

**Bachelor of Computer Applications (BCA)
2022-23 & 2023-24 Sessions**

First Semester

Course Code	Course Type	Course Title	Load Allocation			Marks Distribution		Total Marks	Credits
			L	T	P	External	Internal		
ENG1002	AECC	English(Communication Skills)	3	1	0	75	25	100	4
BCA-102	CC	Fundamentals of Information Technology	5	1	0	75	25	100	6
BCA-103	CC	Web Designing using HTML and DHTML	3	1	0	75	25	100	4
BCA-103(P)		Software Lab – II	0	0	4	50	--	50	2
BCA-104	CC	Python Programming	3	1	0	75	25	100	6
BCA-104(P)		Software Lab – I	0	0	4	50	--	50	2
Total			16	4	8	400	100	500	24

The breakup of marks for the continuous assessment for theory paper will be as under

i	Two tests will be conducted during the semester. Both the tests will be considered for assessment.	:	50% of the marks allotted for continuous assessment
ii	Assignment / Presentations	:	20% of the marks allotted for continuous assessment
iii	Class participation & behaviour	:	10% of the marks allotted for continuous assessment
iv	Attendance	:	20% of the marks allotted for continuous assessment

Mr.Mukesh Kumar Dr. Raman Maini Dr.Sarabjeet Singh Dr.Rajan Manro

Mr. Sandeep Sharma Mr. Parduman Singh Dr. Navdeep Singh Dr. Harjeet Singh

Mr. Devinder Singh Ms. HarsimratDeo Ms. RituWalia Ms. Devinder Kaur

Ms. Taranpreet Kaur Dr. Sangeeta Joshi Mr. Birinder Singh Sarao Ms. Manpreet Kaur Mr.Joga Singh

Bachelor of Computer Applications (BCA)
2022-23 & 2023-24 Sessions

Second Semester

Course Code	Course Type	Course Title	Load Allocation			Marks Distribution		Total Marks	Credits
			L	T	P	External	Internal		
PBI 2001 PBI 2001 A	AECC	Punjabi Compulsory/ Punjabi(Mudla Gyan)	3	1	0	75	25	100	4
BCA-202	GE	GE-I	3	1	0	75	25	100	4
BCA-203	CC	Computer System Architecture	3	1	0	75	25	100	4
BCA-204	CC	Java Script	3	1	0	75	25	100	4
BCA-204(P)		Software Lab – III	0	0	4	50	--	50	2
BCA-205(P)	SEC	Software Lab – IV (Open Source Technologies)	0	0	4	50	--	50	2
EVS 3001	AECC	Environment and Road Safety Awareness	2	0	0	35	15	50	2
Total			14	4	8	435	115	550	22

***General Elective-I:**

1	BCA-202GE1	Mathematics
2	BCA-202GE2	Statistical Methods

The breakup of marks for the continuous assessment for theory paper will be as under

i	Two tests will be conducted during the semester. Both the tests will be considered for assessment.	:	50% of the marks allotted for continuous assessment
ii	Assignment / Presentations	:	20% of the marks allotted for continuous assessment
iii	Attendance, Class participation & behaviour	:	10% of the marks allotted for continuous assessment
iv	Attendance	:	20% of the marks allotted for continuous assessment

Mr.Mukesh Kumar Dr. Raman Maini Dr.Sarabjeet Singh Dr.Rajan Manro

Mr. Sandeep Sharma Mr. Parduman Singh Dr. Navdeep Singh Dr. Harjeet Singh

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CODE: ENG1002 AECC**(Title: English(Communication Skills)***

COMMON FOR B.SC. (HONS.) BOTANY, ZOOLOGY, PHYSICS, MATHS, CHEMISTRY,
BIOTECHNOLOGY, AGRICULTURE, B.COM SEM II, CSM, JOURNALISM, BCA
ABILITY ENHANCEMENT COMPULSORY COURSE (AECC)

Maximum Marks: 100**External Marks: 75****Time Allowed: 3 hours****Internal Assessment: 25****Credits: 04**

**Pass Marks: 35% for CSM/Journalism/B.Com-I (Sem-II)/ BCA
40% for Honors Courses**

Course Objectives: 1. To familiarize the students with the basic concepts of Formal Writing.
2. To educate the students about the various nuances of verbal & written communication skills.
3. To apprise the students with the technicalities of presentation skills.
4. To help the students master effective email structures to achieve clarity and successful communication.

Learning Outcomes: 1. It would boost the confidence and help the students to present their thoughts eloquently.
2. Students would learn the role of body language as a non- verbal tool of communication .
3. Vocabulary of students would be enhanced.
4. Students would be trained for facing interviews.
5. Students would learn etiquettes.

UNIT-I

1. Precis Writing
2. Formal Letters
3. Note taking/ Note making
4. Notice
5. Agenda
6. Minutes of the meeting
7. Memorandum
8. Idioms & their use into illustrative sentences

UNIT-II

1. Paragraph writing
2. CV writing
3. Email writing
4. Report writing
5. Etiquettes
6. Tips for facing interview.
7. Presentation Skills
8. 7Cs of Effective Communication
9. Body Language

***Concerned departments can keep the nomenclature passed by their respective Board of Studies.**

TESTING**UNIT-I**

- Q1. (a)** One passage for Precis writing shall be given & the candidates are to give a suitable title to it. (7 Marks)
- (b) Candidates are to attempt any one formal letter out of the given two. (6 Marks)

Q2. Consists of six questions from points 3, 4, 5, 6, 7 & 8 of Unit -I. Students are required to attempt any five questions out of the given six . Each question carries 5 marks. (5x5= 25 Marks)

UNIT-II

Q3. (a) Two topics for paragraph writing shall be given. Candidates would be required to attempt one. (6 Marks)

(b) Candidates are to frame an effective CV. (6 Marks)

Q4. Consists of six questions from point 3, 4, 5, 6, 7, 8, 9 of Unit-II. Students are required to attempt any five questions out of the given seven. Each question carries 5 marks (5x5= 25 Marks)

SUGGESTED READINGS:

1. *English for Effective Communication* by Navjot S. Deol. New Academic Publishing.
2. *The Written Word* by Vandana R. Singh. Oxford University Press.
3. *Business Communication Today* by Courtland L. Bovee. Prentice Hall.
4. *Write to be read: Reading, Reflecting and Writing* by William R. Smalzer. Cambridge University Press.
5. *Eldorado: A Textbook of Communication Skills* by R. Pushkala and P.A. Sarada. Orient Blackswan Private Limited.

Internal Assessment will carry 25 marks and it will be distributed as follows.

MST 12.5 marks

Assignment/Quiz/ Seminar/ Co-curricular **05 marks**

Attendance **5 marks**

Class Behaviour **2.5 marks**

Marks for attendance will be given as per the following criterion:

Attendance (%)	Marks
65-70%	1
70-75%	2
75-80%	3
80-85%	4
85% & above	5

Semester I
Course Code: BCA-102
COURSE NAME: Fundamentals of Information Technology

Max Marks: 100**Maximum Time: 3 Hrs.****External Examination: 75****Internal Assessment: 25****Min Pass Marks: 35%****Lectures to be delivered: 45-55Hrs.****Course Objectives:**

- To introduce the students the basics of the computer, its organization, Input/output devices etc.
- To introduce the preliminary knowledge of computers, their operations and applications.
- To introduce the various computer languages & Number Systems.

Course Learning Outcomes:

On successful completion of the course, students will be able to:

- Familiarize with the terms like Operating System, peripheral devices, software etc.
- Represent data in binary form, convert numeric data between different number systems and perform arithmetic operations in binary

(A) INSTRUCTIONS FOR THE PAPERSETTER

The question paper will consist of three sections UNIT-I, UNIT-II, and UNIT-III, Each of UNIT-I and UNIT-II will have four questions from the respective Units of the syllabus and each question will carry 12 marks. UNIT-III will have 9 short answer type questions which will cover the entire syllabus uniformly and will carry 3 marks in all.

(B) INSTRUCTIONS FOR THE CANDIDATES

Candidates are required to attempt two questions each from UNIT-I and UNIT-II. UNIT-III is Compulsory.

Unit-I

Introduction: Characteristics of Computers, Computer Generations, Classification of computers based on size and application like Notebook Computers, Personal Computers, workstations, Mainframe Systems, Supercomputers, Clients and Servers etc.

Basic Computer Organization: Block diagram of Computer, Interrelationship between different units: Input Unit, Output Unit, Storage unit, Arithmetic Logic Unit, Control unit, Central Processing unit. Instruction Set, Registers, Processor Speed, Types of Processors.

