



SWARNANDHRA

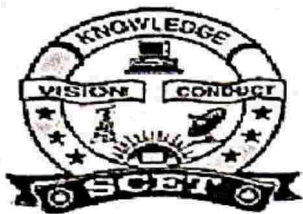
COLLEGE OF ENGINEERING & TECHNOLOGY

(AUTONOMOUS)

Accredited by National Board of Accreditation, AICTE, New Delhi, Accredited by
NAAC with "A" Grade – 3.32 CGPA, Recognized under 2(f) & 12(B) of UGC Act 1956,
Approved by AICTE, New Delhi, Permanent Affiliation to JNTUK, Kakinada
Seetharampuram, W.G.DT., Narsapur-534280, (Andhra Pradesh)

DEPARTMENT OF S&H

Course Code	Course Title	Semester	Branches	Contact Periods /Week	Academic Year	Date of commencement of Semester
23BS4T04	Probability and Statistics	IV	CSE,AI ML,IT,CSE-(BS)	6	2024-25	16-12-2024
COURSE OUTCOMES: At the end of this course, the student will be able to						
CO1	Classify the concepts of data science and its importance (K2)					
CO2	Apply discrete and continuous probability distributions (K3)					
CO3	Apply Sampling Distribution and estimate the population parameters. (K3)					
CO4	Examine the statistical inferential methods based on small and large sampling tests (K3)					
CO5	Use correlation methods and principle of least squares, regression lines (K3)					
UNIT	Out Comes / Bloom's Level	Topic No.	Topics/Activity	Text Book/ Reference	Contact Hour	Delivery Method
I	CO1: At the end of this course, the student will be able to classify the concepts of data science and its importance(K2)	Descriptive statistics and methods for datascience				
		1.1	Introduction – Data Science - Statistics	T ₁ &T ₂	1	Chalk & Talk,Active learning ,PPT and Tutorial
		1.2	Population vs Sample	T ₁ &T ₂	1	
		1.3	Collection of data (primary and secondary data)	T ₁ &T ₂	1	
				T ₁ &T ₂	1	
		1.4	Type of variable: dependent and independent	T ₁ &T ₂	1	
		1.5	Continuous variables	T ₁ &T ₂	1	
		1.6	Data visualization	T ₁ &T ₂	1	
		1.7	Measures of Central tendency	T ₁ &T ₂	1	
		1.8	Measures of Variability	T ₁ &T ₂	1	
		1.9	Skewness	T ₁ &T ₂	1	
		1.10	Kurtosis	T ₁ &T ₂	1	
					14	



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II	CO2: At the end of this course, the student will be able to apply discrete and continuous probability distributions (K3)	Probability and Distributions				
		2.1	Introduction - Probability	T ₁ &T ₂	1	Chalk & Talk, Active learning, PPT and Tutorial
		2.2	Conditional probability	T ₁ &T ₂	1	
		2.3	Baye's theorem	T ₁ &T ₂	1	
					1	
		2.4	Random variables – Discrete random variables	T ₁ &T ₂	1	
					1	
		2.5	Continuous random variables	T ₁ &T ₂	1	
					1	
		2.6	Probability mass function, Probability density function and Cumulative distribution functions	T ₁ &T ₂	1	
		2.7	Mathematical Expectation and Variance	T ₁ &T ₂	1	
		2.8	Binomial distributions	T ₁ &T ₂	1	
2.9	Poisson distributions	T ₁ &T ₂	1			
2.10	Uniform distributions	T ₁ &T ₂	1			
2.11	Normal distributions	T ₁ &T ₂	1			
		T ₁ &T ₂	1			
				15		
III	CO3: At the end of this course, the student will be able to apply Sampling Distribution and estimate the population parameters. (K3)	Sampling Theory				
		3.1	Introduction–Population and Samples	T ₁ &T ₂	1	
		3.2	Sampling distribution of Means and Variance (definition only)	T ₁ &T ₂	1	
				T ₁ &T ₂	1	
		3.3	Point and Interval estimations	T ₁ &T ₂	1	
		3.4	Maximum error of estimate	T ₁ &T ₂	1	
		3.5	Central Limit theorem (without	T ₁ &T ₂	1	



