leq \pi)$
	3rd	Define odd functions with examples.
	4th	Obtain Fourier series of continuous fcn's.
	5th	
11th 28.11.22 to 03.12.22	1st	Functions having points of discontinuity $(0 \leq x \leq 2\pi \ \& \ -\pi \leq x \leq \pi)$ explain.
	2nd	Solve problems on 5.1 - 5.3
	3rd	Solve problems on 5.3 - 5.6
	4th	Introduction of Numerical methods with examples.
	5th	?
12th 05.12.22 to 10.12.22	1st	Derive iterative formula for finding the sol'n's of algebraic eq'n's.
	2nd	Bisection method (explain & examples)
	3rd	Newton-Raphson's method (explain & with examples)
	4th	Finite difference & interpolation with examples.
	5th	

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WEEK	Class Day	Theory Topics
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130h 12.22 to 1.12.22	1st	Explain finite difference & form table of forward difference with example.
	2nd	Explain backward difference with example.
	3rd	Define shift Operator (E) & difference operator (A)
	4th	Establish relation between E & difference operator (A)
	5th	

140h 1.22.22 to 1.12.22	1st	Derive Newton's forward & backward interpolation formula for equal interval.
	2nd	State Lagrange's interpolation formula for unequal interval.
	3rd	Explain numerical integration.
	4th	Explain Newton's cot's formula with example.
	5th	

150h 22	1st	Derive Trapezoidal rule with examples.
	2nd	Derive Simpson's 1/3 rd rule
	3rd	
	4th	
	5th	