Input-output Devices: Characteristics of I/O devices, Input Devices (Keyboard, Point-and-draw Devices, Data scanning Devices, Digitizer, Electronic Card reader, Voice Recognition Devices, Vision-Input System). Output Devices (Monitors, printers, plotters, Screen Image Projector, Voice Response System).

Unit-II

Secondary Storage Devices: Sequential and Direct-Access Devices, Magnetic Tape, Hard Disk, Optical Disks. Basic principles of Operations, Advantages and limitations.

Types of Software: System Software, Application Software, Overview (function) of different types of system software's: Operating Systems, Language Translators. Overview of different types of Application Software: word Processing, spreadsheet, Database.

Computer languages: Machine Language, Assembly Language, High Level Language, Compiler, Linker, Interpreter, Object Oriented Programming Languages, Characteristics of Good Programming Language.

Number System & Codes: Bit, byte, binary, decimal, hexadecimal, and octal systems, conversion from one system to the other. Binary Arithmetic: Addition, subtraction and multiplication. Character codes (ASCII, EBCDIC, BCD, 8421, 2421, Excess-3, Gray, Hamming).

Text Books:

1. P.K Sinha "Fundamentals of IT", B.P. Publications
2. Peter Norton "Computers today".

Reference Books:

1. D. H. Sanders, "Computers Today", McGrawHill,
2. Satish Jain, "Information Technology",BPB,
3. V. Rajaraman, "Fundamentals of Computers" (2nd edition), Prentice Hall of India, NewDelhi,
4. B. Ram, "Computer Fundamentals",Wiley,

Teaching Plan:

Week	Content
1-2	Introduction: Characteristics of Computers, The Evolutions of Computers, Computer Generations, Classification of computers based on size and application like Notebook Computers, Personal Computers, workstations, Mainframe Systems, Super Computers, Clients and Servers etc.
3-4	Basic Computer Organization: Block diagram of Computer, Interrelationship between different units: Input Unit, Output Unit, Storage unit, Arithmetic Logic Unit, Control unit, Central Processing unit. Instruction Set, Registers, Processor Speed, Types of Processors.
5-6	Input-output Devices: Characteristics of I/O devices, Input Devices(Keyboard, Point-and-draw Devices, Data scanning Devices, Digitizer, Electronic Card reader, Voice Recognition Devices, Vision-Input System). Output Devices (Monitors, printers, plotters, Screen Image Projector, Voice Response System).
7-8	Secondary Storage Devices: Sequential and Direct-Access Devices, Magnetic Tape, Hard Disk, Optical Disks. Basic principles of Operations, Advantages and limitations.
9-10	Types of Software: System Software, Application Software, Overview (function)of different types of system software's: Operating Systems, Language Translators. Overview of different types of Application Software: word Processing, spreadsheet, Database.
11-12	Computer languages: Machine Language, Assembly Language, High Level Language, Compiler, Linker, Interpreter, Object Oriented Programming Languages, Characteristics of Good Programming Language.
13-14	Number System & Codes: Bit, byte, binary, decimal, hexadecimal, and octal systems, conversion from one system to the other.
15	Binary Arithmetic: Addition, subtraction and multiplication. Character codes (ASCII, EBCDIC, BCD, 8421, 2421, Excess-3, Gray, Hamming).

Semester I
Course Code: BCA-103
COURSE NAME: Web Designing using HTML and DHTML

Max Marks: 100

External Examination: 75

Min Pass Marks: 35%

Maximum Time: 3 Hrs.

Internal Assessment:25

Lectures to be delivered: 45-55Hrs.

Course Objectives:

- To introduce the basic elements of web page designing.
- To introduce the basic concept of CSS.

Course Learning Outcomes:

On successful completion of the course, students will be able to:

- Students will understand and apply concepts and theories in the use and presentation of building websites using HTML and CSS.
- Design and implement static and dynamic Web pages.

(A) INSTRUCTIONS FOR THE PAPERSETTER

The question paper will consist of three sections UNIT-I, UNIT-II, and UNIT-III, Each of UNIT-I and UNIT-II will have four questions from the respective Units of the syllabus and each question will carry 12 marks. UNIT-III will have 9 short answer type questions which will cover the entire syllabus uniformly and will carry 3 marks in all.

(B) INSTRUCTIONS FOR THE CANDIDATES

Candidates are required to attempt two questions each from UNIT-I and UNIT-II. UNIT-III is Compulsory.

Unit I

Introduction to Internet: WWW, Web pages, Web Browsers, URL,

Introduction to HTML: HTML tags and attributes, paired and unpaired tags, Text-formatting tags-bold, italic, underline, strike, superscript, subscript, font face, font size, font color, marquee tag, Creating external and internal links, using images as links. Ordered and unordered lists: Lists, unordered Lists, Ordered Lists, Nested Lists.

Tables: Table creation in HTML, Width of the Table and cells, cells spanning multiple row and columns, coloring cells, column specification, Presenting information in tables, table attributes.

Unit II

Forms: Introduction, form elements, Input elements, different control types created with input elements, button elements, text area element, drop down lists, action attributes and method attributes

DHTML and Style Sheets: Defining styles, Elements of styles, linking a style sheet to an HTML Documents, In-Line Styles, External style sheets, Internal style sheets, Multiple Styles. Cascading style sheets. CSS: CSS Font Properties, CSS Text Properties, CSS Background Properties, CSS Border Properties, CSS Margin Properties. CSS List Properties.

Text Books:

1. Thomas A. Powell , “HTML: The Complete Reference”, Osborne/McGraw-Hill
2. HTML 4.0 Unleashed by Rick Dranell; Tech Media Publications

Reference Books:

1. Teach Yourself HTML 4.0 with XML, DHTML and Java Script by Stephanie, Cottrell, Bryant; IDG Books India Pvt. Ltd., New Delhi

Teaching Plan:

Week	Content
1-2	Introduction to Internet: WWW, Web pages, Web Browsers, URL, Introduction to HTML: HTML tags and attributes, paired and unpaired tags.
3-4	Text-formatting tags-bold, italic, underline, strike, superscript, subscript, font face, font size, font color, marquee tag, Creating external and internal links, using images as links.
5-6	Ordered and unordered lists: Lists, unordered Lists, Ordered Lists, Nested Lists.
7-8	Tables: Table creation in HTML, Width of the Table and cells, cells spanning multiple row and columns, coloring cells, column specification, Presenting information in tables, table attributes.
9-10	Forms: Introduction, form elements, Input elements, different control types created with input elements, button elements, text area element, drop down lists, action attributes and method attributes.
11-12	DHTML and Style Sheets: Defining styles, Elements of styles, linking a style sheet to an HTML Documents, In-Line Styles, External style sheets, Internal style sheets, Multiple Styles.
13-14	Cascading style sheets.CSS: CSS Font Properties, CSS Text Properties, CSS Background Properties
15	CSS Border Properties, CSS Margin Properties.CSS List Properties.

Semester I
Course Code: BCA-103 (P)
COURSE NAME: Software Lab-I

Max Marks: 50

External Examination: 50

Min Pass Marks: 35%

Maximum Time: 3Hrs.

Practical to be conducted: 45-55Hrs.

Course Objectives:

- To implement the basic elements of web page designing.
- To implement basic concept of CSS.

Course Learning Outcomes:

On successful completion of the course, students will be able to:

- Students will understand and apply practical concepts in the use and presentation of building website using HTML and CSS.
- Design and implement static and dynamic Web pages.

This laboratory course will comprise as exercises to supplement what is learnt under paper BCA-103: Web Designing Using HTML and DHTML.

The breakup of marks for the practical will be as under

- | | | |
|------|-----------------------------------|----------|
| i. | Practical file Evaluation | 10 Marks |
| ii. | Viva Voce | 20 Marks |
| iii. | Project Development and Execution | 20 Marks |

Semester I
Course Code:BCA-104
Course Name:Python Programming

Max Marks: 100**External Examination: 75****Min Pass Marks: 35%****Maximum Time: 3 Hrs.****Internal Assessment: 25****Lectures to be delivered: 45-55 Hrs.****Objectives of the Subject:**

- To learn how to design and program Python applications.
- To learn how to use lists, tuples, and dictionaries in Python programs.
- To learn how to identify Python object types.
- To learn how to use indexing and slicing to access data in Python programs.
- To define the structure and components of a Python program.
- To learn how to write loops and decision statements in Python.
- To learn how to write functions and pass arguments in Python.

Course Outcomes: Students will be able to :

- Explain environment, data types, operators used in Python.
- Compare Python with other programming languages.
- Outline the use of control structures and numerous native data types with their methods.