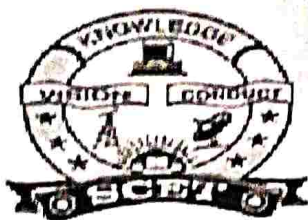
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			proof)			
		3.6	Estimation using t, and F- distributions	T ₁ &T ₂	1	Chalk & Talk, Active learning, PPT and Tutorial
					7	
		Tests of Hypothesis				
IV	CO4: At the end of this course, the student will be able to examine the statistical inferential methods based on small and large sampling tests (K3)	4.1	Introduction-Hypothesis- Null and Alternative Hypothesis	T ₁ &T ₂	1	Chalk & Talk, Active learning, PPT and Tutorial
		4.2	Type I and Type II errors- Level of significance	T ₁ &T ₂	1	
		4.3	Test of significance for large samples- Single mean	T ₁ &T ₂	1	
				T ₁ &T ₂	1	
		4.4	Test of significance for large samples- difference of means	T ₁ &T ₂	1	
				T ₁ &T ₂	1	
		4.5	Test of significance for large samples- Single proportion	T ₁ &T ₂	1	
				T ₁ &T ₂	1	
		4.6	Test of significance for large samples- difference of proportions	T ₁ &T ₂	1	
		4.7	Test of significance for small samples- Student's t-test	T ₁ &T ₂	1	
		4.8	Test of significance for small samples- F-test	T ₁ &T ₂	1	
		4.9	Test of significance for small samples- χ^2 - test	T ₁ &T ₂	1	
		Total			12	
		Correlation and Regression				
V	CO5: At the end of this course, the student will be able to Use correlation methods and principle of least squares, regression lines	5.1	Correlation – Correlation coefficient	T ₁ &T ₂	1	
				T ₁ &T ₂	1	
		5.2	Rank correlation.	T ₁ &T ₂	1	
				T ₁ &T ₂	1	
		5.3	Linear Regression: Straight line	T ₁ &T ₂	1	
				T ₁ &T ₂	1	
		5.4	Multiple Linear Regression	T ₁ &T ₂	1	



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(K3)			T ₁ &T ₂	1	Chalk & Talk,Active learning ,PPT and Tutorial
	5.6	Regression coefficients and properties	T ₁ &T ₂	1	
	5.7	Curvilinear Regression: Parabola	T ₁ &T ₂	1	
	5.8	Exponential	T ₁ &T ₂	1	
	5.9	Power curves.	T ₁ &T ₂	1	
			T ₁ &T ₂	1	
			Total	12	
Cumulative Proposed Periods				60	
Text Books:					
S.No.	AUTHORS, BOOK TITLE, EDITION, PUBLISHER, YEAR OF PUBLICATION				
T1	Miller and Freund's, Probability and Statistics for Engineers,7/e,Pearson,2008.				
T2	S.C. Gupta and V.K. Kapoor, Fundamentals of Mathematical Statistics,11/e, Sultan Chand & Sons Publications, 2012				
Reference Books:					
S.No.	AUTHORS, BOOK TITLE, EDITION, PUBLISHER, YEAR OF PUBLICATION				
R1	Shron L. Myers, KeyingYe, Ronald E Walpole, Probability and Statistics Engineers and the Scientists,8 th Edition,Pearson2007.				
Web Details					
1	https://youtu.be/RJLqVy8qdSM				
2	https://youtu.be/mBCiKUzwdMs				
3	https://youtu.be/WkDxhfxLf-M				
4	https://youtu.be/1g3pCE_B12E				

	Name	Signature with Date
i. Faculty	Mr. M. Ravindhra Babu	M. Ravindhra Babu
ii. Faculty	Mrs. P. Durga bhavani	P. Durga Bhavani
iii. Faculty	Mrs. R. V. Lakshmi	R. V. Lakshmi
iv. Faculty	Ms. N. Lavanya	N. Lavanya
v. Course Coordinator	Mrs. P. Durga Bhavani	P. Durga Bhavani
vi. Module Coordinator	Mr. M. Ravindra Babu	M. Ravindra Babu
vii. Programme Coordinator	Dr. V. Swaminadham	V. Swaminadham

Principal