

Krantiguru Shyamji Krishna Verma Kachchh University



CURRICULAM AND CREDIT FRAMEWORK FOR
Bachelor of Science in Computer Science (Hons)
3 YEARS AND 4 YEARS PROGRAMMES

AS PER THE NEP 2020



Guidelines, Rules and Regulations

1. Title

The degree shall be titled as '**Bachelor of Science(BS) in Computer Science**' under the faculty of Science with effect from the academic year 2024-25

BS in Computer Science Sem I & II from Academic Year 2024-25

BS in Computer Science Sem III & IV from Academic Year 2025-26

BS in Computer Science Sem V & VI from Academic Year 2026-27

BS in Computer Science (Hons) Sem VII & VIII from Academic Year 2027-28

2. Objective of the Program

1. The primary objective of this program is to provide a foundation of computing principles and business practices for effectively using/managing information systems and enterprise software
2. It helps students analyze the requirements for system development and exposes students to business software and information systems
3. This course provides students with options to specialize in legacy application software, system software or mobile applications
4. To produce outstanding IT professionals who can apply the theoretical knowledge into practice in the real world and develop standalone live projects themselves
5. To provide opportunity for the study of modern methods of information processing and its applications.
6. To develop among students the programming techniques and the problem- solving skills through programming
7. To prepare students who wish to go on to further studies in computer science and related subjects.
8. To acquaint students to Work effectively with a range of current, standard, Office Productivity software applications

3. Program Outcomes

1. Discipline knowledge: Acquiring knowledge on basics of Computer Science and ability to apply to design principles in the development of solutions for problems of varying complexity
2. Problem Solving: Improved reasoning with strong mathematical ability to Identify, formulate and analyze problems related to computer science and exhibiting a sound knowledge on data structures and algorithms.



3. Design and Development of Solutions: Ability to design and development of algorithmic solutions to real world problems and acquiring a minimum knowledge on statistics and optimization problems. Establishing excellent skills in applying various design strategies for solving complex problems.
4. Programming a computer: Exhibiting strong skills required to program a computer for various issues and problems of day-to-day applications with thorough knowledge on programming languages of various levels.
5. Application Systems Knowledge: Possessing a sound knowledge on computer application software and ability to design and develop app for applicative problems.
6. Modern Tool Usage: Identify, select and use a modern scientific and IT tool or technique for modeling, prediction, data analysis and solving problems in the area of Computer Science and making them mobile based application software.
7. Communication: Must have a reasonably good communication knowledge both in oral and writing.
8. Project Management: Practicing of existing projects and becoming independent to launch own project by identifying a gap in solutions.
9. Ethics on Profession, Environment and Society: Exhibiting professional ethics to maintain the integrity in a working environment and also have concern on societal impacts due to computer-based solutions for problems.
10. Lifelong Learning: Should become an independent learner. So, learn to learn ability.
11. Motivation to take up Higher Studies: Inspiration to continue educations towards advanced studies on Computer Science.

4. Credit Framework for 3 Years/4 Years UG Programme

NCrF Credit Levels	Qualification Title	Credit Requirement	No. of Semesters	Year
4.5	UG Certificate	44	2	1
5.0	UG Diploma	88	4	2
5.5	Three Years Bachelors Degree	132	6	3
6.0	Bachelor's Degree with Honors OR Bachelor's Degree with Honors with Research			
<ul style="list-style-type: none"> • 1 credit = 1 Hour of Theory • 1 credit = 2 Hour of Practical/Project 				



5. Degree programs offered by Faculty

- Bachelor of Science (Honors) / Bachelor of Science (Honors with Research) (4-Year Programme) and maximum duration of the programme is 7 Years.

6. Minimum Eligibility:

- 1) H.Sc. or an equivalent examination from a recognized board of examinations with science *stream, commerce stream and Arts Stream*
- 2) Diploma (After SSC) in Computer Science or Information Technology from recognized university is eligible to take admission in first year of the course.
- 3) Students who secure 75% marks or above in the first six semesters will be eligible for choosing a research stream in the fourth year. These students will be required to undertake a rigorous research project or Dissertation under the guidance of a research guide in prominent research area of computer science. These students will be awarded BS in Computer Science - (Honors with Research) on successful completion of four years.
- 4) In take capacity of BS in Computer Science - (Honors with Research) program will be determined based on the availability of research guides in the department.



