Kavayitri Bahinabai Chaudhari North Maharashtra University, Jalgaon

Bachelor of Computer Application

BCA

(At affiliated Institutes w.e.f A.Y. 2022-23)

w.e.f. Academic Year 2022-23

Summary of distribution of Credits under CBCS scheme for

BCA

Sr No	Type of Course	Sem I	Sem II	Sem III	Sem IV	Sem V	Sem VI
1	Core	16	16	12	12		04
2	Discipline Specific Course	08	08	16	16	16	16
3	Skill Enhancement Course	04	04	-		12	04
4	Project	-	-	-	-		04
		28	28	28	28	28	28

Course Credit Scheme

Semester	Core Courses			Discipline Specific Courses			Skill Enhancement			Projects			Total Credits
	No of Courses	Credits	Total Credits	No of Courses	Credits	Total Credits	No of Courses	Credits	Total Credits	No of Courses	Credits	Total Credits	
I	2	8+8	16	1	4+4	8	1	4	4	-	-	-	28
II	2	8+8	16	1	4+4	8	1	4	4	-	-	-	28
III	2	8+4	12	2	8+8	16	-	-	-	-	-	-	28
IV	2	8+4	12	2	8+8	16	-	-		-	-	-	28
V	-	-	-	2	8+8	16	2	8+4	12	-	-	-	28
VI	1	4	4	2	8+8	16	1	4	4	1	4	4	28
			60			80			24			4	168

Structure of Curriculum

		First Year				Second Year				Third Year				Total Credit Value
		Sem I		Sem II		Sem III		SemIV		Sem V		Sem VI		
		Cr	Co	Cr	Co	Cr	Co	Cr	Co	Cr	Co	Cr	Co	
		Core Courses												
A	Theory	8	2	8	2	8	2	8	2	-	-	4	1	36
	Practical	8	2	8	2	4	1	4	1	-	-	-	-	24
		Discipline Specific Courses												
B	Theory	4	1	4	1	8	2	8	2	8	2	8	2	40
	Practical	4	1	4	1	8	2	8	2	8	2	8	2	40
		Skill Enhanced Courses												
C	Theory	4	1	4	1	-	-	-	-	8	2	4	1	20
	Practical	-	-	-	-	-	-	-	-	4	1	-	-	4
		Project												
D	Project	-	-	-	-	-	-	-	-	-	-	4	1	4
Total Credit Value		28	7	28	7	28	7	28	7	28	7	28	7	168

Semester wise course structure of BCA

Sem I

Total Credits=28 [Theory =16, Practical =12]

Course Code	Course Type	Subject Name	Contact Hour/Week			Distribution of Marks for Examinations					Credits
			T	P	Total	Internal		External		Total	
						T	P	T	P		
BCA 101	SEC	Fundamentals of Accounting	04	-	04	40		60		100	4
BCA 102	Core	Fundamental of Computer	04	-	04	40		60		100	4
BCA 103	Core	Programming in C – I	04	-	04	40		60		100	4
BCA 104	DSC	Web Design – I	04	-	04	40		60		100	4
BCA 105	Core	Lab on Computer Fundamental	-	04	04		40		60	100	4
BCA 106	Core	Lab on C Programming – I	-	04	04		40		60	100	4
BCA 107	DSC	Lab on Web Design – I	-	04	04		40		60	100	4

Sem II

Total Credits=28 [Theory =16, Practical =12]

Course Code	Course Type	Subject Name	Contact Hour/Week			Distribution of Marks for Examinations					Credits
			T	P	Total	Internal		External		Total	
						T	P	T	P		
BCA 201	SEC	Professional Communication Skill	04	-	04	40	-	60	-	100	4
BCA 202	Core	Database Management System	04	-	04	40	-	60	-	100	4
BCA 203	Core	Programming in C – II	04	-	04	40	-	60	-	100	4
BCA 204	DSC	Web Design - II	04	-	04	40	-	60	-	100	4
BCA 205	Core	Lab on DBMS	-	04	04	-	40	-	60	100	4
BCA 206	Core	Lab on C Programming - II	-	04	04	-	40	-	60	100	4
BCA 207	DSC	Lab on Web Design – II	-	04	04	-	40	-	60	100	4

Sem III
Total Credits=28 [Theory =16, Practical =12]

Course Code	Course Type	Subject Name	Contact Hour/Week			Distribution of Marks for Examinations					Credits
			T	P	Total	Internal		External		Total	
						T	P	T	P		
BCA 301	Core	Fundamental Mathematics and Statistics	04	-	04	40	-	60	-	100	4
BCA 302	Core	Operating System	04	-	04	40	-	60	-	100	4
BCA 303	DSC	Programming in C++	04	-	04	40	-	60	-	100	4
BCA 304	DSC	Elective I A)Web Development Technology – I B)Data Analytics – I C)Python Programming	04	-	04	40	-	60	-	100	4
BCA 305	Core	Lab on Operating System	-	04	04	-	40	-	60	100	4
BCA 306	DSC	Lab on C ++ Programming	-	04	04	-	40	-	60	100	4
BCA 307	DSC	Lab on Elective	-	04	04	-	40	-	60	100	4

Sem IV
Total Credits=28 [Theory =16, Practical =12]

Course Code	Course Type	Subject Name	Contact Hour/Week			Distribution of Marks for Examinations					Credits
			T	P	Total	Internal		External		Total	
						T	P	T	P		
BCA 401	Core	Software Engineering	04	-	04	40	-	60	-	100	4
BCA 402	Core	Data Structures	04	-	04	40	-	60	-	100	4
BCA 403	DSC	Java Programming	04	-	04	40	-	60	-	100	4
BCA 404	DSC	Elective II A)Web Development Technology - II B)Data Analytics - II C)Artificial Intelligent	04	-	04	40	-	60	-	100	4
BCA 305	Core	Lab on Data Structure	-	04	04	-	40	-	60	100	4
BCA 306	DSC	Lab on Java Programming	-	04	04	-	40	-	60	100	4
BCA 307	DSC	Lab on Elective	-	04	04	-	40	-	60	100	4