(A) INSTRUCTIONS FOR THE PAPERSETTER

The question paper will consist of three sections UNIT-I, UNIT-II, and UNIT-III, Each of UNIT-I and UNIT-II will have four questions from the respective Units of the syllabus and each question will carry 12 marks. UNIT-III will have 9 short answer type questions which will cover the entire syllabus uniformly and will carry 3 marks in all.

(B) INSTRUCTIONS FOR THE CANDIDATES

Candidates are required to attempt two questions each from UNIT-I and UNIT-II. UNIT-III is Compulsory

Unit-I

Program Planning: Algorithms, characteristics and Examples of algorithms, Flowcharts, symbols used in flowcharts, Examples of flowcharts, Pseudocode.

Programming Fundamentals: Designing a Program, identifiers, keywords, constants, variables.

Data types: Strings and numbers, Lists, tuple, Dictionaries, displaying output, User input, type conversion, basic string operations & methods, format specifiers

Operators: Arithmetic, Relational, Logical, Bitwise, Assignment operators and expressions.

Decision Structures: If, If_else, if_elif_else, nested if decision flow statements.

Unit-II

Repetition Structures: while loop, for loop, sentinels, continue and break statements

Functions: Prototype, definition and calling, formal, actual and default arguments, value returning functions, methods of parameter passing to functions, recursive function, Function overloading, Local variables and scope.

Exception Handling: Exceptions, try, except, finally and raise

Files: Introduction to file, attributes of files, operation of files, Types of files, input and output in files.

References:

1. T. Budd, Exploring Python, TMH, 1st Ed, 2011
2. How to think like a computer scientist : learning with Python / Allen Downey, Jeffrey Elkner, Chris Meyers. 1st Edition

Teaching Plan:

Week	Content
1-2	Program Planning: Algorithms, characteristics and Examples of algorithms, Flowcharts, symbols used in flowcharts, Examples of flowcharts, Pseudocode.
3-4	Programming Fundamentals: Designing a Program, identifiers, keywords, constants, variables.
5-6	Data types: Strings and numbers, Lists, tuple, Dictionaries, displaying output, User input, type conversion, basic string operations & methods, format specifiers
7-8	Operators: Arithmetic, Relational, Logical, Bitwise, Assignment operators and expressions. Decision Structures: If, If_else, if_elif_else, nested if decision flow statements.
9-10	Repetition Structures: while loop, for loop, sentinels, continue and break statements
11-12	Functions: Prototype, definition and calling, formal, actual and default arguments, value returning functions, methods of parameter passing to functions, recursive function, Function overloading, Local variables and scope.
13-14	Exception Handling: Exceptions, try, except, finally and raise Files: Introduction to file, attributes of files, operation of files, Types of files, input and output in files.

Semester I**Course Code:BCA-104(P)****COURSE NAME:Software Lab – II****Max Marks: 50****Maximum Time: 3 Hrs.****External Examination: 50****Min Pass Marks: 35%****Practical sessions to be conducted: 45-55 Hrs.****Objectives of the Subject:**

- To understand why Python is a useful scripting language for developers.
- To learn how to design and program Python applications.
- To learn how to use lists, tuples, and dictionaries in Python programs.
- To learn how to identify Python object types.
- To learn how to use indexing and slicing to access data in Python programs.
- To define the structure and components of a Python program.
- To learn how to write loops and decision statements in Python.
- To learn how to write functions and pass arguments in Python.
- To learn how to build and package Python modules for reusability.

Course Outcomes:On completion of this course, the student will be able to:

- Outline various programming constructs like data types and control structures of Python.
- Implement different data structures.
- Implement modules and functions
- Illustrate concept of object oriented programming.
- Implement file handling

List of Experiments

1. Compute sum, subtraction, multiplication, division and exponent of given variables input by the user.
2. Compute area of following shapes: circle, rectangle, triangle, square, trapezoid and parallelogram.
3. Compute and print roots of quadratic equation $ax^2+bx+c=0$, where the values of a, b, and c are input by the user.
4. Print numbers up to N which are not divisible by 3, 6, 9,, e.g., 1, 2, 4, 5, 7,....
5. Write a program to determine whether a triangle is isosceles or not?
6. Print multiplication table of a number input by the user.
7. Compute sum of natural numbers from one to n number.
8. Print Fibonacci series up to n numbers e.g. 0 1 1 2 3 5 8 13.....n
9. Compute factorial of a given number.
10. Count occurrence of a digit 5 in a given integer number input by the user.
11. . Print Geometric and Harmonic means of a series input by the user
12. Perform sequential search on a list of given numbers
13. Perform following operations on dictionary 1) Insert 2) delete 3) change
14. Check whether a number is in a given range using functions.

15. To find the Max of three numbers using functions.
16. Solve the Fibonacci sequence using recursion.
17. Design a Python class named Rectangle, constructed by a length & width, also design a method which will compute the area of a rectangle.
18. Construct a Python program to write and append text to a file and display the text.

The breakup of marks for the practical will be as under:

i.	Lab Record (Internal Assessment)	10 Marks
ii.	Viva Voce (External Evaluation)	20 Marks
iii.	Program Development and Execution(External Evaluation)	20 Marks

ਬੀ.ਐੱਚ.ਏ. ਭਾਗ- ਪਹਿਲਾ
ਸਮੇਸਟਰ-ਦੂਜਾ FBI 2001
ਪਰਚਾ : ਪੰਜਾਬੀ ਲਾਜ਼ਮੀ
ਸੈਸ਼ਨ-2023-24

ਕੁੱਲ ਅੰਕ : 100	ਵਿਸ਼ੇ ਵਿੱਚੋਂ ਪਾਸ ਹੋਣ ਲਈ ਅੰਕ : 35%
ਲਿਖਤੀ ਪ੍ਰੀਖਿਆ : 75 ਅੰਕ	ਲਿਖਤੀ ਪ੍ਰੀਖਿਆ ਵਿੱਚੋਂ ਪਾਸ ਹੋਣ ਲਈ ਅੰਕ : 26
ਅੰਦਰੂਨੀ ਮੁਲਾਂਕਣ : 25 ਅੰਕ	ਅੰਦਰੂਨੀ ਮੁਲਾਂਕਣ ਵਿੱਚੋਂ ਪਾਸ ਹੋਣ ਲਈ ਅੰਕ : 09
ਸਮਾਂ : ਤਿੰਨ ਘੰਟੇ	ਕਰੈਡਿਟ : 04

ਸਿਲੇਬਸ ਅਤੇ ਪਾਠ-ਪੁਸਤਕਾਂ

ਯੂਨਿਟ ਪਹਿਲਾ

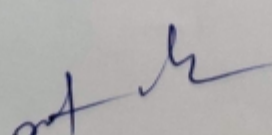
1. 'ਕਥਾ-ਰੰਗ' (ਕਹਾਣੀ-ਸੰਗ੍ਰਹਿ) ਸੰਪਾਦਕ : ਡਾ. ਵਰਿਆਮ ਸਿੰਘ ਸੰਧੂ ਅਤੇ ਡਾ. ਬਲਦੇਵ ਸਿੰਘ ਚੀਮਾ, ਪੰਜਾਬੀ ਯੂਨੀਵਰਸਿਟੀ, ਪਟਿਆਲਾ।
2. **ਨਿਬੰਧ ਰਚਨਾ:** ਸਮਾਜਿਕ, ਸੱਭਿਆਚਾਰਕ ਅਤੇ ਵਿਦਿਅਕ ਵਿਸ਼ਿਆਂ ਨਾਲ ਸੰਬੰਧਤ (ਕੋਵਿਡ-19 ਦੀ ਮਹਾਂਮਾਰੀ, ਨੌਜਵਾਨਾਂ ਦੀ ਵਿਦੇਸ਼ਾਂ ਵੱਲ ਦੌੜ, ਸਮਕਾਲੀ ਕਿਸਾਨੀ ਸੰਘਰਸ਼, ਨੈਤਿਕ ਕਦਰਾਂ-ਕੀਮਤਾਂ ਵਿਚ ਆ ਰਿਹਾ ਨਿਘਾਰ, ਪੰਜਾਬੀ ਸੱਭਿਆਚਾਰਕ ਵਿਰਾਸਤ ਉੱਤੇ ਪੱਛਮੀ ਸੱਭਿਆਚਾਰ ਦਾ ਪ੍ਰਭਾਵ, ਪੰਜਾਬੀ ਰਿਸ਼ਤਾ-ਨਾਤਾ ਪ੍ਰਬੰਧ ਦੇ ਬਦਲਦੇ ਰੂਪ, ਵਿਗਿਆਨ ਅਤੇ ਸੱਭਿਆਚਾਰ, ਪੰਜਾਬ ਦੇ ਲੋਕ ਨਾਚ, ਆਨਲਾਈਨ ਅਧਿਆਪਨ ਦੀਆਂ ਮੁਸ਼ਕਲਾਂ, ਵਿੱਦਿਆ ਦਾ ਵਪਾਰੀਕਰਨ, ਵਿਦਿਆਰਥੀ ਤੇ ਅਨੁਸ਼ਾਸਨ, ਲਾਇਬ੍ਰੇਰੀ ਦੀ ਮਹੱਤਤਾ, ਗਲੋਬਲ ਵਾਰਮਿੰਗ, ਲਿੰਗ ਬਰਾਬਰੀ, ਸਮਾਜਿਕ ਨਿਆਂ, ਰਾਸ਼ਟਰੀ ਏਕਤਾ)

