

Value added course I

Title: Introduction to Base SAS

Department: Department of Statistics

Eligibility: PG second year students from Statistics, Applied Statistics and Informatics

Examination: Students will be evaluated through theory and practical exam, each carrying 20 marks. The minimum total marks for passing are 16 marks out of 40. This course carries 2 credits.

UNIT		
1	<ul style="list-style-type: none"> • Getting Started Using SAS Software Introduction, Windows and Commands in the SAS Windowing, Environment, Submitting a Program in the SAS Windowing, Environment, Reading the SAS Log, Viewing Your Results in the Output Window, Creating HTML Output, SAS Data Libraries, Viewing Data Sets with SAS Explorer, Using SAS System Options <p>DATA STEP:</p> <ul style="list-style-type: none"> • Getting Your Data into SAS Methods for Getting Your Data into SAS, Entering Data with the View table Window, Reading Files with the Import Wizard, Telling SAS Where to Find Your Raw Data, Reading Raw Data Separated by Spaces, Reading Raw Data Arranged in Columns, Reading Raw Data Not in Standard Format, Selected Informats, Mixing Input Styles, Reading Part of a Raw Data File, Controlling Input with Options in the INFILE Statement, Reading Delimited Files with the DATA Step, Reading Delimited Files with the IMPORT Procedure, Reading PC Files with the IMPORT Procedure, Reading PC Files with DDE, Temporary versus Permanent SAS Data Sets, Using Permanent SAS Data Sets with LIBNAME Statements, Using Permanent SAS Data Sets by Direct Referencing, Listing the Contents of a SAS Data Set • Working with Your Data Creating and Redefining Variables, Using SAS Functions, Selected SAS Functions, Using IF-THEN Statements, Grouping Observations with IF-THEN/ELSE Statements, Sub-setting Your Data, Working with SAS Dates, Selected Date Informats, Functions, and Formats, Using the RETAIN and Sum Statements, Simplifying Programs with Arrays, Using Shortcuts for Lists of Variable Names 	15
2	<p>SAS procedure Statements:</p> <ul style="list-style-type: none"> • Sorting, Printing, and Summarizing Your Data 	15

	<p>PROC SORT, PROC PRINT, PROC UNIVARIATE, PROC FORAMT, PROC MEANS, PROC FREQ, PROC TABULATE, PROC REPORT,</p> <ul style="list-style-type: none"> • Enhancing Your Output with ODS Concept of ODS, tracing and selecting procedure, ODS statement to create pdf, html and word output • Modifying and Combining SAS Data Sets • Using Basic Statistical Procedures, Basic Programs PROC CORR, PROC REG, PROC CATMOD, PROC GLM, PROC LOGISTIC, PROC ANOVA. • Graphical Interfaces for Statistical Analysis 	
	<p>References:</p> <ol style="list-style-type: none"> 1. Lora D. Delwiche and Susan J. Slaughter (2019): The Little SAS Book: A Primer, Sixth Edition 	

Resource Persons:

1. Mr. S. D. Pawar, Dept. of Statistics, Shivaji University, Kolhapur
2. Mr. S. V. Rajguru, Dept. of Statistics, Shivaji University, Kolhapur
3. Mr. Kundlik Shende, Assiatant Professor, Garvare College, Pune
4. Mr. Mahesh Barale, Symbiosis Statistical Institute, Pune

Value added course II

Title: Natural Language Processing using Python

Department: Department of Statistics

Eligibility: PG second year students from Statistics, Applied Statistics and Informatics

Examination: Students will be evaluated through theory and practical exam, each carrying 20 marks. The minimum total marks for passing are 16 marks out of 40. This course carries 2 credits.

UNIT		
1	<p>NLP overview, Text Data Preprocessing and visualization</p> <ul style="list-style-type: none"> ● Introduction: Overview of NLP, NLU and NLG, need of NLP, real-life applications of NLP, The problem of ambiguity, meaning of text, Different types of NLP/Text datasets, Corpus ● Introduction to NLP Python Packages: Python, NLTK, Stanford NLP, spacy, RegEx, Beautiful soap ● NLP API's: gtts(text to speech), Vader(sentiment analysis), speech recognition, chatterbot (chatbot) etc ● Data Cleaning - Punctuation Removal, Stop-Words Removal, Numeric Value Removal, Frequent Words Removal, Rare Words Removal, Stopwords ● Tokenization, Spell Correction, Word Segmentation, Lemmatization, Stemming, Chunking ● Information extraction: RegEx library, Named entity extraction, custom entity recognition using spacy ● Plotting the Text, Finding the Plot, Word Cloud, Dendograms, PCA scatterplots & k-means 	15
2	<p>Feature Selection and recommendation systems</p> <ul style="list-style-type: none"> ● Word vector, Bag of Words (BoW), N-gram ● TF-IDF, N-Gram level TF-IDF, Character level TF-IDF, Word level TF-IDF ● Word Embeddings- skip-gram, Glove, ELMO, Word2Vec. ● Introduction to recommender systems algorithms, content based, Collaborative filtering ● Introduction to NLP with deep learning, Advanced Applications (Conversational AI, Speech Technology, Voice conversion), Advanced techniques (BERT, GPT, GPT-2, Transformers) 	15
	<p>References:</p> <ol style="list-style-type: none"> 1. Bird, S., Klein, E., & Loper, E. (2009). Natural language processing with Python: analyzing text with the natural language toolkit. "O'Reilly Media, Inc." 2. Hardeniya, N., Perkins, J., Chopra, D., Joshi, N., & Mathur, I. (2016). Natural Language Processing: Python and NLTK. Packt Publishing Ltd. 	

