Academic Council Meeting No. and Date : 03 / February 14, 2022

Agenda Number : 7 Resolution Number : 13 / 5.3

Vidya Prasarak Mandal's

B. N. Bandodkar College of Science (Autonomous), Thane

Syllabus for

Programme : Certificate Course

Specific Programme : SPSS Basic Level I

Proposed under Autonomy

From academic year 2022 - 2023

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Preamble

The course aimed to develop theoretical and analytical skills of the students so that they may be absorbed in the corporate world or able to pursue higher studies at the Master level in Statistics. The main objectives of the course are:

- Students will be able to gain the proficiency in how to analyze a number of statistical procedures in SPSS.
- Students will be able to learn how to interpret the output of a number of different statistical tests.
- Learn how to write the results of statistical analyses using APA Format.
- Perform statistical analyses in SPSS, including graphs, calculating measures of central tendency, and correlation.
- Able determine the appropriate methods of analysis for a particular type of data.
- Do data analysis accurately and present the results in standard format.

Eligibility Criterion:

- 12th Class Pass or equivalent from a recognized Board or University.
- Introductory knowledge statistics course (either currently taking or already have completed) is recommended but not absolutely necessary.

Requirements

- Access to IBM SPSS Statistical software.

Duration of the course : 30 Hrs.

Credits : 2

Certificate Course

SPSS Basic Level I

Structure of Programme

Semester 1			
Course Code	**Course Title**	**No. of lectures**	**Credits**
BNBCCSP1T1	SPSS Basics	**30**	**2**
Total		**30**	**2**

Course Code	Course Title	Credits	No. of lectures
BNBCCSP1T1	SPSS Basics	2	

Course Outcomes:

Upon completion of this course, learner will acquire knowledge about and able to

- Understand Basics of SPSS Software.
- Get knowledge about sample t test.
- Able to solve problem related to sample t test in SPSS.
- Gain knowledge of ANOVA able to solve problem related to ANOVA using SPSS.
- Able to process data and check validity of data using SPSS.
- Identify and solve problem related to correlation and regression analysis in SPSS

Unit I :	**Fundamentals of SPSS** **Introduction to SPSS** a) Opening SPSS on a PC b) Introduction about three windows of SPSS c) Creating and Saving a Data file in the Data editor: - Data file organization, Data editor rules, entering data in the data editor, Saving files in the data editor. d) Creating files in the Syntax Editor Window: - Accessing the Syntax Editor, entering commands & Data in the Syntax file, Saving files in the Syntax editor. e) The SPSS Output Viewer Window: - Generating an output file, Naming and Saving files in the output viewer. **Transforming Variables and Adding Label's** a) Creating new variables b) Converting the continuous variables into categorical variables. c) Adding Variable labels to the data file. d) Adding value labels to the data file. **Summarizing Data with Descriptive Statistics** a) Data Visualization:- (Graphs and Diagrams): Simple bar diagram, Histogram, Pie Chart, Box Plot. b) Measure of central tendency: - Frequency table, Mean, Mode, Median. c) Measure of Dispersion: Variance, Standard deviation, Range, Maximum, Minimum, Standard Error.	**20**
Unit II :	**Understanding Bivariate Relationship Between Categorical Variables** a) Introduction to Crosstabs, Odds Ratio, Chi Squared: - Bivariate frequency table and introduction of Chi Square statistic b) Running crosstab procedure c) Interpreting the Output **Independent Sample t-Test** a) Introduction to the t-Test (one Sample t test, one sample Proportion, two sample Proportions) b) Running the t-Test c) Interpreting the Output Testing for Homogeneity of Variance, Interpreting the significance of the t-value, Additional Information in the t-table	**20**

	Paired Samples t-Test a) Introduction to the Paired samples t-test b) Running the t-test c) Interpreting the Output	
Unit III :	**Analysis of Variance and Covariance** **One way Analysis of Variance** a) Introduction to one way ANOVA. b) Running one way ANOVA c) Interpreting output **Two way Analysis of Variance** a) Introduction to two way ANOVA b) Running two way ANOVA c) Interpreting output **Two way Factorial ANOVA** a) Introduction to two way Factorial ANOVA b) Running two way Factorial ANOVA c) Interpreting output **ANCOVA** a) Introduction to ANCOVA b) Rynning ANCOVA c) Interpreting output	**20**
Unit IV	**Correlation Analysis, Linear Regression Analysis: -** **Correlation Analysis:** Scatter Plot, Pearson Correlation Coefficient **Linear Regression Model with One Explanatory variable** a) **DataPre-processing:** - Detection and Treatment of Missing values and Outliers, Model building b) Interpretation of Output/Interpretation from p-value, R square, Adjusted R Squared. c) Residual Analysis **Multiple Linear Regression Model with Two Explanatory Variable** a) **DataPre-processing:** -Detection and Treatment of Missing values and Outliers, Model building b) Interpretation of Output/Interpretation from p-value, R square, Adjusted R Squared. c) Residual Analysis	

Reference:

a) Basic Practice of Statistics 6th Edition by David S. Moore, William I. Notz, Michael A. Flinger.

b) Data Analysis Using SPSS by Lokesh Jasrai.

c) A Handbook of Statistical Analyses using SPSS by Sabine Landau and Brian S. Everitt.

Evaluation Scheme

Assignments and Practical Examination

1] Assignment/Case Study: i) Unit I and II
ii) Unit III and IV

Internal Assignments and Report on Case Study have to be submitted in the hard copy format in the department

Internal Assessment Marks Distribution			
Mode	**Number of Assignment/ Case Study Allotted per participants**	**Marks for each assignment/ Case Study**	**Total Marks**
Assignments	**4** (Based on Each unit)	**5 marks** (Each assignments carrying 5 marks)	**20**
Case Study	**1**	**20**	**20**
Total			**40**

2] Practical Examination: Unit I, II, III & IV

Details	**Marks**
Practical	**60**

Total of Internal Assignments 40Marks

Total of Practical Examination 60Marks

GrandTotal 100Marks

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