APPLIED MATHEMATICS-IV

Paper Code: ETMA-202	**L**	**T/P**	**C**
Paper: Applied Mathematics-IV	**3**	**1**	**4**

INSTRUCTIONS TO PAPER SETTERS: **MAXIMUM MARKS: 75**

1. Question No. 1 should be compulsory and cover the entire syllabus. This question should have objective or short answer type questions. It should be of 25 marks.
2. Apart from Question No. 1, rest of the paper shall consist of four units as per the syllabus. Every unit should have two questions. However, student may be asked to attempt only 1 question from each unit. Each question should be of 12.5 marks

Objectives: The objective of this course is to teach the students about the difference equation, probability, curve ftting etc. and other numerical methods to solve various engineering problems.

UNIT – I

Partial Differential Equation: linear partial differential equations with constant coefficient, homogeneous and non homogeneous linear equations. Method of separation of variables. Laplace equation, wave equation and heat flow equation in Cartesian coordinates only with initial and boundary value.

[T1][No. of Hrs. 11]

UNIT II

Probability Theory: Definition, addition law of probability, multiplication law of probability, conditional probability, Baye's theorem, Random variable: discrete probability distribution, continuous probability distribution, expectation, moments, moment generating function, skewness, kurtosis, binomial distribution, Poisson distribution, normal distribution.

[T1,T2][No. of Hrs. 12]

UNIT-III

Curve Fitting: Principle of least square Method of least square and curve fitting for linear and parabolic curve, Correlation Coefficient, Rank correlation, line of regressions and properties of regression coefficients. Sampling distribution: Testing of hypothesis, level of significance, sampling distribution of mean and variance, Chi-square distribution, Student's T- distribution, F- distribution, Fisher's Z- distribution.

[T1,T2][No. of Hrs. 12]

UNIT IV

Linear Programming: Introduction, formulation of problem, Graphical method, Canonical and Standard form of LPP, Simplex method, Duality concept, Dual simplex method, Transportation and Assignment problem.

[T1][No. of Hrs. 10]

Text Books:

[T1] B. S. Grewal,"Higher Engineering Mathematics" Khanna Publications.
[T2]. N.M. Kapoor, "Fundamentals of Mathematical Statistics", Pitambar Publications

References Books:

[R1] E. kresyzig," Advance Engineering Mathematics", Wiley publications
[R2] Miller and Freund, " Probability and statistics for Engineers" , PHI
[R3] Gupta and Kapoor, " Fundamentals of Mathematical Statistics" Sultan Chand and Sons
[R4] G. Hadley, "Linear Programming", Narosa.
[R5] Schaum's Outline on Probability and Statistics" Tata McGraw-Hill
[R6] Gupta and Manmohan, " Problems in Operations Research", Sultan Chand and Sons.
[R7] R.K. Jain and S.R.K. Iyengar,"Advanced Engineering Mathematics "Narosa Publications.