Sem V
Total Credits=28 [Theory =16, Practical =12]

Course Code	Course Type	Subject Name	Contact Hour/Week			Distribution of Marks for Examinations					Credits
			T	P	Total	Internal		External		Total	
						T	P	T	P		
BCA 501	SEC	Employability Skill	04	-	04	40	-	60	-	100	4
BCA 502	SEC	E-Commerce and M-Commerce	04	-	04	40	-	60	-	100	4
BCA 503	DSC	Cloud Computing Application	04	-	04	40	-	60	-	100	4
BCA 504	DSC	Elective III A) Web Development Technology – III B) Data Analytics – III C) Machine Learning	04	-	04	40	-	60	-	100	4
BCA 505	SEC	Lab on E-Commerce		04	04	-	40	-	60	100	4
BCA 506	DSC	Lab on Cloud Computing		04	04	-	40	-	60	100	4
BCA 507	DSC	Lab based on Elective I		04	04	-	40	-	60	100	4

Sem VI
Total Credits=28 [Theory =16, Practical =12]

Course Code	Course Type	Subject Name	Contact Hour/Week			Distribution of Marks for Examinations					Credits
			T	P	Total	Internal		External		Total	
						T	P	T	P		
BCA 601	SEC	Entrepreneurship Development	04	-	04	40	-	60	-	100	4
BCA 602	Core	Cyber Security	04	-	04	40	-	60	-	100	4
BCA 603	DSC	Android Application Development	04	-	04	40	-	60	-	100	4
BCA 604	DSC	Elective IV A) Web Development Technology – IV B) Data Analytics - IV C) Data Mining	04	-	04	40	-	60	-	100	4
BCA 605	Project	Project Development		04	04	-	40	-	60	100	4
BCA 606	DSC	Lab on Android Application Development		04	04	-	40	-	60	100	4
BCA 607	DSC	Lab based on Elective		04	04	-	40	-	60	100	4

Program at a glance

Name of the Program	:	Bachelor of Computer Application
Apex body Approval	:	DTE, KBC NMU
Faculty	:	Science and Technology
Duration of the program	:	3 years (Comprising 6 Semesters)
Medium of the instruction and examination	:	English
Examination Pattern	:	60 % External Assessment + 40 % Internal Assessment
Passing Standards	:	Separate passing for Internal as well as External Assessment (min 40%)
Evaluation mode	:	CGPA
Total Credits of the program	:	168

Program Specific Objectives (PSO)

Objectives:

- ➢ BCA Program strives to create outstanding computer professionals with strong ethical and human values.
- ➢ This programme aims to prepare young minds for the challenging opportunities in the IT industry.
- ➢ The BCA Program aims at inculcating essential skills like Communication, Entrepreneurship Development & employability Skills as demanded by the global software industry through interactive learning process.
- ➢ The objective of the course is to develop skilled manpower in the various areas of software industry and Information Technology.

Program Outcome

PO1:   At the end of the program students understand, analyze and develop computer programs in the areas like Web Design, Database manipulation, Windows & Mobile Application.

PO2:   At the end of the program students understand, object-oriented programming features through various programming languages.

PO3:   At the end of the program students are able to create dynamic, Interactive webpage's using various web technologies.

PO4:   At the end of the program students understand the use of structured query language and its syntax, transactions, database recovery and techniques for query optimization.

PO5:   At the end of the program students are able to work in the IT sector as system engineer, software tester, junior programmer, web developer, system administrator, software developer etc.

PO6:   If chosen particular elective at the end of the program students are able to analyze very large data sets in the context of real world problems using various data analytical tools.

PO7:   If chosen particular elective it will help students to develop in depth understanding of the key technologies in AI, data mining & machine learning.

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North Maharashtra University, Jalgaon
Bachelor of Computer Application (BCA)
(W.E.F. June 2022)

Course Code	Sem. – I	Course Code	Sem. – II
BCA 101	Fundamentals of Accounting	BCA 201	Professional Communication Skill
BCA 102	Fundamental of Computer	BCA 202	Database Management System
BCA 103	Programming in C – I	BCA 203	Programming in C – II
BCA 104	Web Design – I	BCA 204	Web Design - II
BCA 105	Lab on Computer Fundamental	BCA 205	Lab on DBMS
BCA 106	Lab on C Programming – I	BCA 206	Lab on C Programming - II
BCA 107	Lab on Web Design – I	BCA 207	Lab on Web Design – II
Course Code	Sem. – III	Course Code	Sem. – IV
BCA 301	Fundamental Mathematics and Statistics	BCA 401	Software Engineering
BCA 302	Operating System	BCA 402	Data Structures
BCA 303	Programming in C++	BCA 403	Java Programming
BCA 304	A) Web Development Technology – I	BCA 404	A) Web Development Technology - II
	B) Data Analytics – I		B) Data Analytics - I
	C) Python Programming		C) Artificial Intelligent
BCA 305	Lab on Operating System	BCA 405	Lab on Data Structure
BCA 306	Lab on C ++ Programming	BCA 406	Lab on Java Programming
BCA 307	A) Lab on Web Development Technology – I	BCA 407	A) Lab on Web Development Technology - II
	B) Lab on Data Analytics – I		B) Lab on Data Analytics - I
	C) Lab on Python Programming		C) Lab on Artificial Intelligent
Course Code	Sem. – V	Course Code	Sem. – VI
BCA 501	Employability Skill	BCA 601	Entrepreneurship Development
BCA 502	E-Commerce and M-Commerce	BCA 602	Cyber Security
BCA 503	Cloud Computing Application	BCA 603	Android Application Development
BCA 504	A) Web Development Technology – III	BCA 604	A) Web Development Technology – IV
	B) Data Analytics – III		B) Data Analytics - IV
	C) Machine Learning		C) Data Mining
BCA 505	Lab on E-Commerce	BCA 605	Project
BCA 506	Lab on Cloud Computing	BCA 606	Lab on Android Application Development
BCA 507	A) Lab on Web Development Technology – III	BCA 607	A) Lab on Web Development Technology – IV
	B) Lab on Data Analytics - III		B) Lab on Data Analytics - IV
	C) Lab on Machine Learning Using Python		C)Lab on Data Mining