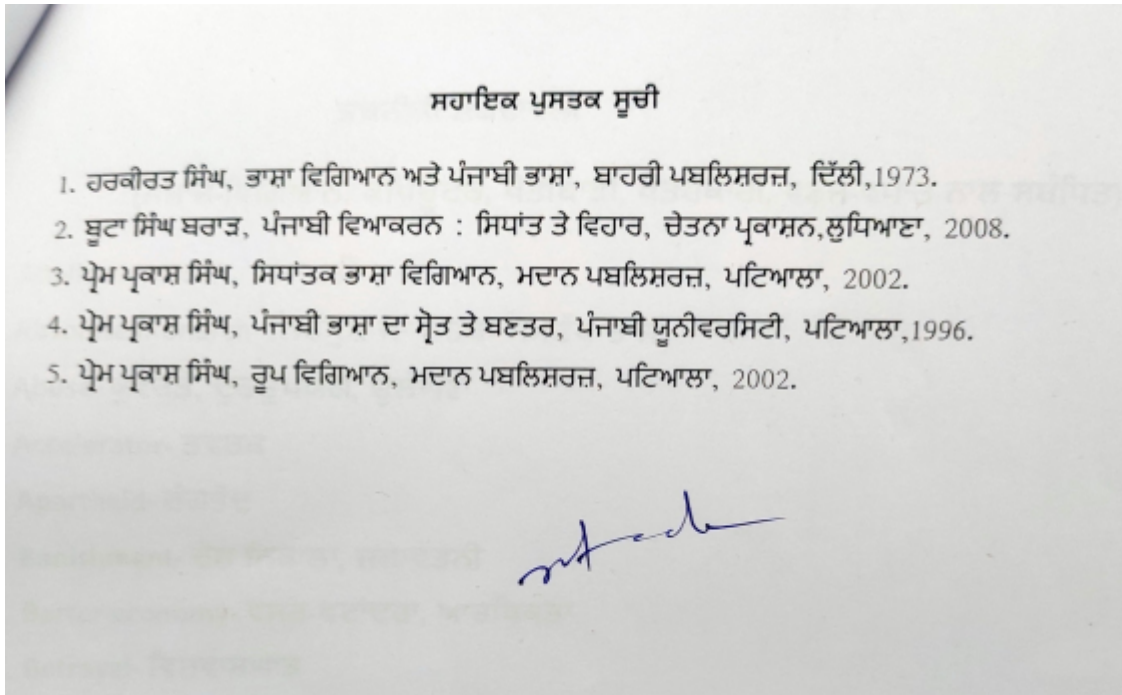
ਯੂਨਿਟ ਦੂਜਾ

3. ਵਿਆਕਰਨ: (ੳ) ਸ਼ਬਦ ਸ਼੍ਰੇਣੀਆਂ: ਨਾਂਵ, ਪੜਨਾਂਵ, ਕਿਰਿਆ, ਵਿਸ਼ੇਸ਼ਣ, ਕਿਰਿਆ-ਵਿਸ਼ੇਸ਼ਣ।
(ਅ) ਭਾਸ਼ਾ ਵੰਨਗੀਆਂ: ਭਾਸ਼ਾ ਦਾ ਟਕਸਾਲੀ ਰੂਪ, ਭਾਸ਼ਾ ਅਤੇ ਉਪ-ਭਾਸ਼ਾ ਦਾ ਅੰਤਰ।
4. ਦਫ਼ਤਰੀ ਚਿੱਠੀ ਪੱਤਰ
5. ਤਕਨੀਕੀ ਸ਼ਬਦਾਵਲੀ:- ਅੰਗਰੇਜ਼ੀ ਤੋਂ ਪੰਜਾਬੀ ਵਿੱਚ ਅਨੁਵਾਦ (ਸਮਾਜ-ਵਿਗਿਆਨ, ਕੰਪਿਊਟਰ, ਖੇਤੀਬਾੜੀ, ਵਣਜ ਵਪਾਰ ਅਤੇ ਪੱਤਰਕਾਰੀ ਨਾਲ ਸਬੰਧਿਤ)। (ਸੂਚੀ ਪਾਠਕ੍ਰਮ ਨਾਲ ਨੱਥੀ ਹੈ)

ਅੰਕ-ਵੰਡ ਅਤੇ ਪੇਪਰ ਸੈਟਰ ਲਈ ਹਦਾਇਤਾਂ

1. ਯੂਨਿਟ ਪਹਿਲਾ ਵਿੱਚੋਂ ਕਹਾਣੀ ਦਾ ਵਿਸ਼ਾ-ਵਸਤੂ/ਸਾਰ ਬਾਰੇ ਪ੍ਰਸ਼ਨ ਪੁੱਛਿਆ ਜਾਵੇਗਾ (ਦੋ ਵਿੱਚੋਂ ਇੱਕ) 15 ਅੰਕ
2. ਯੂਨਿਟ ਪਹਿਲਾ ਦਾ ਦੂਜਾ ਪ੍ਰਸ਼ਨ ਨਿਬੰਧ ਰਚਨਾ ਨਾਲ ਸੰਬੰਧਤ ਹੋਵੇਗਾ, ਜਿਸ ਵਿਚ ਉੱਪਰ ਦਰਸਾਏ ਵਿਸ਼ਿਆਂ ਵਿੱਚੋਂ ਕਿਸੇ ਵਿਸ਼ੇ 'ਤੇ ਲਿਖਣ ਲਈ ਕਿਹਾ ਜਾਵੇਗਾ। (ਤਿੰਨ ਵਿੱਚੋਂ ਇੱਕ) 10 ਅੰਕ
3. ਯੂਨਿਟ ਦੂਜਾ ਦੇ ਤੀਜੇ ਪ੍ਰਸ਼ਨ ਵਿਚ 'ੳ' ਅਤੇ 'ਅ' ਵਿਆਕਰਨ ਵਾਲੇ ਦੋਵੇਂ ਭਾਗਾਂ ਵਿੱਚੋਂ ਦੋ ਪ੍ਰਸ਼ਨ ਪੁੱਛੇ ਜਾਣਗੇ ਅਤੇ ਵਿਦਿਆਰਥੀਆਂ ਨੇ ਦੋਵਾਂ ਵਿੱਚੋਂ ਇੱਕ ਪ੍ਰਸ਼ਨ ਕਰਨਾ ਹੋਵੇਗਾ। 10 ਅੰਕ
4. ਚੌਥੇ ਪ੍ਰਸ਼ਨ ਵਿਚ ਕਿਸੇ ਵਿਸ਼ੇ ਤੇ ਚਿੱਠੀ-ਪੱਤਰ ਲਿਖਣ ਲਈ ਕਿਹਾ ਜਾਵੇ। (ਦੋ ਵਿੱਚੋਂ ਇੱਕ) 10 ਅੰਕ
5. ਤਕਨੀਕੀ ਸ਼ਬਦਾਵਲੀ ਨਾਲ ਸਬੰਧਿਤ ਕੋਈ 15 ਸ਼ਬਦ ਦੇ ਕੇ 10 ਸ਼ਬਦਾਂ ਦਾ ਪੰਜਾਬੀ ਅਨੁਵਾਦ ਕਰਨ ਲਈ ਕਿਹਾ ਜਾਵੇ। (ਸੂਚੀ ਪਾਠਕ੍ਰਮ ਨਾਲ ਨੱਥੀ ਹੈ) 10 ਅੰਕ
6. 'ਕਥਾ ਰੰਗ' (ਕਹਾਣੀ ਸੰਗ੍ਰਹਿ) ਅਤੇ ਵਿਆਕਰਨ ਵਾਲੇ ਭਾਗ ਵਿੱਚੋਂ ਸੰਖੇਪ ਉੱਤਰਾਂ ਵਾਲੇ 10 (07+03) ਪ੍ਰਸ਼ਨ ਪੁੱਛੇ ਜਾਣਗੇ। ਵਿਦਿਆਰਥੀਆਂ ਨੇ ਸਾਰੇ ਪ੍ਰਸ਼ਨ ਦੇ ਸੰਖੇਪ ਉੱਤਰ ਦੇਣੇ ਹੋਣਗੇ। ਹਰੇਕ ਪ੍ਰਸ਼ਨ ਦੇ ਦੋ ਅੰਕ ਹੋਣਗੇ।
(10×2=20) ਅੰਕ