7. CREDIT FRAMEWORK: BACHELOR OF SCIENCE IN COMPUTER SCIENCE

Arrangement of Credit Distribution Framework for three/four years Honors/Honors with Research Degree Programme with Multiple Entry and Exit Options
(As per GR No: KCG/admin/2023-24/0607/kh.1, Sachivalaya, Gandhinagar, Date-11/07/2023)

Sr.No	Broad Category of Courses	Credit Requirement of Each Category				
		Certificate (1 Year)	Diploma (2 Years)	3-Year UG	4-Year UG (Honors)	4-Year UG (Honors+Research)
1.	Major - Core Courses	16	40	64	88	88
2.	Minor-Discipline Specific Electives	08	12	24	32	32
3.	Multidisciplinary Courses Open Electives	08	12	12	12	12
4.	Ability Enhancement Courses(AEC)	04	08	10	10	10
5.	Skill Enhancement Courses(SEC)	04	08	14	14	14
6.	Value Added Courses (VAC)	04	08	08	08	08
7.	Summer Internship/ Research Project /Dissertation	-	-	-	12	12
8.	Exit Courses	04	04	-	-	-
9.	Total	48	92	132	176	176



**Structure of Integrated Programme of Master of Science (MSc (CA&IT))
AS PER NATIONAL EDUCATION POLICY 2020
Krantiguru Shyamji Krishna Verma Kachchh University, Bhuj-Kachchh-370001**

NCrF Credit Level	Semester	Major Core	Minor	Multi/Inter-disciplinary	Ability Enhancement Courses (AEC)	Skill Enhancement Courses (SEC)	Value Added Courses (VAC)/IKS	Research Project /Dissertation	Total Credits	Qualification/ Certificate
4.5 First Year	I	08	04	04	02	02	02	-	22	UG Certificate
	II	08	04	04	02	02	02	-	22	
1st Year Credit Total		16	08	08	04	04	04		44	
<i>Exit 1: Award of UG certificate in Major course with 44 credits with additional 4 credits of Summer Internship in core specific NSQF defined course OR continue with Major and Minor course for the next NCrF credit level</i>										
5.0 Second Year	III	12	-	04	02	02	02	-	22	UG Diploma
	IV	12	04	-	02	02	02	-	22	
2nd Year Credit Total		40	12	12	08	08	08	-	88	
<i>Exit 2: Award of UG Diploma in Major course with 88 credits with additional 4 credits of Summer Internship in core specific NSQF defined course OR continue with Major and Minor course for the next NCrF credit level</i>										
5.5 Third Year	V	12	08	-	-	02	-	-	22	UG Degree
	VI	12	04	-	02	04	-	-	22	
3rd Year Credit Total		64	24	12	10	14	8	-	132	
<i>Award of UG Degree in Major course with 132 credits with internship in core discipline.</i>										



6.0 Fourth Year	VII	12	04	-	-	-	-	06 (OJT)	22	UG Honors Degree
	VIII	12	04	-	-	-	-	06 (OJT)	22	
4 th Year Credit Total		88	32	12	10	14	8	12	176	

Award of UG Honors Degree in Major course with 176 credits.

6.0 Fourth Year	VII	12	04	-	-	-	-	06 (RP)	22	UG Honors With Research Degree
	VIII	12	04	-	-	-	-	06 (RP)	22	
4 th Year Credit Total		88	32	12	10	14	8	12	176	

Award of UG Honors with Research Degree in Major course with 176 credits.

* OJT – On the Job Training * RP – Research Project With Major Core Courses Only
* MDC – Multidisciplinary Courses



BS in Computer Science Course Outline with Subject Titles							
Semester	Course Type	Course Code	Name of the Subject	Theory/ Practical	Marks		Credits
					IA	UA	
1	Major	BSCS-101	Introduction to Computer Science and Programming	Theory	50	50	4
	Major	BSCS -101-P	Lab: Practical based on BSCS-101	Practical	50	50	4
	Minor	BSCS -102	Web Designing and Programming – I	Theory	25	25	2
		BSCS -102-P	Lab: Practical based on BSCS-102		25	25	2
	ID/MDC (Select Any One)	BSCS -103-A	Mathematical Foundation of Computer Science	Theory	50	50	4
		BSCS -103-B	Digital Electronics				
	Ability Enhancement Courses (AEC)	<i>Select any one course from given basket</i>				25	25
Value-Added courses (VAC) (Select Any One)	25					25	2
Skill Enhancement Courses (SEC)	BSCS -107-P	Practical skills in Office Automation	Practical	25	25	2	
					275	275	22
2	Major	BSCS-201	Introduction to Python Programming	Theory	50	50	4
	Major	BSCS-201-P	Lab: Practical Based on BSCS-201	Practical	50	50	4
	Minor	BSCS-202	Web Designing and Programming – II	Theory	25	25	2
		BSCS-202-P	Lab: Practical based on BSCS-102	Theory	25	25	2
	ID/MDC (Select any One)	BSCS-203-A	Statistical Computing	Theory	50	50	4
		BSCS-203-B	Management Information system				
	Ability Enhancement Courses	<i>Select any one course from given basket</i>				25	25
Value-Added courses	25					25	2
Skill Enhancement Courses (Any One)	BSCS -206-P	Practical Skills in R	Practical	25	25	2	
	BSCS -206-P	Practical Skills in Desktop Publishing					
					275	275	22
	<i>For Certificate in Computer Application</i>	<i>BSCS-001</i>	<i>Summer Internship and Viva</i>				4