Semester – I

<table>
<tr><td rowspan="4">[Logo] 'A' Grade NAAC Re-accredited (3rd Cycle)</td><td colspan="4">Kavayitri Bahinabai Chaudhari
North Maharashtra University, Jalgaon
Faculty of Science and Technology
BACHELOR OF COMPUTER APPLICATIONS (BCA)
BCA 101 - Fundamentals of Accounting
W.E.F. 2022-23
[Total Marks: External60 + Internal40 =100 Marks]</td></tr>
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Semester	**I**	CIE Marks :	**40**	
Course Code	**BCA 101**	SEE Marks :	**60**	
Contact Hours (L.T.P)	**4:0:0**	Exam Hours :	**02**	

Course Outcomes – At the end of the course, student will be able to:

1. To understand fundamental concepts of financial accounting.
2. To understand the basics of cost accounting.
3. To maintain and record financial transactions in books of accounts.
4. To prepare final accounts of sole proprietary business.
5. To prepare Cost Sheet and record the transactions of materials.

Unit 1 – Introduction to Accounting :(theory only)	**06L 15 M**

1.1 Meaning and definition of Financial Accounting.
1.2 Objectives and scope of Financial Accounting,
1.3 Meaning and use of Book Keeping
1.4 Accounting v/s Book Keeping
1.5 Advantages and Limitations of Financial Accounting.

Unit 2 - Basics of Accounting (theory only)	**08L 15M**

2.1 Types of Accounting
2.2 Golden Rules of Accounting.
2.3 Double entry system in Accounting
2.4Terms used in accounting : Debtors, Creditors, Bill Receivable, Bills Payable, Credit Note ,Debit Note ,Petty Cash ,Contra Entry ,Trade Discount ,Cash Discount, Suspense A/c
2.5 Users of accounting information

Unit 3 –Fundamentals of Book Keeping &	**12L 15 M**
Recording of transactions (Practical Problems)	

3.1 Concept and Format of Journal
3.2 Recording of transactions in Journal
3.3 Meaning and Format of Ledger
3.4 Posting of transactions in Ledgers
3.5 Rectification of Errors

Unit 4 – Preparation of Final Accounts of Sole	**16L 15M**
Proprietorship Business (Practical Problems)	

4.1 Meaning, Importance & Objectives of Final   Accounts
4.2 Preparation of Trial Balance
4.3 Preparation of Trading A/c., Manufacturing A/c.
4.4. Preparation of Profit & Loss A/c.
4.5 Preparation of Balance Sheet- Adjustments- Outstanding Expenses, Prepaid Expenses, Accrued

Incomes, Depreciation

Unit 5 –Fundamentals of Cost Accounting (Theory and Problem)	08L 15 M

5.1 Cost, Expense, Loss : Meaning

5.2 Costing, Cost Accounting

5.3 Types of Costs on the basis of various criteria

5.4 Advantages and Limitations of Cost Accounting

5.5 Difference between Financial Accounting and Cost Accounting

5.6 Cost Sheet: Importance and objectives of Cost Sheet

5.7 Format of Cost Sheet & Preparation of Cost Sheet**(Problem)**

Unit 6 – Chapter 6 Material Control (Theory and Problem)	10L 15M

6.1 Meaning & Importance of Materials accounting and control

6.2 Different Level of Materials & their Calculations :Economic Order Quantity (EOQ), Maximum Level, Minimum Level, Average Level, Reorder Level, Danger Level **(Problems)**

6.3 Problems on Preparation of Store ledger under FIFO, LIFO, Simple Average Method **(Problems)**

Exam Pattern -

Reference Books -

1. Introduction to Accountancy by T.S. Gerwal, S.C. Gupta- S.Chand Publication- 8'th Edition, (ISBN-108121905699)
2. Financial Accounting by Bhushan Kumar Goyal, H.N.Tiwari- International Book House Pvt. Ltd.- First Edition (ISBN-9789381335420)
3. Fundamentals of Accounting by Dr. S.N. Maheshwari, Dr.S.K. Maheshwari- Vikas Publishing House (ISBN-139788180544491)
4. Accounting for Management by T. Vijaykumar, - (2010) – Tata McGraw Hill (ISBN-139780070090170)

KavayitriBahinabaiChaudhari **North Maharashtra University, Jalgaon** **Faculty of Science and Technology** **BACHELOR OF COMPUTER APPLICATIONS (BCA)** **BCA 102–Fundamentals of Computer** **W.E.F. 2022-23** **[Total Marks: External60 + Internal40 =100 Marks]**			

Semester	**I**	CIE Marks :	**40**	
Course Code	**BCA 102**	SEE Marks :	**60**	
Contact Hours (L.T.P)	**4:0:0**	Exam Hours :	**02**	

Course Outcomes – At the end of the course, student will be able to:

1. Acquire the knowledge of fundamentals of Computer and Operating System.
2. Develop problem solving skill through algorithms and flowcharts.
3. Understand the basics of computer networking and internet.