ਬੀ.ਸੀ.ਏ.ਭਾਗ- ਪਹਿਲਾ
ਸਮੇਸਟਰ-ਦੂਜਾ PBI 2001 A
ਪੰਜਾਬੀ ਲਾਜ਼ਮੀ (ਮੁੱਢਲਾ ਗਿਆਨ)
ਸੈਸ਼ਨ-2023-24

ਕੁੱਲ ਅੰਕ : 100
ਲਿਖਤੀ ਪ੍ਰੀਖਿਆ : 75 ਅੰਕ
ਅੰਦਰੂਨੀ ਮੁਲਾਂਕਣ : 25 ਅੰਕ
ਸਮਾਂ : ਤਿੰਨ ਘੰਟੇ

ਵਿਸ਼ੇ ਵਿਚੋਂ ਪਾਸ ਹੋਣ ਲਈ ਅੰਕ : 35%
ਲਿਖਤੀ ਪ੍ਰੀਖਿਆ ਵਿਚੋਂ ਪਾਸ ਹੋਣ ਲਈ ਅੰਕ : 26
ਅੰਦਰੂਨੀ ਮੁਲਾਂਕਣ ਵਿਚੋਂ ਪਾਸ ਹੋਣ ਲਈ ਅੰਕ : 09
ਕਰੈਡਿਟ : 04

ਸਿਲੇਬਸ ਅਤੇ ਪਾਠ-ਪੁਸਤਕਾਂ

ਯੂਨਿਟ ਪਹਿਲਾ

- ਗੁਰਮੁਖੀ ਵਰਨਮਾਲਾ ਤੇ ਲੇਖਣ ਪ੍ਰਬੰਧ।
(ੳ) ਅੱਖਰ ਸਿੱਖਿਆ : ਤਰਤੀਬਵਾਰ ਅਤੇ ਭੁਲਾਵੇਂ ਅੱਖਰ।
(ਅ) ਅੱਖਰ ਬਣਤਰ : ਅੱਖਰ ਰੂਪ ਤੇ ਲੇਖਣ ਦੇ ਨਿਯਮ।
- ਗੁਰਮੁਖੀ ਅੱਖਰ ਤੇ ਪੰਜਾਬੀ ਧੁਨੀਆਂ ਦਾ ਪ੍ਰਬੰਧ।
(ੳ) ਸਵਰ ਅਤੇ ਵਿਅੰਜਨ : ਵਰਗੀਕਰਨ ਦੇ ਸਿਧਾਂਤ ਅਤੇ ਉਚਾਰਨ, ਸਵਰ ਸੂਚਕ ਅੱਖਰਾਂ ਤੇ ਧੁਨੀਆਂ ਦੀ ਪਛਾਣ ਤੇ ਵਰਤੋਂ।
(ਅ) ਵਿਅੰਜਨ ਸੂਚਕ ਅੱਖਰਾਂ ਤੇ ਧੁਨੀਆਂ ਦੀ ਪਛਾਣ ਤੇ ਵਰਤੋਂ, ਲਗਾਂ-ਮਾਤਰਾਂ ਦੀ ਪਛਾਣ ਅਤੇ ਵਰਤੋਂ, ਲਗਾਖਰਾਂ ਦੀ ਪਛਾਣ ਅਤੇ ਵਰਤੋਂ।

ਯੂਨਿਟ ਦੂਜਾ

- ਲਿਪੀ ਦੇ ਅੱਖਰਾਂ ਦੀ ਪਛਾਣ ਅਤੇ ਵਰਤੋਂ ਦੇ ਨਿਯਮ।
(ੳ) ਪੂਰੇ ਅਤੇ ਪੈਰ ਵਿਚ ਪੈਣ ਵਾਲੇ ਅੱਖਰਾਂ ਦੀ ਪਛਾਣ ਅਤੇ ਵਰਤੋਂ, ਸਵਰ ਸੂਚਕ ਅੱਖਰਾਂ ਦੀ ਪਛਾਣ ਅਤੇ ਵਰਤੋਂ, ਸਵਰ ਵਾਹਕਾਂ ਦੀ ਪਛਾਣ ਅਤੇ ਵਰਤੋਂ।
(ਅ) ਮਾਤਰਾ ਅਤੇ ਸਵਰ ਵਾਹਕਾਂ ਦੀ ਸਾਂਝੀ ਵਰਤੋਂ, ਮਾਤਰਾ ਦੀ ਵਿਅੰਜਨ ਸੂਚਕਾਂ ਨਾਲ ਵਰਤੋਂ।
- ਪੰਜਾਬੀ ਸ਼ਬਦਾਵਲੀ ਨਾਲ ਜਾਣ-ਪਛਾਣ।
(ੳ) ਗਿਣਤੀ, ਹਫਤੇ ਦੇ ਦਿਨ, ਮਹੀਨਿਆਂ ਦੇ ਨਾਂ।
(ਅ) ਰੰਗਾਂ ਦੇ ਨਾਂ, ਪਸ਼ੂ-ਪੰਛੀਆਂ ਦੇ ਨਾਂ, ਘਰੇਲੂ ਵਸਤਾਂ ਨਾਲ ਸੰਬੰਧਿਤ ਸ਼ਬਦਾਵਲੀ।

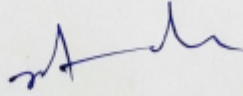
ਅੰਕ-ਵੰਡ ਅਤੇ ਪੇਪਰ ਸੈਟਰ ਲਈ ਹਦਾਇਤਾਂ

- ਯੂਨਿਟ ਪਹਿਲਾ ਵਿੱਚੋਂ ਗੁਰਮੁਖੀ ਵਰਨਮਾਲਾ ਤੇ ਲਿਖਣ ਪ੍ਰਬੰਧ ਨਾਲ ਸੰਬੰਧਿਤ ਪ੍ਰਸ਼ਨ ਪੁੱਛਿਆ ਜਾਵੇਗਾ।
(ਦੋ ਵਿਚੋਂ ਇਕ) 15 ਅੰਕ
- ਦੂਜਾ ਪ੍ਰਸ਼ਨ ਗੁਰਮੁਖੀ ਅੱਖਰ ਤੇ ਪੰਜਾਬੀ ਧੁਨੀਆਂ ਦੇ ਪ੍ਰਬੰਧ ਨਾਲ ਸੰਬੰਧਿਤ ਹੋਵੇਗਾ।
(ਦੋ ਵਿਚੋਂ ਇਕ) 20 ਅੰਕ
- ਯੂਨਿਟ ਦੂਜੇ ਵਿਚੋਂ ਲਿਪੀ ਦੇ ਅੱਖਰਾਂ ਦੀ ਵਰਤੋਂ ਦੇ ਨਿਯਮਾਂ ਨਾਲ ਸੰਬੰਧਿਤ ਪ੍ਰਸ਼ਨ ਪੁੱਛਿਆ ਜਾਵੇਗਾ।
(ਦੋ ਵਿਚੋਂ ਇਕ) 20 ਅੰਕ
- ਚੌਥਾ ਪ੍ਰਸ਼ਨ ਪੰਜਾਬੀ ਸ਼ਬਦਾਵਲੀ ਨਾਲ ਜਾਣ-ਪਛਾਣ ਬਾਰੇ ਪੁੱਛਿਆ ਜਾਵੇਗਾ। (ਦੋ ਵਿਚੋਂ ਇਕ) 20 ਅੰਕ

ਨੋਟ: ਵਿਦਿਆਰਥੀ ਪਹਿਲੀ ਵਾਰ ਗੁਰਮੁਖੀ ਸਿੱਖ ਰਹੇ ਹਨ ਹੋ ਸਕਦਾ ਹੈ ਕਿ ਵਿਦਿਆਰਥੀ ਪੰਜਾਬੀ ਭਾਸ਼ਾ ਤੋਂ ਅਨਜਾਣ ਹੋਣ, ਸੋ ਵਿਦਿਆਰਥੀਆਂ ਦੇ ਪੱਧਰ ਨੂੰ ਧਿਆਨ ਵਿਚ ਰੱਖਿਆ ਜਾਵੇ।