External Exam Hours: 2 Hrs – 4 Credit Course – 50 Marks

2 Hrs – 2 Credit Course – 25 Marks Passing Marks: 40%

8. Evaluation System:

8.1 Internal Assessment will be based on CCE (Continuous and comprehensive Evaluation) Scheme as under:

4 Credit Course		
Sr. No	Mode	Marks
1.	Test	25 Marks
2.	CCE Activities (Quizzes, Attendance, Seminar, Assignments etc	25 Marks
Total		50 Marks

2 Credit Course		
Sr. No	Mode	Marks
1.	Test	15 Marks
2.	CCE Activities (Quizzes, Attendance, Seminar, Assignments etc	10 Marks
Total		25 Marks

8.2 External evaluation will be based on Semester End Evaluation (SEE) pattern.

The SEE carries 50% of the marks assigned to a course. SEE shall be of 2 hours for 4 credit course and 1 hour in case of 2 credit courses. The controller of the examination will conduct these examinations. Paper setting and evaluation will be done by the external examiners to an extent of 50% of the evaluation process. This examination shall be conducted as per a schedule which shall be notified in advance.



Component, the end semester examination, which will be a written-type examination of at 2:30 hours duration, would also form an integral component to the evaluation. The ratio of marks to be allotted to continuous internal assessment and to end semester examination is 50:50. The external evaluation pattern would be based on the written examination taken at the end of the semester. The format includes subjective, objective and applications questions so the test of students can be done on parameters like conceptual knowledge, its application in actual sense, his or her memory and presence of mind. The structure is as under:

<p align="center">Table 1.1 BS in Computer Science – 3 Years and 4 Years Programme Structure of the University or External Exam for 4 Credit Course</p>		
Q-1 All Units	Objective Questions (It can include: definitions, FIBs, True or false, one line answers, MCQs etc)	10
Q-2 (Unit -1)	Answer two short questions carrying 2 marks respectively (Compulsory) Answer two questions, Short notes carrying 3 marks respectively (3 out of 4)	10
Q-3 (Unit -2)	Answer two short questions carrying 2 marks respectively (Compulsory) Answer two questions, Short notes carrying 3 marks respectively (3 out of 4)	10
Q-4 (Unit -3)	Answer two short questions carrying 5 marks respectively OR Any one question which could be a long question, case study, application of concepts, practical problem etc carrying 10 marks	10
Q-5 (Unit -4)	Answer two short questions carrying 5 marks respectively OR Any one question which could be a long question, case study, application of concepts, practical problem etc carrying 10 marks	10
<p align="center">Note - University examination will be of 50 Marks and 150 minutes (2Hrs.)</p>		



Table 1.2 BS in Computer Science – 3 Years and 4 Years Programme Structure of the University or External Exam for 2 Credit Course		
Q-1 All Units	Objective Questions (It can include: definitions, FIBs, True or false, one line answers, MCQs etc)	05
Q-2 (Unit -1)	Answer two short questions carrying 2 marks respectively (Compulsory) Answer two questions, Short notes carrying 3 marks respectively (3 out of 4)	10
Q-3 (Unit -2)	Answer two short questions carrying 2 marks respectively (Compulsory) Answer two questions, Short notes carrying 3 marks respectively (3 out of 4)	10
Note - University examination will be of 25 Marks and 60 minutes (1Hr)		

Table 1.3 Structure of the University or External <u>Practical Exam</u> for 2 Credit Course		
Sr.No	Contents	Marks
1.	Practical	15
2.	Viva	10
Total		25



BS in Computer Science - Semester: I

(Effective from year 2024-25)

Course Code:	BSCS-101	Course Title:	Introduction to Computer Science and Programming
Course Credits:	02	Hour of Teaching/Week:	02
Internal Assessment Marks:	25	External Exam Marks:	25
Exam Duration	2 Hrs		