Unit 1 –Computer Fundamentals:	**10L 15 M**

History & generation of computer, Block diagram of computer system, Types of computers
Definition- Software, Hardware, Compiler, Interpreter, Characteristics & applications of Computer, Data Representation: Introduction to Number system: decimal, binary, octal and hexadecimal, Conversion in Number System, Character representation: ASCII

Unit 2 -Procedural Programming Paradigms and Platforms	**10L 15M**

Definition - Algorithm, Flowchart, Flowchart symbols, Examples for constructing algorithm and flowchart for simple programs (Minimum 5) , computer programming platforms (Hardware, software, server and cloud based)

Unit 3 –Operating System	**10L 15 M**

Definition, Need and Function of an operating system,
Types of operating system, Comparative study of various operating systems (DOS, Linux and Windows)

Unit 4 –Memory Management Concept	**10L 15M**

Types of Memory Primary– RAM, ROM, PROM, EPROM,
Secondary– Magnetic Disk, Hard Disk and CD
Definitions and Concept – Paging, Segmentation, Deadlock

Unit 5 – Networking and Internet	**10L 15 M**

What is Computer network? Types of Networks: LAN, MAN, WAN, Topologies: Star, Tree, Bus, Ring, Mesh, Fully Connected, Wireless Networks, Working of Internet, Use of Internet, Applications of Internet, Study of Web Browsers, Search Engines, Creating an E-mail Account, Sending & Receiving E-mail (with attachment).

Unit 6 –Office Automation	**10L 15M**

Basic Concepts, MS-Word- demonstration of text formatting, tables, shapes, smart-arts, charts, Spreadsheets- Functions- (Aggregate function) , Macros. Presentation Tool Design Slides (using Text, images, charts, clipart), Slide Animation, Template and theme creation

Exam Pattern -

Reference Books -

- V.RajaRaman, "Fundamentalsofcomputer"(PHIPublication)***ISBN***10:8120340116
- RogerHuntandJohnShelley, "Computerandcommonsense"(PHIPublication)***ISBN***10:0131646737
- AndrewS.Tanenbaum, "ComputerNetworks"–FourthEdition.***ISBNnumber***0130661023
- Hurwitz Judith S. and Daniel Kirsch, "Cloud Computing for Dummies". ISBN
- GodboleAchyut and KahateAtul, "Web Technologies: TCP/IP, Web/ Java Programming, and Cloud Computing, ", 3e Tata McGraw-Hill Education   ISBN: 9332900914, 9789332900912.

	Kavayitri Bahinabai Chaudhari **North Maharashtra University, Jalgaon** **Faculty of Science and Technology** **BACHELOR OF COMPUTER APPLICATIONS (BCA)** **BCA 103 - Programming in C - I** **W.E.F. 2022-23** **[Total Marks: External60 + Internal40 =100 Marks**]

Semester	**I**	CIE Marks :	**40**	
Course Code	**BCA 103**	SEE Marks :	**60**	
Contact Hours (L.T.P)	**4:0:0**	Exam Hours :	**02**	

Course Outcomes – At the end of the course, student will be able to:
1. Understand the basic concepts of C Programming for problem-solving and Illustrate the C data types, syntax and constructs.
2. Illustrate C for decision making, branching and looping statements
3. Understand the concept of Array and Strings to solve different problems.

Unit 1 –PreliminaryConcepts   **10L 15 M**

- Historyof 'C'Programminglanguage
- ApplicationsandFeatures
- Concept of Structured Programming
- StructureofC-program
- Compilation,ExecutionandDebuggingofC-program, Types of Errors
- Introduction to IDE, Types of IDEs: Turbo C++, Textpad, DevCPP, Code block etc

Unit 2 -Basicsof 'C'Program   **10L 15M**

- C character set, Tokens :identifiers, keywords, Constants, Strings, Special Symbols and Operators
- Variables, Data types and Qualifiers, Assignment statement, Comments
- Input Output Statements (Standard and formatted)
- Introduction and features of 'C' preprocessor Directives: #define, File inclusion (#include)

Unit 3 – OperatorsandExpression10L 15 M

- Operators –Arithmetic, Relational, Logical,   Assignment, Increment-Decrement, Conditional Operator, Bitwise, Special Operator(Comma, sizeof), Operator hierarchy & associativity
- Type Conversion – implicit and explicit

Unit 4 –Control Statements   **10L 15M**

- If Statement, if-else Statement, nested if-else Statement, else-if ladder, Switch Statement
- Break, continue and goto statements
- Looping Concepts: While, do-while, for loop Nested loops Concept

Unit 5 – Arrays and Strings   **10L 15 M**

- Definition: Array: declaration and Initialization
- Types of array(One Dimensional and Multidimensional)
- Advantages and disadvantages of array
- Applications of array
- Strings, Standard library string function: strlen(), strcpy(), strcat(), strcmp() etc.

Unit 6 - C Libraries   **10L 15M**

- Introduction to C Programming Libraries: stdio.h, conio.h, stdlib.h, math.h, graphics.h, time.h,

ctype.h
- Math.h- abs (), sqrt( ), pow( ), ceil( ), floor( )
- Time.h – getdate(),clock(),time(),difftime()
- Ctype.h- islower(),isupper(), isalnum(), isdigit()
- Stdlib.h – exit(),random()

Exam Pattern -

Reference Books -

- Denis Ritchie. "C" Programming – Prentice Hall Software Series- ISBN. 10 9 8 7
- Yashwant P. Kanetkar - ANSI C ,BPB publication. ISBN: 9788183333245
- Byron Gottfried – Programming with C –Tata McGRAW-Hill ISBN-10: 0070145903
- Yashwant P. Kanetkar -Understanding pointers in "C" -BPB publication. ISBN-13: 978-8176563581
- E.Balguruswami -Programming in ANSI- C- Tata McGRAW-Hill- ISBN-10: 933921966X
- Mike McGrath - C programming in easy step – Wiley publication ISBN-10: 1840785446

	Kavayitri Bahinabai Chaudhari **North Maharashtra University, Jalgaon** **Faculty of Science and Technology** **BACHELOR OF COMPUTER APPLICATIONS (BCA)** **BCA 104 - Web Design - I** **W.E.F. 2022-23** **[Total Marks: External60 + Internal40 =100 Marks**]

Semester	**I**	CIE Marks :	**40**	
Course Code	**BCA 104**	SEE Marks :	**60**	
Contact Hours (L.T.P)	**4:0:0**	Exam Hours :	**02**	

Course Outcomes – At the end of the course, student will be able to:

4. Acquainted with elements, Tags and basic structure of HTML files.
5. Up skills the knowledge of basic and advanced web designing.
6. Students were implement effective use of List and Tables.
7. Students were implement effective web page navigation.
8. Students were capable to design web page layout
9. Students were understood and implement use of style sheet.