ਸਹਾਇਕ ਪੁਸਤਕ ਸੂਚੀ

1. ਆਓ ਪੰਜਾਬੀ ਸਿੱਖੀਏ, ਸਤਿਨਾਮ ਸਿੰਘ ਸੰਪੂ, ਪਬਲੀਕੇਸ਼ਨ ਬਿਊਰੋ, ਪੰਜਾਬੀ ਯੂਨੀਵਰਸਿਟੀ, ਪਟਿਆਲਾ, 2009
2. ਗੁਰਮੁਖੀ ਸਿੱਖੋ, ਸਤਿਨਾਮ ਸਿੰਘ ਸੰਪੂ, ਪਬਲੀਕੇਸ਼ਨ ਬਿਊਰੋ, ਪੰਜਾਬੀ ਯੂਨੀਵਰਸਿਟੀ, ਪਟਿਆਲਾ, 2011
3. ਪੰਜਾਬੀ ਸਿੱਖੀਏ, ਸੀਤਾ ਰਾਮ ਬਾਹਰੀ, ਪਬਲੀਕੇਸ਼ਨ ਬਿਊਰੋ, ਪੰਜਾਬੀ ਯੂਨੀਵਰਸਿਟੀ, ਪਟਿਆਲਾ, 2002
4. ਪੰਜਾਬੀ ਗਿਆਨ ਸੀ. ਡੀ. (ਕੰਪਿਊਟਰ ਐਪਲੀਕੇਸ਼ਨ ਟੂ-ਲਰਨ ਐਂਡ ਟੀਚ ਪੰਜਾਬੀ), ਪਬਲੀਕੇਸ਼ਨ ਬਿਊਰੋ, ਪੰਜਾਬੀ ਯੂਨੀਵਰਸਿਟੀ, ਪਟਿਆਲਾ, 2011
5. Teach Yourself Punjabi, Hradev Bahri, Publication Bureau, Punjabi University, Patiala, 2011
6. A Start in Punjabi, Henry A. Gleason and Harjeet Singh Gill, Publication Bureau, Punjabi University, Patiala, 1997
7. Introductory Punjabi, Ujjal Singh Bahri and Paramjit Singh Walia, Publication Bureau, Punjabi University, Patiala, 2003



Semester II
Course Code: BCA-202 GE1
COURSE NAME: Mathematics

Max Marks: 100**External Examination: 75****Min Pass Marks: 35%****Maximum Time: 3 Hrs.****Internal Assessment: 25****Lectures to be delivered: 45-55Hrs.****Course Objectives:**

- This course will provide the knowledge of Matrix solving, Set Theory and methods to solve series of numbers.
- To learn various Trigonometric functions.

Course Learning Outcomes:

Upon completion of the course, students will be able to:

- Explain basic concepts in set theory, probability and Trigonometric functions.
- Students will be able to generate solutions to unfamiliar problems.
- Apply knowledge of computing and mathematics appropriate to the discipline.

(A) INSTRUCTIONS FOR THE PAPERSETTER

The question paper will consist of three sections UNIT-I, UNIT-II, and UNIT-III, Each of UNIT-I and UNIT-II will have four questions from the respective Units of the syllabus and each question will carry 12 marks. UNIT-III will have 9 short answer type questions which will cover the entire syllabus uniformly and will carry 3 marks in all.

(B) INSTRUCTIONS FOR THE CANDIDATES

Candidates are required to attempt two questions each from UNIT-I and UNIT-II. UNIT-III is Compulsory.

UNIT-I

Set Theory: Sets, Type of sets, Set operations, Principle of Inclusion-Exclusion, Cartesian product of sets, Partitions.

Logic : Propositions, Implications, Precedence of logical operators, Translating English sentences into logical expressions, Propositional equivalence Principle of Mathematical induction.

Relations: Relations and diagraph, n-ary relations and their applications, properties of relations, representing relations, closure of relation, equivalence relation, operation on relations, partial ordering.

UNIT-II

Functions: Functions, One-to-one Functions, Onto Functions, Inverse and Composition of Functions, Floor Function, Ceiling Function.

Basic Concepts (Only Definition): Big-O Notation, Big-Omega and Big-Theta Notation.

Graphs: Introduction to Graph, Graph terminology, Representing graphs and Graph Isomorphism, Connectivity, Euler Paths and Circuits, Hamiltonian paths and circuits, Shortest Path Problems, Planar Graphs.

Trees : Trees, labeled trees, Tree Traversal, Undirected trees, Spanning Trees, Minimum spanning trees.

Text Book :

Board of Studies held on 19/4/2022

1. Discrete Mathematical Structures-Bernard Kolman, Robert C. Busby, Sharon C. Ross, 4th Edition, Pearson Education Asia.

Reference Books :

1. Discrete Mathematics-Richard Johnsonbaugh, 5th Edition, Pearson Education, Asia.
2. Elements of Discrete Mathematics, Second Edition, Tata McGraw Hill.
3. Discrete Mathematics, Seymour Lipschutz & Max Lans Lipson, Tata McGraw Hill.

Teaching Plan:

Week	Content
1-2	Set Theory: Sets, Type of sets, Set operations, Principle of Inclusion-Exclusion, Cartesian product of sets, Partitions.
3-4	Logic : Propositions, Implications, Precedence of logical operators, Translating English sentences into logical expressions, Propositional equivalence Principle of Mathematical induction.
5-6	Relations: Relations and diagraph, n-ary relations and their applications, properties of relations, representing relations, closure of relation, equivalence relation, operation on relations, partial ordering.
7-8	Functions: Functions, One-to-one Functions, Onto Functions, Inverse and Composition of Functions, Floor Function, Ceiling Function.
9-10	Basic Concepts (Only Definition): Big-O Notation, Big-Omega and Big-Theta Notation. Graphs: Introduction to Graph, Graph terminology, Representing graphs and Graph Isomorphism, Connectivity, Euler Paths and Circuits, Hamiltonian paths and circuits, Shortest Path Problems, Planar Graphs.
11-12	Trees : Trees, labeled trees, Tree Traversal, Undirected trees, Spanning Trees, Minimum spanning trees.
13-14	Revision
15	Revision

Semester II
Course Code: BCA-202 GE2
COURSE NAME: Statistical Methods

Max Marks: 100**External Examination: 75****Min Pass Marks: 35%****Maximum Time: 3 Hrs.****Internal Assessment: 25****Lectures to be delivered: 45-55Hrs.****Course Objectives:**

- To understand the basic principles of Statistical inference.
- To learn the language and core concepts of the statistical theory.

Course Learning Outcomes:

Upon Completion of the course, Students will be able to,

- Skill to choose and apply appropriate numerical methods to obtain approximate solutions to difficult mathematical problems.
- Ability to apply various statistical techniques such as Measures of Central Tendency and Dispersion.

(A) INSTRUCTIONS FOR THE PAPERSETTER

The question paper will consist of three sections UNIT-I, UNIT-II, and UNIT-III, Each of UNIT-I and UNIT-II will have four questions from the respective Units of the syllabus and each question will carry 12 marks. UNIT-III will have 9 short answer type questions which will cover the entire syllabus uniformly and will carry 3 marks in all.

(B) INSTRUCTIONS FOR THE CANDIDATES

Candidates are required to attempt two questions each from UNIT-I and UNIT-II. UNIT-III is Compulsory.

UNIT - I

Introduction: Meaning and Definitions of Statistics, Data and Data Sources, Types of Statistics, Importance of Statistics in computers, an overview of central tendency, Arithmetic Mean, Median, Mode, Relationships of the Mean, Median and Mode, The Best Measure of Central Tendency, Geometric Mean, Harmonic Mean.

Dispersion: Meaning and Definition of Dispersion, Significance and Properties of Measuring Variation, Measures of Dispersion, Range, Interquartile Range or Quartile Deviation, Mean Deviation, Standard Deviation.

Correlation Analysis: Definition, Scatter Diagram, Correlation Graph, Pearson's Coefficient of Correlation, Spearman's Rank Correlation, Concurrent Deviation Method, Limitations of Correlation Analysis.

UNIT - II

Computer Arithmetic: Basics of Floating point representation of numbers, arithmetic operation with normalised floating point numbers and its consequences, errors in numbers, binary representation of numbers.

Iterative Methods for finding roots : Bisection, False Position, Regula-falsi method, Secant Method, Newton Raphson, Successive Approximation, Discuss convergence only without derivation.