Unit	Contents
1.	<p>Introduction to Computers - Computer Definition, Characteristics of Computers, Evolution and History of Computers, Types of Computers, Basic Organisation of a Digital Computer; Number Systems – different types, conversion from one number system to another; Computer Codes – BCD, Gray Code, ASCII Characteristics of computers, Classification of Digital Computer Systems: Microcomputers, Minicomputers, Mainframes, Super computers. Anatomy of Computer: Introduction, Functions & Components of a Computer, Central Processing Unit, Microprocessor, Storage units, Input and output Devices. Computer Languages - Machine Level, Assembly Level & High Level Languages. Planning a Computer Program - Algorithm, Flowchart and Pseudo code with problems like odd-even number, prime number, Armstrong number, Factorial problem, Fibonacci Series</p>
	<p>Introduction to C Programming: Over View of C; History and Features of C; Structure of a C. Program with Examples; Creating and Executing a C Program; Compilation process in C.</p> <p>C Programming Basic Concepts: C Character Set; C tokens - keywords, identifiers, constants, and variables; Data types; Declaration & initialization of variables; Symbolic constants.</p> <p>Input and output with C: Formatted I/O functions - printf and scanf, control stings and escape sequences, output specifications with printf functions; Unformatted I/O functions to read and display single character and a string - getchar, putchar, gets and puts functions.</p>
2.	<p>C Operators & Expressions: Arithmetic operators; Relational operators; Logical operators; Assignment operators; Increment & Decrement operators; Bitwise operators; Conditional operator; Special operators; Operator Precedence and Associativity; Evaluation of arithmetic expressions; Type conversion.</p>



3.	<p>Control Structures: Decision making Statements - Simple if, if_else, nested if_else, else_if ladder, Switch-case, goto, break & continue statements; Looping Statements - Entry controlled and Exit controlled statements, while, do-while, for loops, Nested loops.</p> <p>Arrays: One Dimensional arrays - Declaration, Initialization and Memory representation; Two Dimensional arrays - Declaration, Initialization and Memory representation.</p> <p>Strings: Declaring & Initializing string variables; String handling functions - strlen, strcmp, strcpy and strcat; Character handling functions - toascii, toupper, tolower, isalpha, isnumeric etc.</p> <p>Pointers in C: Understanding pointers - Declaring and initializing pointers, accessing address and value of variables using pointers; Pointers and Arrays; Pointer Arithmetic; Advantages and disadvantages of using pointers;</p>
4.	<p>User Defined Functions: Need for user defined functions; Format of C user defined functions; Components of user defined functions - return type, name, parameter list, function body, return statement and function call; Categories of user defined functions - With and without parameters and return type.</p> <p>User defined data types: Structures - Structure Definition, Advantages of Structure, declaring structure variables, accessing structure members, Structure members initialization, comparing structure variables, Array of Structures; Unions - Union definition; difference between Structures and Unions.</p>

References

Text Books

1. Pradeep K. Sinha and Priti Sinha: Computer Fundamentals (Sixth Edition), BPB Publication
2. E. Balgurusamy; Programming in ANSI C (TMH)
3. Computer fundamentals and programming in c, "Reema Thareja", Oxford University, Second edition, 2017.
4. Brian W. Kernighan and Dennis M. Ritchie, The 'C' Programming Language, Prentice Hall of India.
1. Kamthane: Programming with ANSI and TURBO C (Pearson Education)
2. V. Rajaraman: Programming in C (PHI – EEE)
3. Yashwant Kanitkar: Let us C

Online Resources:

1. <https://nptel.ac.in/courses/106/105/106105171/> MOOC courses can be adopted for more clarity in understanding the topics and verities of problem solving methods.

External Exam Format : As per Table 1.1, 1.2 and 1.3



BS in Computer Science - Semester: I

(Effective from year 2024-25)

Course Code:	BSCS-101-P	Course Title:	Lab: Practical based on BSCS-101
Course Credits:	04	Hour of Teaching/Week:	08
Internal Assessment Marks:	50	External Exam Marks:	50
Exam Duration	2Hrs		

The following activities may be carried out/ discussed in the lab during the initial period of the semester.

1. Basic Computer Proficiency
 - a. Familiarization of Computer Hardware Parts
 - b. Basic Computer Operations and Maintenance.
 - c. Do's and Don'ts, Safety Guidelines in Computer Lab
2. Familiarization of Basic Software – Operating System, Word Processors, Internet Browsers, Integrated Development Environment (IDE) with Examples.
3. Type Program Code, Debug and Compile basic programs covering C Programming fundamentals discussed during theory classes.

