

Name of the discipline → Electrical

Name of the faculty → Jyashna Pradhan

SUBJECT	No. of Classes per week	THIRD SEMESTER
ENGG MATH-III		THEORY
week 1st	1st	MONTH - OCTOBER
		Introduction, Addition of matrix Types of matrix, Minor and Co-factors of matrix.
	2nd	Define Rank of Matrix. with Examples. Singular & Non-singular matrix.
	3rd	Finding the rank of matrix of (3×3) , (3×4) order by determinant method.
	4th	Elementary row transformation to determine the rank of the matrix.
	3rd	Row Reduced Echelon Matrix.
Week 2nd	Class/day 1st	Theory - Rouche's theorem for Consistency of a system of linear equation in n unknowns.
	2nd	Simultaneous linear Homogeneous equation in three unknowns.
	3rd	Non-Homogeneous equation in three unknowns in testing Consistency.
	4th	Introduction (Define diff. equation) Discuss Derivative

2nd	Define Gamma function. find the value of $\Gamma(n)$ in terms of factorial.
3rd	properties of $\Gamma(n)$.
4th	Introduction of Laplace Transfo- -mation of a function $f(t)$, and its application.
5th	Define L.T. of $f(t)$.

MONTH - November

Week 3rd	Class/Day 1st	Existence of Laplace Transform.
2nd		Linearity Property.
3rd		Laplace Transform of some simple functions.
4th		Transform of algebraic polynomial and exponential functions.
5th		First shifting theorem

Week 4th	Class/Day 1st	Theory - November Second shifting theorem.
	2nd	Change of scale property.
	3rd	Table of Laplace Transformations
	4th	Transform of $e^{at} f(t)$, $t^n f(t)$
	5th	Transform of $t f(t)$.

MONTH - DECEMBER

Week 1st	Class/Day 1st	Theory Transform of $f''(t)$ and $\int_0^t f(t) dt$.
	2nd	Inverse Laplace Transform
	3rd	Evaluation of $L^{-1}\{F(s-a)\}$ and $L^{-1}\{e^{-as} F(s)\}$.
	4th	Evaluation of $L^{-1}\{F(s)\}$ by using Convolution theorem.
	5th	Laplace Transform method for Diff. Eq.

Week 2nd	Class/Day 1st	Theory - December Introduction and Application of Fourier series in various branches.
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2nd periodic functions. (Definition)

3rd - Even and odd functions.
(Definition and its property)

4th - Define Fourier Series.

iii - Euler's Formula.

MONTH - December

Week 3rd Class/Day 1st
Dirichlet's Conditions for the
fourier expansion of a function
and its convergence.

2nd periodic function $f(x)$,
satisfying Dirichlet's conditions
as a fourier series.

3rd Conditions for a fourier
series.

4th Fourier series for Dis-
continuous functions.

iii - change of interval.
MONTH - ~~JANUARY~~ December

Week 4th Class/Day 1st
THEORY
Even and odd functions
and obtain their f.s.

2nd Expansions of even and odd
functions.

3rd Derive the expression for
f.s. Coefficients a_n, b_n .

4th Half range series.

iii - Revision class.

Week 1st Class/Day 1st

THEORY -
Introduction, Numbers
and their Accuracy.

2nd Solution of Algebraic and
Transcendental Equations.

3rd Iterative method and
Initial approximations.

4th Iterative formula for
finding solutions of algebraic
and transcendental equation.

iii - Find a root of the
equation by using
Bisection Method.

Week 2nd Class/Day 1st

THEORY - January
Find a root of the
equation by using
Newton-Raphson method.

2nd - method of Iteration.

	3rd	Introduction, Discuss about finite difference and its errors.
	4th	Types of difference.
	5th	Difference formula. Higher order difference and table for difference operators.
		MONTH THEORY
Week 3rd	1st	Differences of polynomial Factorial polynomial.
	2nd	Relationship among difference operators.
	3rd	Interpolation and Extrapolation.
	4th	Newton's forward interpolation formula.
	5th	Newton's Backward interpolation formula.

Week 4th	1st	MONTH THEORY Inverse interpolation Lagrange's interpolation formula for unequal intervals.
	2nd	Numerical Differentiation, Forward difference formula.
	3rd	Backward difference formula.
	4th	Numerical Integration. Trapezoidal Rule.
	5th	Newton's 1/3rd rule and Newton's Cotes formula.