

S.E. (ELECTRONICS) SEMESTER IV

ADVANCED ENGINEERING MATHEMATICS

Period per week	Lecture	4	
	Practical	--	
	Tutorial		
		Hours	Marks
Evaluation System	Theory Examination	3	100
	Practical	---	---
	Oral Examination	----	---
	Term Work	---	---
	Total	---	100

Detailed Syllabus		Lectures/Week
1	Random variables: 1.1 Discrete and continuous random variable, Probability mass and density function for random variables. 1.2 Expected value, Variance, Moments and moment generating functions 1.3 Relation between Raw and central moments.	02 03 02
2	Probability distributions: 2..1. Binomial, Poisson and Normal distribution 2..2. Introduction to distribution such as 't' and ' χ^2 ', central limit theorems and problems based on this theorem.	06 04
3	Sampling theory: 3.1 Large and small samples, Test of significance for both samples. 3.2 paired 't' test 3.3 Application for χ^2 distribution	05 01 02
4	Discrete Structure 4.1 Relation and function (Equivalence relation, Injective, surjective and bijective functions) 4.2. Poset, Lattice (Bounded, complemented and distributive lattice) 4.3. Algebraic structure: Group, Ring, Field	04 04 04
5	Matrices 5.1. Cayley Hamilton theorem, eigen values and eigen vectors (without proof) 5.2. Similar matrices, orthogonally similar matrices, reduction to the diagonal form.	04 04

6	Complex variables 6.1 Cauchy's theorem and Cauchy's integral formula 6.2 Taylor's and Laurent's formula, Singularities and poles. 6.3 Residue theorem.	03 04 03
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Theory Examination:

1. Question paper will comprise of total 7 questions, each of 20 marks.
2. Only 5 questions need to be solved.
 1. Question 1 will be compulsory and based on entire syllabus.
 2. Remaining questions will be mixed in nature(for example Q2 a) from 2.1 then b) will be from 4.1 or 5.1 other than 2.1.
 3. In question paper weightage of each chapter will be proportional to number of respective lecture hours mentioned in the syllabus.

Recommended Books:

1. P.N.Wartikar/J.N Wartikar, Text book Applied Mathematics,Pune Vidyarthi Griha Prakashan
2. Theory of complex variable by Shantinakaran
- 3 . Engineering Mathematics by S.S.Sastri
4. Fundamental of Mathematical Statistics By S.C.Gupta and V.K Kapoor
1. Probability and Statistics Schum series
2. Discrete Mathematics By Kolman,Busby,Sharon Rus
3. Function of discrete Mathematics by K.D.Joshi