List of Sample Programs

1. Write a C Program to read radius of a circle and to find area and circumference
2. Write a C Program to read three numbers and find the biggest of three
3. Write a C Program to demonstrate library functions in math.h
4. Write a C Program to check for prime
5. Write a C Program to generate n primes
6. Write a C Program to read a number, find the sum of the digits, reverse the number and check it for palindrome
7. Write a C Program to read numbers from keyboard continuously till the user presses 999 and to find the sum of only positive numbers
8. Write a C Program to read percentage of marks and to display appropriate message (Demonstration of else-if ladder)
9. Write a C Program to find the roots of quadratic equation (demonstration of switch-case statement)
10. Write a C program to read marks scored by n students and find the average of marks (Demonstration of single dimensional array)
11. Write a C Program to remove Duplicate Element in a single dimensional Array.



12. Program to perform addition and subtraction of Matrices
13. Write a C Program to find the length of a string without using built in function
14. Write a C Program to demonstrate string functions.
15. Write a C Program to demonstrate pointers in C
16. Write a C Program to check a number for prime by defining isprime() function
18. Write a C Program to read, display and to find the trace of a square matrix
19. Write a C Program to read, display and add two m x n matrices using functions
20. Write a C Program to read, display and multiply two m x n matrices using functions
21. Write a C Program to read a string and to find the number of alphabets, digits, vowels, consonants, spaces and special characters.
22. Write a C Program to Reverse a String using Pointer
23. Write a C Program to Swap Two Numbers using Pointers
24. Write a C Program to demonstrate student structure to read & display records of n students.
25. Write a C Program to demonstrate the difference between structure & union.

External Exam Format : As per Table 1.1, 1.2 and 1.3



BS in Computer Science - Semester: I

(Effective from year 2024-25)

Course Code:	BSCS-102	Course Title:	Web Designing and Programming - I
Course Credits:	02	Hour of Teaching/Week:	02
Internal Assessment Marks:	25	External Exam Marks:	25
Exam Duration	1 Hr		

Unit	Contents
1.	<p>Introduction to Internet and Web Technologies:</p> <p>Introduction to the Internet, History of the Internet, Services provided by the Internet, Some basic terminology and concepts (WWW, URL, webpage, web site, web servers, web browsers, HTML, search engines, etc.) , Introduction to Web Technologies, Careers in Web Technologies and Job Roles, How the Website Works?, Client and Server Scripting, Languages , Domains and Hosting, Responsive Web Designing, Types of Websites (Static and Dynamic Websites)</p> <p>What is Markup Language, Basic Structure of HTML, Difference Between HTML and XHTML, Head Section and Elements of Head Section, Meta Tags, Css Tags, Script Tag, Table Tag, Div Tag, Header Tags, Paragraph, Span, Pre Tags, Anchor Links and Named Anchors, Image Tag, Object Tag, Iframe Tag, Forms, Form Tag, Attributes of Form, POST and GET Method, Fieldset and Legend, Text input, Text area, Checkbox and Radio Button, Dropdown, List and Optgroup, File Upload and Hidden Fields, Submit, Image, Normal, Reset Button, Creating a Live Website Form, HTML Validators</p> <p>Introduction to HTML5, Features of HTML5, HTML5 DocType, New Structure Tags, Section, Nav, Article, Aside, Header, Footer, Designing a HTML Structure of Page, New Media Tags, Audio Tag, Video Tag, Canvas and Svg Tag, Placeholder Attribute, Require Attribute, Pattern Attribute, Autofocus Attribute, email , tel, url types, number type, date type, range type, voice search</p>
2.	<p>Introduction to Cascading Style Sheets, Types of CSS, CSS Selectors, Universal Selector, ID Selector, Tag Selector, Class Selector, Sub Selector, Child Combinatory, Selector, Adjacent Sibling Selector, Attribute Selector, Group selector, First-line and First-letter selector, Before and After Selector, CSS Properties & Type Properties, Background Properties, Block Properties, Box Properties, List Properties, Border Properties, Positioning Properties, Realtime Implementation, Conversation of Table to CSS Layout, CSS Menu Design (Horizontal, Vertical)</p> <p>Introduction to CSS 3, New CSS 3 Selectors, Attribute Selectors, First-of-type, Last-of-type, Nth-child, Element: empty, New CSS3 Properties, Custom Fonts, Text-Shadow Property, Text-Stroke</p>



Property, Rounded Corners, Box Shadows, CSS Gradients, CSS Multiple backgrounds, Opacity Property, Transition effect, Transform effect, Animation effects, Css Media Queries
Responsive Web Design with Bootstrap
Introduction to Responsive Design, Mobile first design concepts, Common device dimensions, Viewport tag, Using css media queries, Menu conversion script, Basic Custom Layout, Introduction to Bootstrap, Installation of Bootstrap, Grid System, Forms, Buttons, Icons Integration, Using CSS3

