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B.E Mathematics syllabus for affiliated engineering colleges of
Osmania University
(w.e.f: academic year 2019-2020)

AICTE NEW/OLD

For Branches: Civil, ~~EEE~~, Mechanical, Production and Automobile Engineering

BS205MT	Mathematics-III (PDE, Probability & Statistics)	2L: IT:OP	3 credits
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Course Objectives:

- To introduce the solution methodologies for first and second order Partial Differential Equations with applications in engineering
- To provide an overview of probability and statistics to engineers

Course Outcomes:

Upon completion of this course, students will be able to

- Solve field problems in engineering involving PDEs.
- They can also formulate and solve problems involving random variables and apply statistical methods for analysing experimental data.

Contents:

Unit-I: Formation of Partial Differential Equations, First order partial differential equations, solutions of first order linear Partial Differential Equations, Lagranges's equation, Non-linear First Order equations, Charpit's method.

Unit-II: Second-order linear equations and their classification, Method of separation of variables, vibration of stretched string wave equation, one dimensional heat equation, two dimensional heat equation, solution of Laplace's equation.

Unit-III: Probability distributions: Poisson, Uniform and Normal distributions, Mean, variance, moment generating function and evaluation of statistical parameters for these distributions, Moments, skewness and Kurtosis.

Unit-IV: Curve fitting by the method of least squares : fitting of straight lines, second degree parabolas and more general curves. Correlation, regression and Rank correlation. Test of significance: Large sample test for single proportion, difference of proportions, single mean, difference of means, and difference of standard deviations.

Unit-V : Test for single mean, difference of means and correlation coefficients, test for ratio of variances, Chi-square test for goodness of fit and independence of attributes.

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