

Course Code :		1BMAS301C	MATHEMATICS FOR COMPUTER SCIENCE STREAM (CSE,ISE,AIIML,BT)	Semester :	III
L:T:P :		3 : 0 : 0		Course Type :	BSC
Hours/Sem.	Teaching :	42Hrs		CIE Marks :	50
	Learning (TW+SL) :	42Hrs		SEE Marks :	50
	CIE Exam :	3 Hrs		Total Marks :	100
	SEE Exam :	3 Hrs		Credits :	03
	Total Hrs. :	90 Hrs			

Professional Competency:

Apply probability and statistical techniques to solve complex engineering problems.

Course Outcomes

At the end of the course, the student will be able to

CO1: Apply statistical data for correlation and regression techniques to develop suitable mathematical models.

CO2 : Apply the concepts of probability and probability distribution.

CO3: Apply the notion of a discrete-time Markov chain and n-step transition probabilities to solve the given problem.

CO4: Apply the Statistical Inference related to engineering problems.

UNIT-I

11 Hrs.

Curve fitting, Correlation and Regressions: Principles of least squares, Curve fitting by the method of least squares in the form $y = a + bx$, $y = a + bx + cx^2$, $y = ab^x$. Correlation, Regression and Rank Correlation.

UNIT-II

10Hrs.

Probability Distributions: Review of basic probability theory. Random variables (discrete and continuous), probability mass and density functions. Mathematical expectation, mean and variance. Binomial, Poisson and Normal distributions- problems (derivations for mean and standard deviation for Binomial and Poisson distributions only)-Illustrative examples.

UNIT-III

10 Hrs.

Joint Probability distribution: Joint Probability distribution for two discrete random variables, expectation, covariance and correlation.

Markov Chain: Introduction to Stochastic Process, Probability Vectors, Stochastic matrices, Regular stochastic matrices, Markov chains, Higher transition probabilities, Stationary distribution of Regular markov chains and absorbing states.

UNIT-IV

11 Hrs.

Statistical Inference : Introduction, sampling distribution, standard error, testing of hypothesis, levels of significance, test of significances, confidence limits, simple sampling of attributes, test of significance for large samples, comparison of large samples.
Test of Significance for means of two small samples, students 't' distribution, Chi-square distribution as a test of goodness of fit.

Text Books

1. Ronald E. Walpole, Raymond H Myers, Sharon L Myers & Keying Ye "Probability & Statistics for Engineers & Scientists", Pearson Education, 9th edition, 2017.
2. Peter Bruce, Andrew Bruce & Peter Gedeck "Practical Statistics for Data Scientists" O' Reilly Media, Inc., 2nd edition 2020.

Reference Books

1. **Erwin Kreyszig**, "Advanced Engineering Mathematics", John Wiley & Sons, 9th Edition, 2006.
2. **B. S. Grewal** "Higher Engineering Mathematics", Khanna publishers, 44th Ed., 2021.
3. **G Haribaskaran** " Probability, Queuing Theory & Reliability Engineering", Laxmi Publication , Latest Edition, 2006
4. **Irwin Miller & Marylees Miller**, John E. Freund's "Mathematical Statistics with Applications" Pearson. Dorling Kindersley Pvt. Ltd. India, 8th edition, 2014.
5. **S C Gupta and V K Kapoor** , "Fundamentals of Mathematical Statistics", S Chand and Company , Latest edition.
6. **Robert V. Hogg, Joseph W. McKean & Allen T. Craig**. "Introduction to Mathematical Statistics", Pearson Education 7thedition, 2013.
7. **Jim Pitman**. Probability, Springer-Verlag , 1993.
8. **Sheldon M. Ross**, "Introduction to Probability Models" 11th edition. Elsevier, 2014.
9. **A.M. Yaglom and I. M. Yaglom**, "Probability and Information" D. Reidel Publishing Company. Distributed by Hindustan Publishing Corporation (India) Delhi, 1983.
10. **P.G. Hoel , S.C. Portand C. J. Stone**, "Introduction to Probability Theory", Universal Book Stall, (Reprint), 2003.
11. **S. Ross**, "A First Course in Probability", Pearson Education India, 6th Ed., 2002.
12. **W. Feller**, "An Introduction to Probability Theory and its Applications", Vol. 1, Wiley, 3rdEd., 1968.
13. **N. P. Bali and Manish Goyal** , A Text book of Engineering Mathematics, Laxmi Publications, Reprint, 2010.
14. **Veerarajan T**, Engineering Mathematics(for semester III), Tata McGraw-Hill, New Delhi

Web Links and Video Lectures:

<https://drive.google.com/file/d/1KtCtZmnJnOvV1S68wXS9FZPXUFvRktBQ/view?usp=sharing>

Table: Matrix to describe the mapping of COs with POs (considering Wks) and PSOs

Course Outcome s (COs)	Program Outcomes and (Wks)											Program Specific Outcomes (PSOs)	
	1	2	3	4	5	6	7	8	9	10	11	1	2
CO1	3 (WK1, WK2, WK3 and WK4)	2 (WK1 , WK2 and WK3)						1			1		
CO2	3 (WK1, WK2, WK3 and WK4)	2 (WK1 , WK2 and WK3)						1			1		
CO3	3 (WK1, WK2, WK3 and WK4)	2 (WK1 , WK2 and WK3)						1			1		
CO4	3 (WK1, WK2, WK3 and WK4)	2 (WK1 , WK2 and WK3)						1			1		

Sri B.V.V.S.
Basaveshwar Engineering College, Bagalkote
Scheme (from 2026-27)

Sl. No.	Course Code	Course Title	Teaching-Learning Scheme				Examination Duration (Hrs/Sem.)		Total Hours	Examination Scheme and Evaluation			Credits (C)= Total Hours/30
			L Hrs/Week (Hrs/Sem.)	T Hrs/Week (Hrs/Sem.)	P Hrs/Week (Hrs/Sem.)	Term Work (TW) and Self Learning (SL) (TW+SL) Hrs/Sem.	CIE Marks	SEE Marks		Total Marks			
1	1BMAS301C	Mathematics for computer science stream (CSE, ISE, AIML, BT)	3(42)	0	0	42	3	3	90	50	50	100	3=90/30