Text Books

1. Ivan Bayross, "Web Enabled Commercial Applications Development using HTML,DHTML, Javascript, Perl CGI", BPB, 2004
2. Xavier C : World Wide Web Design With HTML, Tata McGraw Hill Publication
3. Bootstrap 4 Quick Start: A Beginner's Guide to Building Responsive Layouts with Bootstrap 4
Jacob Lett, 2018

References

References

1. Jon Duckett: HTML and CSS: Design and Build Websites
2. Ben Frain: Responsive Web Design with HTML5 and CSS
3. DT Editorial Services: HTML 5 Black Book (Covers CSS3, JavaScript, XML, XHTML, AJAX, PHP, jQuery)

External Exam Format : As per Table 1.1, 1.2 and 1.3



BS in Computer Science - Semester: I

(Effective from year 2024-25)

Course Code:	BSCS-102-P	Course Title:	Lab : Practical based on BSCS-102
Course Credits:	02	Hour of Teaching/Week:	04
Internal Assessment Marks:	25	External Exam Marks:	25
Exam Duration	1 Hr		

List of Sample Programs

1. Develop a simple web page having attractive background color, text color.
2. Develop a HTML document for a web page of your course detail. Design a page with attractive font, suitable heading and horizontal rules (use paragraph and line tag).
3. Develop a HTML document with an example of Ordered Lists and Unordered List.
4. Develop a HTML document for a web page of your favorite teacher. Design a page with attractive color combination, suitable headings and appropriate text styles.
5. Develop a HTML document for a web page having the Image and also indicate the another image as background.
6. Develop a HTML document for a web page with an example of Table Format having the information of Hardware and Software used in your lab.
7. Develop a HTML document for a web page of your Bio-Data with use of Table tag.
8. Develop a HTML document for a web page with use of frame and frameset tag.
9. Develop a HTML document for a web page which linking with another pages.
10. Develop a HTML document having the Student Information Form.(Use all necessary tags)
11. Develop an HTML document which will use style sheets. Use inline style sheet and external style sheet.
12. Develop an HTML document for a web page of your favorite National Leader. Design the page with an attractive color combination, with suitable headings and horizontal rules.
13. Write an HTML document with an example of Table format to print your Telephone Bill. Write an HTML code for designing the subscription form of mail account in the e-mail website with appropriate fields.
14. Using HTML, CSS create a styled checkbox with animation on state change.
15. Using HTML, CSS create a staggered animation for the elements of a list.
16. Using HTML, CSS, JavaScript create a typewriter effect animati
17. Using HTML, CSS create an animated underline effect when the user hovers over the text.
18. Create Responsive login, signup and home page of website using bootsstap.

External Exam Format : As per Table 1.1, 1.2 and 1.3



BS in Computer Science - Semester: I

(Effective from year 2024-25)

Course Code:	BSCS-103-A	Course Title:	Mathematical Foundation of Computer Science
Course Credits:	04	Hour of Teaching/Week:	04
Internal Assessment Marks:	50	External Exam Marks:	50
Exam Duration	2.5 Hrs		

Unit	Contents
1	Mathematical Logic: Propositional Calculus: Statement and Notation, Truth Values, Connectives, Truth Tables, Tautologies, Equivalence Formulas, Laws, GATEs, AND, OR, NOT, NOT, NAND and their network diagrams.
2.	Set Theory: Set, Types of Sets: Finite, Infinite, Singleton, Empty, Subset, Proper Subset, Power Set, Universal. Venn Diagram, Operations on Set: Union, Intersection, Compliment, Cartesian product, Difference of sets, De'Morgan's Laws, Examples of operations on set and laws.
3.	Matrices: Types of Matrices: Row, Column, Square, Diagonal, Unit, Triangular, Symmetric, Ske-symmetric, Transpose of a Matrix. Operations on Matrices: Addition, Subtraction, Scalar Multiplication, Multiplications
4.	Determinants of Matrix Cofactors and Adjoin Minor and Inverse of a Matrix Applications of Matrices in Computer Science

Text Books and References/ Online Resources:

1. S.Lipschutz and Marc Lars Lipson : Discrete Mathematics, Schaum's series (Interational edition,1992).
2. Vinay Kumar: Discrete Mathematics (BPB Publication, First edition-2002)

External Exam Format : As per Table 1.1, 1.2 and 1.3



BS in Computer Science - Semester: I

(Effective from year 2024-25)

Course Code:	BSCS-103-B	Course Title:	Digital Electronics
Course Credits:	04	Hour of Teaching/Week:	04
Internal Assessment Marks:	50	External Exam Marks:	50
Exam Duration	2Hrs		

