

**HAMIDIA GIRLS' DEGREE COLLEGE, ALLAHABAD**  
**UNIVERSITY OF ALLAHABAD**

**Syllabus for Vocational Subject in B.A.**  
**Computer Application in Social Sciences (CAS)**

<b>B.A. I</b>		<b>Marks</b>
Paper I	Computer Fundamentals	40
Paper II	An Introduction to Statistical Reasoning	40
Internal Assessment	Assignment I	15
	Assignment II	15
External Assessment	Practical and Viva-Voce	40
<b>Total</b>		<b>150</b>

<b>B.A. II</b>		
Paper I	Some Concepts of Structured Programming and Software Tools	40
Paper II	Design of Experiments and Statistical Decision Theory	40
Internal Assessment	Assignment I	15
	Assignment II	15
External Assessment	Practical and Viva-Voce	40
<b>Total</b>		<b>150</b>

<b>B.A. III</b>		
Paper I	Advanced Software Tools	75
Paper II	Statistical Analysis	75
Internal Assessment	Assignment I	10
	Assignment II	10
	On the Job Training and Project	25
External Assessment	Practical and Viva-Voce	30
<b>Total</b>		<b>225</b>

# **Computer Applications in Social Sciences**

## **B.A-I**

### **Paper I – Computer Fundamentals**

**The place of computers in Social Sciences and Humanities:** Overview of uses of computers in Social Sciences and Humanities today.

**Computer Basics:** What is information? What is a Computer? Distinctions between hardware and software. Concept of files, Operating Systems.

**Computer Hardware :** Evolution of the modern day computer and the parallel development of instrumentation ,Examination of the internal mechanism of personal computers ,CPU's. RAM and I/O devices.

**Working with the Command Prompt (DOS commands ):** Basic commands to list save, retrieve copy and examine files.

**The MS Windows ME operating system:** Introduction to the graphical user interface (GUI), basic operations in Windows using keyboard and mouse.

**Application Software: Information Retrieval & Telecommunications:** Navigating, searching and accessing Information through the Internet .

**Microsoft Office XP Professional Software Suite:** In depth of treatment of Microsoft Word 2002

**Application Software :Word Processing** in depth treatment of Microsoft word 2002.

**Application Software: Spreadsheets** Data entry, summarizing and transformation Graphing data (Excel 2002)

**Application Software Graphics** Exposure to Windows based graphics production software to produce charts and drawings (Excel 2002 and Powerpoint 2002).

**Application Software: Database Management** Database structure and terminology ,creating a database. Accessing information from a database (Access 2002).

**Application Software Statistical Analysis:** Performing simple descriptive and inferential statistics using the computer (SPSS).

**Using Computers as a laboratory Tool:** Examination of how the computer can be used to prepare and present stimuli monitor subjects responses and administer contingencies to control experimentation. Interfacing the PC to Social Sciences and Humanities apparatus ,Using the Turbo BASIC (or Visual Basic)Language to control Social Sciences and Humanities experimentation.

### **Paper II - An Introduction to Statistical Reasoning**

**Introduction:** Experiments and Observational Studies ,Asking questions; Collecting data ,Summarizing data numerically and graphically ,Methods for determination of patterns and relationship among variables , ,Accuracy of percentages, Accuracy of Averages, Normal Approximation , Common Elements of research design, Contemporary description and analysis of single samples of data, Graphical data presentation methods for determination of patterns and relationship among variables, Classical and robust alternative method for single sample data summary procedures.

Law of averages, Correlations ,Regression

Measurement error/Chance , Repeated trials , Expected values and Standard error , Normal distributions.

The z test, The one sample t-test , The two sample z test, Chi-square test .Tests of Significance, Test for independence, Drawing conclusions.

## **Computer Applications in Social Sciences**

### **B.A-II**

#### **Paper I –Some Concepts of Structured Programming and Software Tools**

Concept of algorithm and programming language, Data flow diagrams, Entity relationship charts, Flow charts, elements of structured programming, Iterative schemes and basic understanding of computer program.

Develop flowcharts that illustrate the sequence of steps in a computer program. Code programs that incorporate the following general programming concepts

Use of string and numeric variables

Options for input and output (read/data, input from a keyboard, printing to the screen and a printer, print/tab)

Counters and accumulators

For/next and do/until loops

If/then/else structures

Case structures

Use of sequential files for input and output.

Different phases of software cycles, major influencing on software development, System investigation and development.

Demonstration of underlying Statistical concepts in Computer Packages for Statistical Analysis.

Counters

#### **Paper II –Design of Experiments and Statistical Decision Theory**

Experimental design as a method for organizing analysis procedures, Completely randomized, randomized block, factorial, nested, Latin squares, Split-plot and Incomplete block designs, Response surface and covariance adjustment procedures, Stresses use of computer.<sup>1<sup>st</sup></sup>

Sampling, Design principles pertaining to planning and execution of a sample survey, simple random, stratified random, systematic and one- and two-stage cluster sampling designs, Emphasis on statistical considerations in analysis of sample survey data , Chance Errors in Sampling, Sampling error.

Probability concepts, expectations, Confidence intervals. Normal Approximation for Probability Histograms and Inference with emphasis on definition of statistical models, construction and, use of likelihoods, and general estimating equations,

Zero Sum two person games and statistical Inference , Bayesian methods and orthodox statistical estimation and testing , minimax decision rules , empirical bayes procedures , Bayes sequential decision procedures

Integrated use of computers to manage , process and analyze data , Concepts of research data management , use of statistical program package for data analyses and graph production and writing statistical programs to perform simulation experiments.

# **Computer Application in Social Science**

## **B.A.-III**

### **Paper-I**

#### **Advanced Softwares Tools**

Create multimedia presentations

Complete advanced documents in word processing and spreadsheets.

Design webpages in a text editor using HTML and JavaScript which include features such as internal and external hyperlinks, graphic /images , radio buttons , dropdown menus , checkboxes , textboxes and images maps.

Use JavaScript to create alert messages in Webpages as well as cycling banner and slideshows

Digital content creation including video(Movie)

Use an HTML editor to create webpages

### **Paper-II**

#### **Statistical Analysis**

Correlation: Product Moment, Rank order and Point Biserial

Regression Analysis: Bivariate and Multiple

Chi-Square Test

Analysis of Variance and residuals.

Analysis of covariance , Interactions effects, Dummy Variables

Principle Component Analysis, Factor Analysis and Rotation

Discriminant Analysis