SANATAN DHARMA COLLEGE, AMBALA CANTT

College with Potential for Excellence, UGC, New Delhi
NAAC Accredited Grade "A+" with CGPA 3.51 in 3rd cycle
ISO 9001:2015 & ISO 14001:2015 Certified

Department of Computer Science
Lesson Plan (Session 2022-2023)

Class: BCA **Sem: IV** **Course Code: BCA-245**
Nomenclature: Computer Oriented Statistical Methods
Dates: 1 Feb, 2023- 17 May, 2023

SYLLABUS

BCA-245 Computer Oriented Statistical Methods

Maximum Marks: 100 **External: 80** **Minimum Pass Marks: 35**
Internal: 20 **Time: 3 hours**

Note: Examiner will be required to set Nine Questions in all. First Question will be compulsory, consisting of objective type/short-answer type questions covering the entire syllabus. In addition to that eight more questions will be set, two questions from each Unit. Student will be required to attempt FIVE questions in all. Question Number 1 will be compulsory. In addition to compulsory question, student will have to attempt four more questions selecting one question from each Unit.

UNIT-I
Basic Statistics: Preparing Frequency Distribution Table and Cumulative frequency, Measure of Central Tendency, Types: Arithmetic mean, Geometric Mean, Harmonic Mean, Median, Mode.
Measure of Dispersion: Range, Quartile Deviation, mean deviation, Coefficient of mean Deviation, Standard Deviation
Moments : Moments About mean, Moments about any point, Moment about origin, Moment about mean in terms of moment about any point, Moment about any point in terms of Moment about mean.

UNIT-II
Probability Distribution: Random Variable- Discrete Random and Continuous Random variable, Probability Distribution of a Random Variable, Mathematical Expectation
Types: Binomial, Poisson, Normal Distribution, Mean and Variance of Binomial, Poisson, and Normal Distribution.
Correlation: Introduction, Types, Properties, Methods of Correlation: Karl Pearson's Coefficient of Correlation, Rank Correlation and Concurrent Deviation method, Probable error.

UNIT-III
Regression: Introduction, Aim of Regression Analysis, Types of Regression Analysis, Lines of Regression, Properties of Regression Coefficient and Regression Lines, Comparison with Correlation.
Curve Fitting: Straight Line, Parabolic curve, Geometric Curve and Exponential Curve
Baye's Theorem in Decision Making, Forecasting Techniques

UNIT-IV
Sample introduction, Sampling: Meaning, methods of Sampling, Statistical Inference: Test of Hypothesis, Types of hypothesis, Procedure of hypothesis Testing, Type I and Type II error, One Tailed and two tailed Test, Types of test of Significance: Test of significance for Attribute-Test of No. of success and test of proportion of success, Test of significance for large samples - Test of significance for single mean and Difference of mean, Test of significance for small samples
(t-test) – test the significance between the mean of a random sample, between the mean of two independent samples

Chi square Test, ANOVA: Meaning, Assumptions, One way classification, ANOVA Table for One-Way Classified Data

REFERENCE BOOKS
- Gupta S.P. and Kapoor, V.K., Fundamentals of Applied statistics, Sultan Chand & Sons, 1996.
- Gupta S.P. and Kapoor, V.K., Fundamentals of Mathematical statistics, Sultan Chand and Sons, 1995.
- Graybill, Introduction to Statistics, McGraw.
- Anderson, Statistical Modelling, McGraw.

Course Outcomes

After the completion of this course, prospective Computer professionals will have the ability to

CO-1	Understand and perform Basic Statistics: Preparing Frequency Distribution Table and Cumulative frequency,
CO-2	Demonstrate Measure of Central Tendency, Types: Arithmetic mean, GeometricMean, Harmonic Mean, Median, Mode.
CO-3	Demonstrate Measure of Dispersion: Range, Quartile Deviation, mean deviation, Coefficient of mean Deviation, Standard Deviation
CO-4	Demonstrate Moments: Moments About mean, Moments about any point, Moment about origin,Moment about mean in terms of moment about any point, Moment about any point in terms of Moment about mean.
CO-5	Demonstrate Probability Distribution
CO-6	Demonstrate Mathematical Expectation Types: Binomial, Poisson, Normal Distribution, Mean and Variance of Binomial, Poisson, and Normal Distribution
CO-7	Demonstrate. Correlation: Introduction, Types, Properties, Methods of Correlation: Karl Pearson'sCoefficient of Correlation, Rank Correlation and Concurrent Deviation method, Probable error.
CO-8	Demonstrate Regression
CO-9	Compare regression with Correlation
CO-10	Demonstrate Curve Fitting: Straight Line, Parabolic curve, Geometric Curve and Exponential Curve Bayes' Theorem in Decision Making, Forecasting Techniques
CO-11	Demonstrate Sampling: Meaning, methods of Sampling,
CO-12	Demonstrate Statistical Inference
CO-13	Demonstrate Types of test of Significance

S.No	Instructional Technique	Assessment Methods (AM)
1	Chalk & Talk	Assignments
2	ICT tools	Quiz
3	Group discussions	Group Discussions
4	Industrial visit	Oral Tests
5	Case studies	Sessional
6	Small Projects	Presentations
7	Workshop	Seminar
8	Spoken Tutorials	University Exams
9	Flipped Class	
10.	E-Resources	