Unit	Contents
1.	Introduction to Digital Electronics, Digital vs Analog, Evolution of Digital technology. Representation of truth-table, Sum of Product (SOP) form, Product of Sum(POS) form, Simplification of logical functions, Minimization of SOP and POS forms using KMaps up to 4 variables. Code converter - BCD, Excess-3, Gray code, Binary Code. Half- Adder, Full Adder, Half Subtractor, Full Subtractor, Binary Adder (IC 7483), BCD adder,
2.	Gates, Boolean algebra, Practice of Simplification using Boolean Algebra, Truth tables, Importance of TT, creating truth tables, Circuit equivalence, drawing circuit diagrams Flip- flop: SR, JK, D, T; Preset & Clear, Master and Slave Flip Flops, Truth Tables and Excitation tables, Conversion from one type to another type of Flip Flop. Registers: Buffer register, shift register, Applications of shift registers. Counters: Asynchronous counter. Synchronous counter,ring counters, BCD Counter
3.	Classification of logic families: Unipolar and Bipolar Logic Families, Characteristics of Digital ICs: Speed, power dissipation, figure of merits, fan-out, Current and voltage parameters, Noise immunity, operating temperature range, power supply requirements. Transistor-Transistor Logic: Operation of TTL, Current sink logic, TTL with active pull up, TTL with open collector output, Schottkey TTL, TTL characteristics, TTL 5400/7400 series, CMOS: CMOS Inverter, CMOS characteristics, CMOS configurations- Wired Logic, Open drain outputs
4.	Comparison of typical microprocessor and microcontroller. 16- bitMicrocontroller MSP430: Features, architecture, Pin description, Programming model– Special Function Registers, addressing modes, instruction set, Timers and Counters, serial communication, interrupts, interfacing with ADC and DAC.



Text books and References

1. R.P. Jain, —Modern Digital Electronics, TMH, 2012, ISBN-13: 978-0-07- 066911-6.
2. Stephen Brown, Zvonko Vranesic, —Fundamentals of Digital Logic with VHDL Design, McGraw-Hill, ISBN-13:978-1-25-902597-6.
3. Muhammas Mazidi, Janice Mazidi and Rolin McKinlay, —The 8051 Microcontroller and Embedded Systems using Assembly and C, Pearson Education, ISBN-13: 9788131758991

External Exam Format : As per Table 1.1, 1.2 and 1.3



BS in Computer Science - Semester: I

(Effective from year 2024-25)

Course Code:	CAIT-106-P	Course Title:	Practical Skills in Office Automation
Course Credits:	02	Hour of Teaching/Week:	02
Internal Assessment Marks:	25	External Exam Marks:	25
Exam Duration	2Hrs		

Practical Based on the Following Topics

Windows Desk top and GUI Related Components.

MS Word - Working with Documents -Opening & Saving files, Editing text documents, Formatting page & setting Margins, Converting files to different formats, Importing & Exporting documents, Sending files to others, Using Tool bars, Ruler, Using Icons, using help, Formatting Documents. Type face - Bold, Italic, Underline, Case settings, Highlighting, Special symbols, Setting Paragraph style, Alignments, Indents, Line Space, Margins, Bullets & Numbering. Setting Page style - Formatting Page, Page tab, Margins, Layout settings, Paper tray, Border & Shading, Columns, Header & footer, Setting

Footnotes & end notes, Setting Document styles, Table of Contents, Index, Page Numbering, date & Time, Author etc., Creating Tables- Table settings, Borders, Alignments, Insertion, deletion, Merging, Splitting, Sorting, and Formula, Drawing - Inserting ClipArt, Pictures/Files etc., Tools - Word Completion, Spell Checks, Mail merge, Templates, Printing Documents - Shortcut keys.

MS Excel: Spread Sheet & its Applications, Opening Spreadsheet, Menus - main menu, Formula Editing, Formatting, Toolbars, Using Icons, Using help, Shortcuts, Spreadsheet types. Working with Spreadsheets- opening, saving files, setting Margins, Converting files to different formats (importing, exporting, sending files to others), Spread sheet addressing - Rows, Columns & Cells, Referring Cells & Selecting Cells - Shortcut Keys. Entering & Deleting Data- Entering data, Cut, Copy, Paste, Undo, Redo, Filling Continuous rows, columns, highlighting values, Find, Search & replace, Inserting Data, Insert Cells, Column, rows & sheets, Symbols, Data from external files, Frames, Clipart, Pictures, Files etc., Inserting Functions, Manual breaks, Setting Formula - finding total in a column or row, Mathematical operations (Addition, Subtraction, Multiplication, Division, Exponentiation), Using other Formulae. Formatting Spreadsheets, Formatting layout for Graphics, Clipart etc.,

Worksheet Row & Column Headers, Sheet Name, Row height & Column width, Visibility - Row, Column, Sheet, Security, Sheet Formatting & style, Sheet background, Colour etc, Borders



& Shading – Shortcut keys.