Solution of simultaneous algebraic equations: Gauss elimination method, pivoting, ill conditioned equations, Gauss-Seidel iterative method, comparison of direct and iterative method.

Text Books:

- V. Rajaraman, "Computer Oriented Numerical Methods", PHI, New Delhi.
- J.H. Mathews, "Numerical Methods for Computer Science, Engineering and Mathematics", PHI.

Reference Books:

- M K. Jain, S.R.K. Iyengar and R.K. Jain, " Numerical Methods for Scientific and Engineering Computation", Wiley Eastern Limited, New Delhi.
- S.C. Chopra and R.P.C Anale, "Numerical Methods for Engineers", McGraw-Hill, New York.
- Balaguruswamy E., "Computer oriented Statistical and Numerical methods", Macmillan India Ltd.

Teaching Plan:

Week	Content
1-2	Introduction: Meaning and Definitions of Statistics, Data and Data Sources, Types of Statistics, Importance of Statistics in computers, an overview of central tendency, Arithmetic Mean, Median, Mode
3-4	Relationships of the Mean, Median and Mode, The Best Measure of Central Tendency, Geometric Mean, Harmonic Mean.
5-6	Dispersion: Meaning and Definition of Dispersion, Significance and Properties of Measuring Variation, Measures of Dispersion, Range, Interquartile Range or Quartile Deviation
7-8	Mean Deviation, Standard Deviation. Correlation Analysis: Definition, Scatter Diagram, Correlation Graph, Pearson's Coefficient of Correlation, Spearman's Rank Correlation, Concurrent Deviation Method, Limitations of Correlation Analysis.
9-10	Computer Arithmetic :Basics of Floating point representation of numbers, arithmetic operation with normalised floating point numbers and its consequences, errors in numbers
11-12	binary representation of numbers. Iterative Methods for finding roots : Bisection, False Position, Regula-falsi method, Secant Method, Newton Raphson.
13-14	Successive Approximation, Discuss convergence only without derivation. Solution of simultaneous algebraic equations: Gauss elimination method, pivoting, ill conditioned equations
15	Gauss-Seidel iterative method, comparison of direct and iterative method.

Semester II
Course Code: BCA-203
COURSE NAME: Computer System Architecture

Max Marks: 100**External Examination: 75****Min Pass Marks: 35%****Maximum Time: 3 Hrs.****Internal Assessment: 25****Lectures to be delivered: 45-55Hrs.****Course Objectives:**

- This course introduces the students to the fundamental concepts of digital computer organization, design and architecture.
- It aims to develop a basic understanding of the building blocks of the computer system and highlights how these blocks are organized together to architect a computer system.

Course Learning Outcomes

On successful completion of the course, students will be able to:

- Design Combinational Circuits using basic building blocks.
- Describe memory organizations and register transfer operations.
- Determine various stages of instruction cycle and describe interrupts and their handling.

(A) INSTRUCTIONS FOR THE PAPERSETTER

The question paper will consist of three sections UNIT-I, UNIT-II, and UNIT-III, Each of UNIT-I and UNIT-II will have four questions from the respective Units of the syllabus and each question will carry 12 marks. UNIT-III will have 9 short answer type questions which will cover the entire syllabus uniformly and will carry 3 marks in all.

(B) INSTRUCTIONS FOR THE CANDIDATES

Candidates are required to attempt two questions each from UNIT-I and UNIT-II. UNIT-III is Compulsory.

UNIT-I

Logic Gates: AND, OR, NOT, NAND, NOR, XOR, XNOR, NAND & NOR as Universal Gates, Logic Gates Applications.

Combinational Logic Circuits: Half Adder & Half Subtractor, Full Adder & Full Subtractor, Multiplexer, Demultiplexer, Encoder, Decoder.

Computer organization: Structure of Computer, Instruction Codes, Instruction formats (Three address, two address, one address and zero address), instruction cycle. Addressing modes.

UNIT-II

Register Transfer and Micro operations: Register Transfer language, Arithmetic, Logic and shift micro-operations

Memory Organization: Memory Hierarchy, RAM (Static and Dynamic), ROM Associative memory, Cache memory organization, Virtual memory organization. Interrupt: Types of Interrupt.

Text Books:

1. M.M. Mano "Computer System Architecture", PHI.
2. R.P.Jain "Modern Digital Electronics", Tata Mc Graw Hill.

Reference Books:

1. J.P.Hayes: "Computer Architecture and Organizations", Mc Graw Hill
2. Stallings "Computer Organization and Architecture" PHI.

Teaching Plan:

Week	Content
1-2	Logic Gates: AND, OR, NOT, NAND, NOR, XOR, XNOR, NAND & NOR as Universal Gates, Logic Gates Applications.
3-4	Combinational Logic Circuits: Half Adder & Half Subtractor, Full Adder & Full Subtractor,
5-6	Multiplexer, Demultiplexer, Encoder, Decoder.
7-8	Computer Organization: Structure of Computer, Instruction Codes, Instruction formats (Three address, two address, one address and zero address),
9	Instruction cycle. Addressing modes.
10-11	Register Transfer and Micro operations: Register Transfer language, Arithmetic, Logic and shift micro-operations
12-13	Memory Organization: Memory Hierarchy, RAM (Static and Dynamic), ROM Associative memory,
14-15	Cache memory organization, Virtual memory organization. Interrupt: Types of Interrupt.

Semester II
Course Code: BCA-204
COURSE NAME: JavaScript

Max Marks: 100**External Examination: 75****Min Pass Marks: 35%****Maximum Time: 3 Hrs.****Internal Assessment:25****Lectures to be delivered: 45-55Hrs.****Course Objectives:**

- To introduce the students to the realm of web design.
- To understand advanced and complicated structures and concepts of web design, such as CSS and scripting languages

Course Learning Outcomes:

After Completion of this course the students will be able to

- Implement simple and impressive design techniques, from basics till advanced to focus on goal oriented and user centric designs.

(A) INSTRUCTIONS FOR THE PAPER SETTER

The question paper will consist of three sections A, B and C. Sections A and B will have four questions each from the respective Units of the syllabus and students will attempt any two questions, each question will carry 12 marks each. Section C will have 9 short answer type questions which will cover the entire syllabus uniformly and will carry 3 marks in all.

(B) INSTRUCTIONS FOR THE CANDIDATES

Candidates are required to attempt two questions from sections A and B. Section C is Compulsory.

UNIT-I

Java Script: Introduction to Java Script: Syntax, Comments, Statements, data types, variable declaration, scope of variables, Expressions and Operators, getting inputs, output functions,

Sequence control statements: decision taking statements, iterative (looping) statements, break and continue.

Understanding arrays: creating an array, accessing elements in array, functions on arrays, iterating over arrays. **Working with functions:** User defined functions - Function declaration, function calling, function arguments, hoisting, . Built In Functions: math functions, string functions, date and time functions.

Data Validation and verification: Form validation: email validation, name validation.

UNIT-II

Events in JavaScript: handling events, using addEventListener() method, using on<event> handlers: onchange, onclick, onmouseover, onmouseout, onkeydown, onload events. Key Events: onkeypress, onkeydown, onkeyup,

Document object model (DOM): Introduction, **fetching elements:** getElementById, getElementsByTagName, getElementsByClassName, query selectors.

jQuery: Introduction, jQuery selectors and its syntax, events, jQuery effects- hide/show, fade, slide, animate, fetching elements, modifying HTML attributes and CSS attributes using jQuery, event handling using jQuery.

Bootstrap: Introduction to Bootstrap, exploring bootstrap classes – containers, grid system, custom forms, navbars.

Text Book : Laura Lemay, Mastering HTML,CSS & JavaScript Web Publishing, BPB Publication

Reference Books: 1. Thomas Powell, The Complete Reference HTML & CSS, TMH 5th edition.

2. David Flanagan , JavaScript : The Definitive Guide, O'REILLY.

Teaching Plan:

Week	Content
1-2	Introduction to Java Script: Syntax, Comments, Statements, data types, variable declaration, scope of variables, Expressions and Operators, getting inputs, output functions,
3-4	Sequence control statements: decision taking statements, iterative (looping) statements, break and continue.
5-6	Understanding arrays: creating an array, accessing elements in array, functions on arrays, iterating over arrays.
7-8	Working with functions: User defined functions - Function declaration, function calling, function arguments, hoisting, . Built In Functions: math functions, string functions, date and time functions. Data Validation and verification: Form validation: email validation, name validation.
9-10	Events in JavaScript: handling events, using addEventListener() method, using on<event> handlers: onchange, onclick, onmouseover, onmouseout, onkeydown, onload events. Key Events: onkeypress, onkeydown, onkeyup
11-12	Document object model (DOM): Introduction, fetching elements: getElementById, getElementsByTagName, getElementsByClassName, query selectors.
13-14	jQuery: Introduction, jQuery selectors and its syntax, events, jQuery effects- hide/show, fade, slide, animate, fetching elements, modifying HTML attributes and CSS attributes using jQuery, event handling using jQuery.