Unit 1 –Introduction to Web	**10L 15 M**

Introduction to Internet, Advantages of Internet, Working of Internet, World Wide Web (WWW), Hypertext Transfer Protocol (HTTP), Universal Resource Locator (URL), Introduction to Web Browser and Web server, Introduction to Web page, Static and Dynamic Web page,

Unit 2 - Fundamentals of HTML	**10L 15M**

Introduction to HTML, Basic structure of HTML document, Formatting Text, Font Tags and Attributes, Headings Tags, Image Tag and Attributes, Background Color and Background Images, Inserting Audio and Video Files, Marquee Tag and Attributes

Unit 3 – List, Hyper link and Table	**10L 15 M**

List Tag - Ordered List, Unordered List, Definition List, Introduction to Hyperlink, Internal and External Hyperlink, Image Link, Table Tags & Attributes, Cell Spacing, Cell Padding, Row Span, Col Span

Unit 4 – Frame, Frameset and Form	**10L 15M**

Frame, Frameset,Creating Framesets, Target Frameset, Form Tag and Attributes, Form Elements - Textbox, Text Area, List Box, Radio Button, Checkbox, Submit and Reset Button

Unit 5 – Introduction to CSS	**10L 15 M**

Basic of CSS, Advantages of CSS, Role of CSS in Web Designing, CSS Structure and Syntax, Internal

CSS, Inline CSS, External CSS, Font Properties of CSS

Unit 6 – CSS Selectors 10L 15M

Selectors and declarations, Element Selector, Class Selector, ID Selector, Child Selector, Universal Selector, Group Selector

Exam Pattern -

Reference Books -

- Textbook of Web Designing By Joel Sklar, Cengage Learning Publication 2009
- Web designing in Nut Shell (Desktop Quick Reference) by Jennifer Niederst Publication – O'Reilly publication
- Designing web navigation by James Kalbach Publication – O'Reilly publication Textbook of
- Web Designing By Joel Sklar, Cengage Learning Publication 2009 ISBN, 1423901940

Kavayitri Bahinabai Chaudhari
North Maharashtra University, Jalgaon
Faculty of Science and Technology
BACHELOR OF COMPUTER APPLICATIONS (BCA)
BCA 105 - Lab on Computer Fundamental
W.E.F. 2022-23
[Total Marks: External60 + Internal40 =100 Marks]

Semester	**I**	CIE Marks :	**40**
Course Code	**BCA 105**	SEE Marks :	**60**
Contact Hours (L.T.P)	**4:0:0**	Exam Hours :	**03**

Course Outcomes – At the end of the course, student will be able to:
1. Students can able to understand the installation of operating system.
2. Students can understand basic DOS command, and different browser.
3. Student understand different platforms, Internet, mails, tables
4. Students can learn text formatting and table formatting.
5. Students capable to design power point presentation, tables, shapes, smart arts and charts

Assignments :

1. Installation of Operating System (Linux and Windows).
2. Run different commands of MS DOS – CD, DIR, COPY, REN, CLS, MD, RD, etc.
3. Study different web Browsers- Internet Explorer, Fire fox, downloading of files
4. Connect the Internet- open any website of your choice and download the WebPages.
5. Study different platforms – Hardware, Software, Server and Cloud.
6. Create your E-Mail ID on any free E-Mail Server.
7. Login through your E-Mail ID and do the following:
   a. Read your mail
   b. Compose a new Mail
   c. Send the Mail to one person
   d. Send the same Mail to various persons
   e. Forward the Mail
   f. Delete the Mail
   g. Send file as attachment
8. Create and demonstrate of text formatting, tables, shapes, smart-arts, charts.
9. Create a spreadsheet which will demonstrate use of aggregate function.
10. Create and demonstrate power point presentation with animation

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North Maharashtra University, Jalgaon
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BACHELOR OF COMPUTER APPLICATIONS (BCA)
BCA 106 - Practical on Web Design - I
W.E.F. 2022-23
[Total Marks: External60 + Internal40 =100 Marks]

Semester	I	CIE Marks :	40
Course Code	BCA 106	SEE Marks :	60
Contact Hours (L.T.P)	4:0:0	Exam Hours :	03

Course Outcomes – At the end of the course, student will be able to:

1. Students were able to design consistent look and feel web pages.
2. Students were capable to use multimedia in web page.
3. Students were implement effective web page navigation.
4. Students were capable to design web page layout
5. Students were implement use of style sheet.

Assignments :

1. Create web page using basic HTML tags.
2. Create web page using Different Formatting tag.
3. Create Web page with different Images.
4. Create web page using Marquee Tag
5. Create a web page using different List tag.
6. Create web page using Anchor Tag (Internal Link and External Link)
7. Create web page to design time table of your college using Table tag.
8. Create web page inserting audio and video files.
9. Design a web page using Frames and Frameset Tag.
10. Design webpage of College Admission Form.
11. Design a web page using Inline and Internal CSS
12. Demonstrate the use of External CSS
13. Create web page to set background color using CSS.