Resource Persons:

1. Dr. S. D. Pawar, Dept. of Statistics, Shivaji University, Kolhapur
2. Mr. S. V. Rajguru, Dept. of Statistics, Shivaji University, Kolhapur
3. Ms. Shweta Gargade, Freelancer Statistician
4. Mr. Shrikrishna Newase, Senior Data Scientist, Birasoft
5. Ms. Swapnaja Bhoite, Senior Data Scientist, Birasoft
6. Mr. Shridhar Pawar, Data Scientist, Indium Software
7. Mr. Vinayak Sable, Freelancer Data Scientist

SHIVAJI UNIVERSITY, KOLHAPUR
DEPARTMENT OF GEOGRAPHY
(Faculty of Science and Technology)

SYLLABUS FOR VALUE ADDED COURSE-
M.A./M.Sc. Geography

Course Name:- Value Added Course on Advanced Field Surveying Techniques

Course Objectives:

1. To determine the basics of the field Surveying and related techniques.
2. To prepare a map or plan for a region/area of the interest.
3. To develop methods in the field of surveying through the knowledge of modern science and technology.
4. To develop employability skills and competencies to serve the job requirements in the field of surveying.

Course Outcomes:

1. Understand the different surviving Instruments and their techniques.
2. Knowledge about the layout or drawing of the study area.
3. Understand the recent trends in the field Surveying.
4. Understand the new GIS techniques used with Advanced Surveying.

Course Guidelines and other details:

Title of the Course: Value Added Course on Advanced Field Surveying Techniques.

Course Coordinator : Prof. (Dr.) Jagdish B. Sapkale

Year of Implementation: Course syllabus will be implemented from academic year 2021-22.

Programme Duration & Hours : The Course will be conducted after the completion of semester II of M.A./M.Sc. programme of Geography.

Theory and Practical Lectures : Total **30** hours.

Intake: The maximum intake for the Course will be 20 seats.

Content of the Value Added Course:

Sr. No.	Topic	Total Hours	Remark
1	Basics of Surveying: Surveying, Leveling, Benchmark, Reduced level, Contour Interval & Characteristics, Instruments for Geographical Survey. Latest Trends of Surveying	02	Theory
2	Theodolite Survey: Theodolite significance, Utility, Components of Theodolite	01	Theory
3	Trigonometrical surveying; Calculation of height using Leveling.	01	Theory
4	Intersection Method and Tacheometric Method ,Vertical angle & Horizontal angle measurement by ordinary, repetition	02	Theory
5	Intersection Method and Tacheometric Method-surveying	02	Practical
6	Interpolation -Contouring-Characteristics and uses of contours. Methods of contouring	02	Practical
7	Total Station Survey: Basic Principle and Function of Total Station a) Leveling, b) Methods of Survey, c) X,Y,Z setting, d) North Select	02	Theory
8	Application of surveying in the field of Geography, field survey, Creation of DEM using Total Station point data.	03	Practical
9	REM and RDM Surveying Methods in Total Station.	02	Practical
10	Measuring area using Total Station ,Topographical Survey data	02	Practical
11	Introduction to Global Positioning System ; a) Types of GPS, b) GPS satellite, c) Data receiver and control points.	02	Theory
12	Application of GPS in Surveying and Navigation	02	Practical
13	Road Mapping Survey Using GPS	02	Practical
14	Measuring area using GPS survey and calculate the error.	02	Practical
15	Introduction of Arc GIS software for surveying data analysis.	03	Practical
	Total Hours	30	

Reference Books:

1. Basak . N. N. (1994): Surveying and Leveling, Tata McGraw Hill Publishing Company LTD., New Delhi.
2. Davis, Peter, (1974): Science in Geography Data Description & Presentation, Vol.3, Oxford University Press, London.
3. Duggal, S.K. Surveying – Vol – I & II – By Tata McGraw Hill Book Co.

4. Monkhouse, F.J. and Wilkinson, H. R (1962): Maps and Diagrams, Methuen and Company Ltd. and Company Ltd., London.
 5. Nair, N. B. (1996): Encyclopedia of Surveying, Mapping and Remote Sensing. Rawat Publications., Jaipur and New Delhi.
 6. Sing R. L. (1996) : Map Work & Practical Geography, Central Book Dept. Allahabad.
 7. Singh & Kanaujia (1973) : Map Work & Practical Geography, Central Book Dept. Allahabad.
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