Semester II
Course Code: BCA-204(P)
COURSE NAME : Software Lab – III (Based on paper BCA-204)

External Examination: 50
Maximum Time: 3 Hrs.
Min Pass Marks: 35%

Internal Assessment:50
Lectures to be delivered: 40-50Hrs.

Course Objectives:

- To provide practical exposure to the realm of web design.
- To understand advanced and complicated structures and concepts of web design, such as CSS and scripting languages

Course Learning Outcomes:

After Completion of this course the students will be able to

- Implement simple and impressive design techniques, from basics till advanced to focus on goal oriented and user centric designs.

This laboratory course will comprise as exercises to supplement what is learnt under paper
BCA-204: Web Designing using Advanced CSS and Scripting Languages.

The breakup of marks for the practical will be as under:

i.	Lab Record (Internal Assessment)	10 Marks
ii.	Viva Voce (External Evaluation)	20 Marks
iii.	Program Development and Execution(External Evaluation)	20 Marks

Semester II
Course Code: BCA-205(P)
COURSE NAME : Software Lab-IV (Open OFFICE)

Max Marks: 50**Maximum Time: 3Hrs.****External Examination: 50****Min Pass Marks:35%****Practical to be conducted : 45-55Hrs.****Course Objectives:**

- To facilitate and make the students learn to use open source software.
- To give hands on practice on libre / open office that facilitates them to create documents, spreadsheets and effective presentations.

Course Learning Outcomes:

- Skill to work with open source software.
- Initiation into the process of writing business letters or job applications, tabulating data, preparing PPTs etc.

Details of the four tasks and features that would be covered Using word – Accessing, overview of toolbars, saving files, Using help and resources, rulers, format painter

Word Processing Orientation:

1.Using word to create Resume Features to be covered: - Formatting Fonts in word, Drop Cap in word, Applying Text effects, Using Character Spacing, Borders and Colors, Inserting Header and Footer, Using Date and Time option in Word.

2.Creating an Assignment Features to be covered: - Formatting Styles, Inserting table, Bullets and Numbering, Changing Text Direction, Cell alignment, Footnote, Hyperlink, Symbols, Spell Check, Track Changes

3.Creating a Newsletter Features to be covered: - Table of Content, Newspaper columns, Images from files and clipart, Drawing toolbar and Word Art, Formatting Images, Textboxes and Paragraphs

4.Creating a Feedback form. Features to be covered: - Forms, Text Fields, Inserting objects, Mail Merge in Word

Spreadsheet Orientation:

1. Creating a Scheduler Features to be covered: - Gridlines, Format Cells, Summation, auto fill, Formatting Text

2.Calculations Features to be covered :- Cell Referencing, Formulae in excel – average, std.deviation, Charts, Renaming and Inserting worksheets, Hyper linking, Count function, LOOKUP/VLOOKU

3.Performance Analysis Features to be covered: - Split cells, freeze panes, group and outline, Sorting, Boolean and logical operators, Conditional formatting

Presentation Orientation:

1. Students will be working on basic power point utilities and tools which help them create basic power point presentation. Topic covered includes :- PPT Orientation, Slide Layouts, Inserting Text, Word Art, Formatting Text, Bullets and Numbering, Auto Shapes, Lines and Arrows

2. Making their presentations interactive: Hyperlinks, Inserting –Images, Clip Art, Audio, Video, Objects, Tables and Charts.

3. Interacting Power Point Presentation from the following topics: Global Warming,Pollution,Future of IT etc

The breakup of marks for the practical will be as under

- | | |
|--|----------|
| ● Lab Record(External Evaluation) | 10 marks |
| ● Viva Voce(External Evaluation) | 20marks |
| ● Program Development and Execution(External Evaluation) | 20marks |

EVS-3001: Environment and Road Safety Awareness
For All UG Courses (Ability Enhancement Compulsory Course)

Total Marks: 50 Max

Theory: 35 marks

Total Credit: 2

The Breakage of Internal Assessment will be as follow:

The Science City Visit and Report: 05

Attendance: 04

MST: 06

Time: 1:30 hrs.

Lectures per week 2

Course Objective: Objective of the paper is to impart knowledge about the nature of Environment, Natural resources, Ecosystem, Biodiversity, Various types of environment pollution, Road safety awareness and stubble burning.

Course learning outcomes: The students will increase their understanding about the importance of environment, the various effects which degrades the environment, how to overcome these effects also the student will learn the different rules and regulations of Road safety Awareness.

Pedagogy: Class room lectures, power point presentations, and field visits, etc. The students also make group discussions.

INSTRUCTIONS FOR THE PAPER SETTERS

The question paper will consist of three sections A, B and C. Each of sections A and B will have 04 questions from the respective Unit of the syllabus. Each question shall carry 6.5 marks. Section C will consist of 09 short answer type questions of 01 mark each.

INSTRUCTIONS FOR THE CANDIDATES

Candidates are required to attempt any two questions from each section A and B. Section C is compulsory.

UNIT 1

1. **The multidisciplinary nature of environment studies.** Definition, scope and importance, Need for public awareness.
2. **Natural resources**-Renewable and Non renewable resources. Role of an individual in conservation of natural resources for sustainable development.
3. **Ecosystem and its components**-Producers, Consumers and Decomposers. Food chain, Food Web and ecological pyramid.
4. **Biodiversity**-Definition, types, Hotspots of biodiversity, importance and conservation of biodiversity.

UNIT-II

5. **Social Issues and Environment**-Climate changes, Global Warming, Acid Rain, and Ozone Layer depletion. Population Explosion -Family welfare program.
6. **Environmental pollution**-definition causes, types, Effects & Control measure. Introduction to Environment Laws in India: Environmental protection Act, Air and Water Act(Prevention and control of pollution).
7. **Road Safety Awareness**-Concept and Significance of road safety, Traffic Signs and Rules, how to obtain licence, Role of First aid in Road safety.
8. **Stubble burning:** Its meaning: Why Stubble burning, Alternatives to Stubble Burning, Environmental and Health effects/Hazards, Policies to control Stubble burning.

SUGGESTED READINGS :

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2. Gadgil.M., & Guha,R.1993. This Fissured Land : An Ecological History of India.Univ. of California press.
3. Gleeson, B. and Low, N.(eds.)1999. Global Ethics and Environment, London, Routledge.
4. Gleick,P.H.1993. Water in Crisis.Pacific Institute for Studies in Dev. Environment & Security Stockholam Env. Institute,OxfordUniv.Press.
5. Groom , Martha J., Gary K. Meffe, and Carl Ronald Carroll.Principles of Conservation Biology.Sunderland : Sinauer Associates, 2006.
6. Grumbine,R.Edward, and Pandit,M.K.2013. Threats from India's Himalays dams. Science,339:36-37.
7. McCully,P.1996. Rivers no more: the environmetal effects of dams (pp.29-64). Zed Books.
8. McNeill,John R. 2000. Something New Under the Sun : An Environmental History of the Twentieth Century.
9. Odum, E.P., H.T & Andrews, J.1971. Fundamentals of Ecology.Philadelphia : Saunders.
10. Pepper,I.L., Gerba ,C.P & Brusseau,M.L.2011. Environmental and Pollution Sciences.Academic Press.
11. Rao, M.N. & Datta,A.K.1987. Waste Water Treatment.Oxford and IBH Publishing Co.Pvt.Ltd.
12. Raven, P.H., Hassenzahl, D.M. & Berg, L.R.2012,Environment. 8Th edition. John Wiles & Sons.
13. Rosencranz, A., Divan, S., &Nobie, M.L. 2001. Environmental law and policy in India. Tripathi 1992
14. Sengupta, R. 2003. Ecology and economics: An approach to sustainable development. OUP.
15. Singh, J.S., Singh, S.P. and Gupta, S.R. 2014. Ecology, Environmental Science and Conservation. S. Chand Publishing, New Delhi.
16. Sodhi, N.S. Gibson, L. & Raven, P.H. (eds). 2013. Conservation Biology: Voices from the Tropics. John Wiley & Sons.
17. Thapar, V. 1998. Land of the Tiger: A Natural History of the Indian Subcontinent.
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19. Wilson, E.O. 2006. The Creation: An appeal to save life on earth. New York: Norton