Kavayitri Bahinabai Chaudhari
North Maharashtra University, Jalgaon
Faculty of Science and Technology
BACHELOR OF COMPUTER APPLICATIONS (BCA)
BCA 107–Lab on C Programming
W.E.F. 2022-23
[Total Marks: External60 + Internal40 =100 Marks]

Semester	I	CIE Marks :	40
Course Code	**BCA 107**	SEE Marks :	60
Contact Hours (L.T.P)	**4:0:0**	Exam Hours :	03

Course Outcomes – At the end of the course, student will be able to:
1. Students understand the input output functions.
2. Students can understand the use of various operator.
3. Students can understand the use of control statements.
4. Students can design the various expressions in C
5. Students can understand the array and its type.

Assignments :
1. Write a program using standard Input and Output Statements.
2. Write a program using formatted input output statements also study various format String and Escape sequence characters.
3. Write a program to illustrate various operators like arithmetic, relational, logical, Conditional etc.
4. Write a program to illustrate various control statements (if, if-else, nested if-else, switch)
5. Write a program to check whether the number is palindrome or not.
6. Write a program to check whether the number is Armstrong or not.
7. Write a program to generate Fibonacci series up to given term.
8. Write a program to find factorial of given number.
9. Write a program for print the table of 1 to 5 using nested loop.
10. Write a program to check whether the string is palindrome or not.
11. Write a program to demonstrate concept of array.
    i) One dimensional
       ii) Two dimensional
12. Write a program to demonstrate various standard library functions.

Semester – II

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**'A' Grade
NAAC Re-accredited
(3rd Cycle)**
1990

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**Kavayitri Bahinabai Chaudhari
North Maharashtra University, Jalgaon
Faculty of Science and Technology
BACHELOR OF COMPUTER APPLICATIONS (BCA)
BCA 201 –Professional Communication
W.E.F. 2022-23
[Total Marks: External60 + Internal40 =100 Marks]**

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</table>

Semester	I	CIE Marks :	40
Course Code	BCA 201	SEE Marks :	60
Contact Hours (L.T.P)	4:0:0	Exam Hours :	02

Course Outcomes – At the end of the course, student will be able to:

1. To develop his verbal and non verbal communication ability
2. To communicate with people effectively and confidently.
3. To draft effective business correspondence documents.
4. To make and present well designed and informative presentations

Unit 1 – Introduction to Communication	06L 15 M

1.1. Introduction
1.2. Meaning
1.3. Definition
1.4. Process, importance.
1.5. Principles of effective communication
1.6. Scope of Business communication - Internal & External
1.7. Barriers to Communication, Overcoming the barriers

Unit 2 - Listening Skills	08L 15M

2.1. Types of Listening (theory /definition)
2.2. Tips for Effective Listening
2.3. Academic Listening- (lecturing)
2.4. Listening to Talks and Presentations
2.5. Listening to Announcements- (railway/ bus stations/ airport / stadium announcement etc.)
2.6. Listening to Radio and Television

Unit 3 –Oral Communication & Presentation Skills	12L 15 M

3.1 Need for Dialogue and Conversation Skills
3.2 Skills need for Dialogue
3.3 Clear & pleasant Speech
3.4 Speakers Appearance and Personality
3.5 Preparing text and visual material for presentation
3.6.Use of ICT tools for communication and presentation

Unit 4 –Soft Skills	16L 15M

4.1. Empathy
(Understanding of someone else's point of view) 4.2. Intrapersonal skills
4.3. Interpersonal skills
4.4. Problem solving
4.5. Reflective thinking, Critical thinking
4.6. Negotiation skills

Unit 5 –Basics of English	08L 15 M

5.1 Parts of Speech- Noun, Pronoun, Verb, Adjectives, Adverb, Conjunction, Preposition, Interjection 5.2 Tenses in a Nutshell -For proper sentence construction. 5.3 Punctuation: Commas, Semi-colons, colons, Hyphens & Dashes, Apostrophes 5.4 Vocabulary Building -; Antonyms and Synonyms; Prefixes and Suffixes	
Unit 6 – Written Communication	**10L 15M**
6.1 Letter writing, Essentials of Good Business letters 6.2 Types of letters: Types of Application Letters- Application for Job, Application for Leave. 6.3. Preparing Resume for Job 6.4 Email drafting and Etiquettes 6.5. Preparing agenda and writing minutes of meetings	

Exam Pattern -

Reference Books -

1. Business Communication by Urmila Rai &S.M. Rai, Ninth Revised Edition (2010) (ISBN-83-8318-438-3) Himalaya Publishing House
2. Effective Business Communication by Asha Kaul, Second Edition (2015) (ISBN-789390464777)
3. THI Learning Pvt. Ltd., Business Communication by K.K. Sinha, Galgotia (2003)(ISBN-81-85989-36-2)
4. Business Communication by M. Balasubramanyam, (2003) (ISBN-13-9788-176-639118), Kalyani Publications

<table>
<tr><td rowspan="5" style="text-align:center">Kavayitri Bahinabai Chaudhari
North Maharashtra University, Jalgaon
Faculty of Science and Technology
BACHELOR OF COMPUTER APPLICATIONS (BCA)
BCA 202–Database Management System
W.E.F. 2022-23
[Total Marks: External60 + Internal40 =100 Marks]</td></tr>
</table>

Semester	**I**	CIE Marks :	**40**
Course Code	**BCA 202**	SEE Marks :	**60**
Contact Hours (L.T.P)	**4:0:0**	Exam Hours :	**02**

Course Outcomes – At the end of the course, student will be able to:

1. Introduction to the basic concepts of database management systems.
2. Learning to design databases using ER modeling.
3. Learning to apply integrity constraints.
4. To understand and demonstrate database schema.
5. Understand and demonstrate Relational databases, SQL.