Date	Topics to be Covered	Instructional Technique	Assessment Method
01.02.2023	Basic Statistics: Preparing Frequency Distribution Table and Cumulative frequency	1	1,2,3,4
05.02.2023	**SUNDAY**		
06.02.2023	Measure of Central Tendency	1	1
07.02.2023	Types: Arithmetic mean, Geometric Mean, Harmonic Mean,	1	1,2,3,4
08.02.2023	Median, Mode.	2-(PPT/Projector)	1,2,3,4
12.02.2023	**SUNDAY**		
13.02.2023	Revision	2-(PPT/Projector)	1,2,3,4
14.02.2023	Measure of Dispersion: Range, Quartile Deviation	1	1,2,3,4
15.02.2023	Mean deviation	2-(PPT/Projector)	1,2,3,4
19.02.2023	**SUNDAY**		
20.02.2023	Coefficient of mean Deviation, Standard Deviation		
21.02.2023	Revision	2-(PPT/Projector)	1,2,3,4
22.02.2023	Moments : Moments About mean, Moments about any point,	2-(PPT/Projector)	1,2,3,4
26.02.2023	**SUNDAY**		
27.02.2023	Moment about origin, Moment about mean in terms of moment about any point	1	1,2,3,4
28.02.2023	Moment about any point in terms of Moment about mean.	2-(PPT/Projector)	1,2,3,4
01.03.2023	Probability Distribution: Random Variable- Discrete Random	9	1,2,3,4,6
05.03.2023	**SUNDAY**		
06.03.2023	**HOLI VACATIONS**		
07.03.2023			
08.03.2023			
09.03.2023			
10.03.2023			
11.03.2023			
12.03.2023	**SUNDAY**		
13.03.2023	Continuous Random variable	1	1,2,3,4
14.03.2023	Continuous Random variable,	2-(PPT/Projector)	1,2,3,4

Date	Topic	Method	Reference
15.03.2023	Probability Distribution of a Random Variable, Mathematical Expectation	2-(PPT/Projector)	1,2,3,4
19.03.2023	**SUNDAY**		
20.03.2023	Types: Binomial, Poisson	2-(PPT/Projector)	1,2,3,4
21.03.2023	Normal Distribution	6	1,2,3,4
22.03.2023	Revision		4
26.03.2023	**SUNDAY**		
27.03.2023	Mean and Variance of Binomial	2-(PPT/Projector)	1,2,3,4
28.03.2023	Mean and Variance of Poisson, Mean and Variance of Normal Distribution.	1	1,2,3,4
29.03.2023	Correlation: Introduction, Types, Properties, Methods of Correlation: Karl Pearson's Coefficient of Correlation	2-(PPT/Projector)	1,2,3,4
02.04.2023	**SUNDAY**		
03.04.2023	Rank Correlation and Concurrent Deviation method, Probable error.	2-(PPT/Projector)	1,2,3,4
04.04.2023	**HOLIDAY**		
05.04.2023	Properties of Regression Coefficient and Regression Lines, Comparison with Correlation	9,10	1,2,3,4
09.04.2023	**SUNDAY**		
10.04.2023	Curve Fitting: Straight Line, Parabolic curve, Geometric Curve and Exponential Curve	1	1,2,3,4
11.04.2023	Curve Fitting: Straight Line, Parabolic curve	1	1,2,3,4
12.04.2023	Geometric Curve, Exponential Curve	1	1,2,3,4
16.04.2023	**SUNDAY**		
17.04.2023	Baye's Theorem in Decision Making, Forecasting Techniques	1	1,2,3,4
18.04.2023	Sample introduction, Sampling: Meaning, methods of Sampling, Statistical	2-(PPT/Projector)	1,2,3,4
19.04.2023	Inference: Test of Hypothesis, Types of hypothesis, Procedure of hypothesis Testing, Type I and Type II error, One Tailed and two tailed Test,	1	1,2,3,4
23.04.2023	**SUNDAY**		1,2,3,4
24.04.2023	Types of test of Significance: Test of significance for Attribute-Test of No. of success and test of proportion of success	2-(PPT/Projector)	1,2,3,4

25.04.2023	Test of significance for large samples	6	1,2,3,4
26.04.2023	Sessional	2-(PPT/Projector)	1,2,3,4
30.04.2023	**SUNDAY**		
01.05.2023	Test of significance for single mean and Difference of mean	2-(PPT/Projector)	1,2,3,4
02.05.2023	Test of significance for small samples, t-test) – test the significance between the mean of a random sample, between the mean of two independent samples	2-(PPT/Projector)	1,2,3,4
03.05.2023	Chi square Test, ANOVA: Meaning, Assumptions, One way classification,	1	1,2,3,4
07.05.2023	**SUNDAY**		
08.05.2023	ANOVA Table for One-Way Classified Data	1	1,2,3,4
09.05.2023	ANOVA Table for One-Way Classified Data	1	1,2,3,4
10.05.2023	Revision		4
14.05.2023	**SUNDAY**		
15.05.2023	Revision of Previous Years Question Papers		4
16.05.2023	Revision of Previous Years Question Papers		4
17.05.2023	Revision of Previous Years Question Papers		4

	Teacher Incharge	Head of the Department
Name	Arti Sachdeva	Dr. Girdhar Gopal
Sign with Date		