SAMRAT ASHOK TECHNOLOGICAL INSTITUTE
(Engineering College), VIDISHA M.P.
(An Autonomous Institute Affiliated to RGPV Bhopal)
Department of Applied Science

Semester/Year		Second/First		Program		B.Tech.				
Subject Category	Departmental Core	Subject Code:	BT-1825	Subject Name:		Statistics :Probability Distributions and Differential Equations				

Maximum Marks Allotted						Contact Hours			Total Credits
Theory			Practical		Total Marks	L	T	P	
End Sem	Mid-Sem	Quiz	End Sem	Lab-Work					
60	20	20	-	-	100	3	1	-	4

Prerequisites:

Basics of Differentiations, Integrations and Statistics.

Course Objective:

The objective of this course is to familiarize the prospective engineers with techniques in Differential equations and Statistics. It aims to equip the students with standard concepts and tools at an intermediate to advanced level that will serve them well towards tackling more advanced level of mathematics and applications that they would find useful in their disciplines.

Course Outcomes:

This course primarily contributes to applied mathematics program outcomes that develop students abilities to:
1. Acquire the basic knowledge of Statistics: Probability Distributions with their applications and fitting of curves using method of least squares.
2. Learn the principal concepts about sampling and its advantages and also categorized the sampling methods.
3. The Effective Mathematical Tools for the Solutions of Differential Equations that Model Physical Processes.
4. Differential Equation for Solving Engineering Problems
5. Partial Differential Equations are very much useful for Solving Various Boundary Value Problems

UNITs	Descriptions	Hrs.	CO's
I	Probability Distribution I :Binomial, Poisson and Normal distributions and their Mean and Variance, Methods of Least Squares and curve fitting.	8	1
II	Probability Sampling distributions: t, F, χ^2 distributions and their applications.	8	2
III	Differential Equations: Differential Equations of first order and first degree, first order and higher degree, Linear Differential Equation, Non-linear Differential Equation, Linear Differential of Higher orders with constant coefficient.	8	3
IV	Differential Equation of other Types: Homogeneous Linear Differential Equations, Legendre Linear Equation, Simultaneous Linear Differential Equation. Method of Variation of Parameters.	8	4
V	Partial Differential Equations: Definition and formation of Partial Differential Equations, Lagrange's Linear PDE, Non-linear PDE, Linear Partial Differential Equation of Second Order with Constant Coefficients. Applications of PDE (Wave equation and Heat Equations)	8	5
Total Hours		40	

Reference Books:

1. Higher Engineering Mathematics by B.S.Grewal2. Engineering Mathematics by B. V. Rammana
3. Advance Engineering Mathematics by E. Kreyszig   4. Veerarajan T, Statistics, Probability and Random Process, 2nd Edition, Tata McGraw Hill Publishing company Ltd., New Delhi

Recommendation by Board of studies on	14-06-2022
Approval by Academic council on	16-06-2022
Compiled and designed by	Board of Studies Applied Mathematics; Chairman Dr. Shailesh Jaloree