Unit 1 – Basics:	**10L 5 M**

What is Data?, What is Information?, What is Data management?, What is Optimization?, Preprocessing of Data, Importance of Data Quality, Introduction to DBMS softwares

Unit 2 - Database Systems:	**10L 10M**

Introduction of File Processing System, Introduction of DBMS, Difference between File processing system & DBMS, Applications of DBMS, View of data, Database Languages, Database Users

Unit 3 –Data Models:	**10L 10 M**

Relational Model, Network Model, Hierarchical Model, Entity Relationship Model.

Unit 4 – Integrity Constraints:	**10L 10M**

Primary Key, Foreign Key, Candidate Key, Super Key, Null, Default, Not Null, Check constraint, Entity Integrity, Referential Integrity

Unit 5 – Relational Database Design :	**08L 15 M**

Normalization, Normal Form: 1 NF, 2 NF, 3 NF, BCNF

Unit 6 – Structured Query Language (SQL):	**10L 15M**

Introduction to SQL, Data types, Operators, Working with tables, Introduction to DML, TCL, DDL, DCL, Functions: Numeric Function, Character Function, Date Function, Conversion Function, Group Functions. Sub Queries, view, Sequence, Set Operators, Joins, Inner joins, Equi, Non Equi, Self-join & Outer Joins.

Exam Pattern -

Reference Books -

- Database System Concepts: - Abraham Silberschatz, Henry F. Korth& S. Sudarshan, McGrawHill ISBN 978-0-07-352332-3
- Introduction to Database Management Systems, by – AtulKahate (Pearson Education) ISBN 9788131700785
- Oracle PL/SQL by Example, Rosenweig, Pearson Education ISBN 10: 0133796787

	Kavayitri Bahinabai Chaudhari **North Maharashtra University, Jalgaon** **Faculty of Science and Technology** **BACHELOR OF COMPUTER APPLICATIONS (BCA)** **BCA 203–Programming in C – II** **W.E.F. 2022-23** **[Total Marks: External60 + Internal40 =100 Marks]**		

Semester	**I**	CIE Marks :	**40**
Course Code	**BCA 203**	SEE Marks :	**60**
Contact Hours (L.T.P)	**4:0:0**	Exam Hours :	**02**

Course Outcomes – At the end of the course, student will be able to:

1. Apply the concepts of Function modules, its usage
2. Apply the concepts of memory allocation using Pointers
3. Understand the concepts of structures and unions: declaration, initialization and implementation.
4. Learn to draw different graphics objects.
5. Learn to store and apply the data using files.

Unit 1 – Function:	**10 L 12M**

- Definition, Need of Function, prototype, passing parameters(Call by value and Call by reference)
- Scope of variable
- Functionwithreturnand Functionwithargument
- Recursion
- Storageclasses

Unit 2 –Pointers:	**14L 10M**

- Introduction: Defination and uses
- Declaration and Initialization
- Operations on Pointers: Pointer Arithmetic,Array of Pointer, Function and Pointer, Pointer to pointer
- Dynamic memory allocation(malloc(),calloc(),realloc() and releasing dynamically allocated memory(free(),flush()).

Unit 3 –Structure and Union:	**12L 12 M**

- Introduction. Declaration and accessing of structure and union
- Need of structure and union, Difference between structure and union
- Nested structure
- Array of structure

Unit 4 – Graphics :	**12L 12M**

- Introduction to Graphics in C
- Graphics functions: Initgraph(), putpixel(),closegraph(),outtextxy(), setcolor(),line(),circle(),rectangle(),ellipse(),arc(), bar()

Unit 5 – File Handling in C :	**12L 12M**

- Concept of files, records, field
- File Processing-fopen() , fclose(),fprintf(),fscanf(),getc(), putc(),getw(),putw() etc.
- Various mode of file opening and closing files.
- Command line arguments

Exam Pattern -

Reference Books -

- Denis Ritchie. "C" Programming – Prentice Hall Software Series- ISBN. 10 9 8 7
- Yashwant P. Kanetkar - ANSI C ,BPB publication. ISBN: 9788183333245
- Byron Gottfried – Programming with C –Tata McGRAW-Hill ISBN-10: 0070145903
- Yashwant P. Kanetkar -Understanding pointers in "C" -BPB publication. ISBN-13: 978-8176563581
- E.Balguruswami -Programming in ANSI- C- Tata McGRAW-Hill- ISBN-10: 933921966X
- Mike McGrath - C programming in easy step – Wiley publication ISBN-10: 1840785446

	Kavayitri Bahinabai Chaudhari North Maharashtra University, Jalgaon Faculty of Science and Technology BACHELOR OF COMPUTER APPLICATIONS (BCA) BCA 204–Web Design - II W.E.F. 2022-23 [Total Marks: External60 + Internal40 =100 Marks]	

Semester	**II**	CIE Marks :	**40**
Course Code	**BCA 204**	SEE Marks :	**60**
Contact Hours (L.T.P)	**4:0:0**	Exam Hours :	**02**

Course Outcomes – At the end of the course, student will be able to:
1. Student were able to embed JavaScript in web page
2. Students successfully added interactivity in web page
3. Students were applied validation on web form
4. Students were implemented different events.
5. Students were familiar with bootstrap framework.

