

**DEPARTMENT OF COMPUTER SCIENCE & APPLICATIONS
KURUKSHETRA UNIVERSITY, KURUKSHETRA**

Session: 2023-24			
Part A - Introduction			
Subject	BCA		
Semester	II		
Name of the Course	Mathematical Foundations for Computer Science-II		
Course Code	B23-CAP-204 (Common with B23-CAI-204, B23-CDS-204, B23-CTS-204)		
Course Type: (CC/MCC/MDC/CC-M/DSEC/VOC/DSE/PC/AEC/VAC)	CC-M		
Level of the course (As per Annexure-I)	100-199		
Pre-requisite for the course (if any)			
Course Learning Outcomes (CLO):	<p>After learning this course student will be able:</p> <ol style="list-style-type: none"> 1. Understand the concept of integration. 2. Acquire cognitive and technical knowledge about a variety of methods of representation of statistical data. 3. Understand methods of measure of central tendency. Analyze the problem and apply the best measure of central tendency to draw inferences from the available data. 4. Understand the concept of correlation, and correlation methods and conclude about the type of correlation for the available data. Comprehend the skills of curve fitting. 5. * Attain a range of cognitive and technical skills to integrate various functions. Have technical and practical skills required for selecting and using suitable methods for data representation and measure of central tendency. 		
Credits	Theory	Practical	Total
	1	1	2
Contact Hours	1	2	3
Max. Marks: 50 (30(T)+20(P))		Time: 3Hrs.(T), 3Hrs.(P)	
Internal Assessment Marks: 15 (10(T)+5(P))			
End Term Exam Marks: 35 (20(T)+15(P))			
Part B - Contents of the Course			

Instructions for Paper-Setter		
Unit	Topics	Contact Hours
I	Integration of simple algebraic, trigonometric, and exponential functions. Presentation of data: Frequency distribution and cumulative frequency distribution, Diagrammatic and graphical presentation of data, Construction of bar, Pie diagrams, Histograms, Frequency polygon, Frequency curve, and Ogives.	4
II	Measures of central tendency: Arithmetic mean, Median, Mode, Geometric mean, and Harmonic mean for ungrouped and grouped data. Measures of dispersion: Concept of dispersion, Mean deviation and its coefficient, Range, Variance and its coefficient, Standard deviation.	4
III	Correlation: Concept and types of correlation, Methods of finding correlation: Scatter diagram, Karl Pearson's coefficients of correlation, Rank correlation.	4
IV	Linear regression: Principle of least square, Fitting of a straight line, Two lines of regression, Regression coefficients.	4
V*	Practicum: Students are advised to do laboratory/practical practice not limited to, but including the following types of problems: Problem Solving- Questions related to the practical problems based on the following topics will be worked out and a record of those will be maintained in the Practical Note Book: <ul style="list-style-type: none"> • Demonstrate skills in finding integration of simple functions. • Representation of data using Bar and pie diagrams. • Representation of data using Histogram, Frequency polygon, Frequency curves, and Ogives. • Problems to compute measures of central tendency. • Problems to calculate measures of dispersion. • Problem to calculate Karl Pearson's coefficient of correlation. • Problem to fit the straight line for the given data. • Problem to find lines of regression. 	25
Suggested Evaluation Methods		
Internal Assessment: <ul style="list-style-type: none"> ➤ Theory <ul style="list-style-type: none"> • Class Participation: 4 • Seminar/presentation/assignment/quiz/class test etc.: NA • Mid-Term Exam: 6 ➤ Practicum <ul style="list-style-type: none"> • Class Participation: NA • Seminar/Demonstration/Viva-voce/Lab record setc.: 5 • Mid-Term Exam: NA 		End Term Examination: A three-hour exam for both theory and practicum. End Term Exam Marks: 35(20(T)+15(P))

PartC-LearningResources

Text/ReferenceBooks:

- S.C. Gupta and V.K. Kapoor (2014). Fundamentals of Mathematical Statistics, S. Chand & Sons, Delhi.
- R.V. Hogg, J. W. McKean and A. T. Craig (2013). Introduction to Mathematical Statistics (7 th edition), Pearson Education.
- J. V. Dyke, J. Rogers and H. Adams (2011). Fundamentals of Mathematics, Cengage Learning.
- A.S. Tussy, R. D. Gustafson and D. Koenig (2010). Basic Mathematics for College Students. Brooks Cole.
- G. Klambauer (1986). Aspects of calculus. Springer-Verlag.

*Applicablefor courseshavingpracticalcomponents.