

# COURSE TEACHING STRUCTURE

## Course: Engineering Mathematics-3

**Dept: INSTRUMENTATION & CONTROL ENGINEERING**

**Class: SE**

### **UNIT 1: LINEAR DIFFERENTIAL EQUATION**

**MARKS: 16**

**LECTURE: 12 HOURS**

SR NO	TOPIC	DURATION	TOPIC BASED	MARKING SKIM
1	Complementary Function	1 Hr	Numerical	3
2	Perticular Integral	15 Min	Theoretical	0
3	General Method	1.15 Hrs	Numerical	6
4	Shortcut Methods	4.30 Hrs	Numerical	13
5	Method Of Variation Of Parameters	1.45 Hrs	Numerical	7
6	Cauchy's DE	50 Min	Numerical	7
7	Legender's DE	40 Min	Numerical	7
8	Simultaneous DE	1 Hrs	Numerical	6
9	Symmetric Simultaneous DE	45 Min	Numerical	5

### **UNIT 2: LAPLACE TRANSFORMS**

**MARKS: 14**

**LECTURE: 08 HOURS**

SR NO	TOPIC	DURATION	TOPIC BASED	MARKING SKIM
1	Defination Of LT	1 Hr	Theoretical	0
2	Inverse LT	2 Hrs	Numerical	5
3	Properties And Thneorems	1 Hr	Numerical	8
4	LT Of Standard Functions	2 Hrs	Numerical	8
5	LT Of Some Special Functions	30 Min	Numerical	6
6	Application Of LT For Solving LDE	1.30 Hrs	Numerical	7

**UNIT 3: TRANSFORMS**

**MARKS: 16**

**LECTURE: 09 HOURS**

SR NO	TOPIC	DURATION	TOPIC BASED	MARKING SKIM
<b>FOURIER TRANSFORM</b>				
1	Fourier Integral Theorem	1 Hr	Numerical	5
2	Fourier Sine & Cosine Integrals	1 Hr	Numerical	5
3	Fourier Transform	40 Min	Numerical	5
4	Fourier Sine Inverse	45 Min	Numerical	4
5	Fourier Cosine Inverse	30 Min	Numerical	4
6	Discrete Fourier Transform	40 Min	Numerical	5

**Z - TRANSFORM**

1	Defination	10 Min	Theoretical	0
2	Standard Properties	1.30 Hrs	Numerical	5
3	ZT Of Standard Sequences And Their Inverses	1.40 Hrs	Numerical	4
4	Solution Of Difference Equations	1.05 Hrs	Numerical	5

**UNIT 4: STATISTICS AND PROBABILITY**

**MARKS: 17**

**LECTURE: 12 HOURS**

SR NO	TOPIC	DURATION	TOPIC BASED	MARKING SKIM
<b>STATISTICS</b>				
1	Measures Of Central Tendency	1 Hr	Numerical	4
2	Measures Of Dispersion	1 Hr	Numerical	6
3	Coefficient Of Variation	1 Hr	Numerical	7
4	Moments, Skewness & Kurtosis	1 Hr	Numerical	7
5	Correlation And Regression	1 Hr	Numerical	7
6	Reality Of Regression Estimates	1 Hr	Numerical	4

**PROBABILITY**

1	Probability Density Function	1 Hr	Numerical	5
2	Bionomial Distribution	2 Hrs	Numerical	7
3	Poisson's Distribution	1 Hr	Numerical	7
4	Normal & Hypergeometric	1 Hr	Numerical	7

5	Test Of Hypothesis: Chi-Square & T Test	1 Hr	Numerical	6
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### UNIT 5: VECTOR CALCULUS

**MARKS: 19**

**LECTURE: 15 HOURS**

SR NO	TOPIC	DURATION	TOPIC BASED	MARKING SKIM
1	Vector Differentiation - Gradient, Divergence And Curl	1 Hr	Numerical	7
2	Directional Derivative	2 Hrs	Numerical	7
3	Solenoidal And Irrotational Fields	2 Hrs	Numerical	5
4	Vector Identities	2 Hrs	Numerical	6
5	Line, Surface And Volume Integrals	2 Hrs	Numerical	7
6	Green's Lemma	1 Hr	Numerical	8
7	Gauss's Divergence	3 Hrs	Numerical	8
8	Stoke's Theorem	2 Hrs	Numerical	7

### UNIT 6: COMPLEX VARIABLES

**MARKS: 18**

**LECTURE: 12 HOURS**

SR NO	TOPIC	DURATION	TOPIC BASED	MARKING SKIM
1	Analytic Functions	2 Hrs	Numerical	6
2	Cauchy-Riemann Equations	2 Hrs	Numerical	7
3	Conformal Mapping	2 Hrs	Numerical	8
4	Bilinear Transformation	2 Hrs	Numerical	7
5	Cauchy's Integral Theorem	2 Hrs	Numerical	7
6	Cauchy's Integral Formula And Residue Theorem	2 Hrs	Numerical	6