Unit 1 –Introduction to Web Site Development & Java Script   10L 15M

Web Site Development, Web Site Development Phases, Web Site Authoring tools, Web Site Development Model (RAD), Meaning of Scripting Language, Types of Scripting Language- JavaScript, VBScript, ASP, PHP, Differences between Client-Side &Server-Side Scripting, Introduction to Java Script, Advantages of JavaScript, Limitation of JavaScript

Unit 2 –Working with JavaScript   10L 15M

Embed JavaScript into HTML, Data Types, Creating Variable , Operators & Expressions, JavaScript Comments

Unit 3 – JavaScript Interactivity   10L 15M

Introduction to Function, Working with Function, Calling function, Built-in String function, Condition Checking-if-else statement, Switch Case Statement, Looping Statements - for LoopWhile Loop

Unit 4 – Dialog Box and Events   10L 15M

Dialog Boxes - Alert Dialog Box, Confirm Dialog Box, Prompt Dialog Box,
JavaScript Events - onclick, onmouseover, onmouseout, onkeypress, onkeydown, onkeyup,onfocus, onload,onunload,onblur, onsubmit

Unit 5 – JavaScript Objects   10L 15M

Array Object, Date Object, Math Object, Form Object

Unit 6 – Bootstrap and Responsive Design   10L 15M

Introduction to Bootstrap, Creating simple page, Layout of Bootstrap, Grid System,
Bootstrap components – Buttons, Horizontal Naves, Dropdown,

Exam Pattern -

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Reference Books -

- The ABC's of Java Script by Lee Purcell Mary Jane Mara, BPB Publication .ISBN: 8170298261.
- The Complete Reference – Web Design, Thomas A. Powell, TMH, ISBN 0-07-041186.
- How to become webmaster in 14 days, James L Mohler, Techmedia ISBN 1575211696.
- HTML, DHTML, JavaScript, Perl & CGI by Ivan Bayross, BPB Publishing ... ISBN: 8176562742
- Web References: www.w3c.org, www.sybex.com ISBN 0-07-041186
- Web Enabled Commercial Application Development using HTML, DHTML, Java Script,PERL ISBN 13: 9788183330084.
- Bootstrap 4 Quick Start: Responsive Web Design and Development Basics for Beginners (Bootstrap 4 Tutorial Book 1)Jacob Lett

Kavayitri Bahinabai Chaudhari
North Maharashtra University, Jalgaon
Faculty of Science and Technology
BACHELOR OF COMPUTER APPLICATIONS (BCA)
BCA 205 - Lab on DBMS
W.E.F. 2022-23
[Total Marks: External60 + Internal40 =100 Marks]

Semester	**I**	CIE Marks :	**40**
Course Code	**BCA 205**	SEE Marks :	**60**
Contact Hours (L.T.P)	**4:0:0**	Exam Hours :	**03**

Course Outcomes – At the end of the course, student will be able to:

1. Students can able to create the database.
2. Students can understand basic database commands.
3. Students can understand constraint.
4. Students capable to design SQL using different clause.

Assignments :

1. Demonstration of creating database
2. Create table insert 10 records in it.
3. Demonstrate to INSERT, UPDATE, and DELETE Records in Table.
4. Demonstrate to SELECT with clauses
5. Demonstrate to Alter Table (Add Column, Delete Column, Rename, Modify Column
6. Demonstrate integrity constraints.
   PRIMARY KEY,
   FOREIGN KEY
   CHECK
   NOT NULL
   DEFAULT
7. Demonstrate use of operators.
8. Query based on operators and joins • Simple and nested query
9. Write down SQL by using i. WHERE Clause ii. GROUP BY ii. HAVING CLAUSE
10. Write down SQL by using i. Aggregate functions ii. Date functions iii. String functions

Kavayitri Bahinabai Chaudhari
North Maharashtra University, Jalgaon
Faculty of Science and Technology
BACHELOR OF COMPUTER APPLICATIONS (BCA)
BCA 206–Lab On C Programming - II
W.E.F. 2022-23
[Total Marks: External60 + Internal40 =100 Marks]

Semester	**II**	CIE Marks :	**40**
Course Code	**BCA 206**	SEE Marks :	**60**
Contact Hours (L.T.P)	**4:0:0**	Exam Hours :	**03**

Course Outcomes –

At the end of the course, student will be able to:

1. Student were able to understand the concept of Function techniques
2. Students were able to understand the storage classes
3. Students were able to understand pointer and its uses.
4. Students were able to design the basic graphics objects
5. Students were understand the operations on file and command line argument.

Assignments :

1. Write a program to illustrate concept of function using call by value.
2. Write a program to illustrate concept of function using call by reference.
3. Write a program to illustrate concept of recursion.
4. Write a program to demonstrate extern, static variables.
5. Write a program to demonstrate pointers to arrays.
6. Write a program to demonstrate pointers to function.
7. Write a program to pointers to pointer.
8. Write a program to demonstrate structure.
9. Write a program to demonstrate union.
10. Write a program to demonstrate various graphics function.
11. Write a program to implement read and write operations on file.
12. Write a program to demonstrate command line arguments

	Kavayitri Bahinabai Chaudhari North Maharashtra University, Jalgaon Faculty of Science and Technology BACHELOR OF COMPUTER APPLICATIONS (BCA) BCA 207–Lab on OnWeb Design - II W.E.F. 2022-23 [Total Marks: External60 + Internal40 =100 Marks]	

Semester	**II**	CIE Marks :	**40**
Course Code	**BCA 207**	SEE Marks :	**60**
Contact Hours (L.T.P)	**4:0:0**	Exam Hours :	**03**

Course Outcomes –

At the end of the course, student will be able to:

1. Student were able to develop web page using JavaScript
2. Students successfully added interactivity features in web page
3. Students were implemented validation on web form
4. Students were implemented different events.
5. Students were familiar with bootstrap framework.

Assignments :

1: Write a program to embed JavaScript into HTML.

2: Write a JavaScript code to demonstrate Conditional Statements

3: Write a JavaScript code to demonstrate Looping Statements

4: Write JavaScript code to demonstrate different string functions.

5: Write JavaScript code to demonstrate onblur, onfocus, onload, onsubmit.

6: Write JavaScript code to demonstrate onkeypress, onmouseover, onmouseout.

7: Write a program to perform addition of two numbers using web form.

8: Create a HTML page to demonstrate Date object using JavaScript.

9: Write JavaScript code to demonstrate use of Dialog Boxes.

10: Write a JavaScript to apply form validation – not null, number, string etc.

11: Create simple registration form using Bootstrap.

12: Create Mini Website