MS Power point: Introduction to presentation, Creating a presentation - Setting Presentation style, Adding text to the Presentation. Formatting a Presentation - Adding style, Colour, gradient fills, arranging objects, Adding Header & Footer, Slide Background, Slide layout. Adding Graphics to the Presentation- Inserting pictures, movies, tables etc into presentation, Drawing Pictures using Draw. Adding Effects to the Presentation Setting Animation & transition effect. Printing Handouts, Generating Standalone Presentation viewer.

External Exam Format : As per Table 1.1, 1.2 and 1.3



BS in Computer Science - Semester: II

(Effective from year 2024-25)

Course Code:	BSCS-201	Course Title:	Programming with Python
Course Credits:	04	Hour of Teaching/Week:	04
Internal Assessment Marks:	50	External Exam Marks:	50
Exam Duration	2Hrs		

Unit	Contents
1.	Introduction and Overview: Overview of Python Programming: Structure of a Python Program, Elements of Python, Python Interpreter, Python shell, Indentation. Atoms, Identifiers and keywords, Literals, Strings. Operators and Statements: Operators (Arithmetic operator, Relational operator, Logical or Boolean operator, Assignment, Operator, Ternary operator, Bit wise operator, Increment or Decrement operator). Creating Python Programs: Input and Output Statements.
2.	Decision making and Branching: Control statements (Branching, Looping, Conditional Statement, Difference between break, continue and pass, default arguments. Defining Functions. Object in Python: Tuples, lists, dictionaries, methods, identifiers, modifying objects, aliasing, mutability
3.	Basics of Object Oriented Programming in python, classes and object, <code>__init__()</code> , self keyword; functions using class, functions with default arguments using class Pandas Pandas Introduction, Data frame , reading files (json , csv), Pandas - Analyzing Data-Frames , cleaning Empty Cells, cleaning Wrong Format, Cleaning Wrong Data, Removing Duplicates, Data Correlations, Merging more than one data frame together.
4.	NumPy, Arrays, indexing, slicing, copy as view, shape, reshape, iterating, join, split, search, sort, filter, product, LCM, GCD , Trigonometric, Set Operation Matplotlib Introduction to matplotlib , plotting, marker, line, labels, grid, subplot, scatter, bars, histograms, pie charts.



Text Books and References:

- 1 T. Budd, Exploring Python, TMH, 1st Ed, 2011
2. Python Tutorial/Documentation www.python.org 2015
3. Allen Downey, Jeffrey Elkner, Chris Meyers, how to think like a computer scientist: learning with Python, Freely available online.2012
4. <https://nptel.ac.in/noc/courses/noc22/SEM1/noc22-cs31/>

External Exam Format : As per Table 1.1, 1.2 and 1.3



BS in Computer Science - Semester: II

(Effective from year 2024-25)

Course Code:	BSCS-201-P	Course Title:	Lab: Practical Based on BSCS-201
Course Credits:	04	Hour of Teaching/Week:	08
Internal Assessment Marks:	50	External Exam Marks:	50
Exam Duration	2Hrs		

List of Sample Programs

1. Understanding IDLE: Installing, Running Programs, Saving and Loading Files
2. Understanding Python Operators.
3. Understanding Branching.
4. Understanding Looping.
5. Understanding Functions and Parameters.
6. Understanding Tuples, Lists, Dictionaries.
7. Understanding Mutability of various objects.
8. Understanding Recursion.

External Exam Format : As per Table 1.1, 1.2 and 1.3



BS in Computer Science - Semester: II

(Effective from year 2024-25)

Course Code:	CAIT-202	Course Title:	Web Designing and Programming - I I
Course Credits:	02	Hour of Teaching/Week:	04
Internal Assessment Marks:	25	External Exam Marks:	25
Exam Duration	1Hrs		

Unit	Contents
1.	<p>Introduction to Javascript</p> <p>What is JavaScript?, What Is AJAX?, Writing your first script, Internal vs. external scripts, Using comments in scripts, Using the NoScript tag in HTML</p> <p>JavaScript Language Essentials (Creating alert dialogs, Understanding conditional statements, Getting confirmations from users, Creating prompts for users, Understanding functions, Making links smarter, Using switch/case statements, Creating loops, Handling errors, functions, arrays)</p> <p>Creating Rollovers and More:</p> <p>Creating a basic image rollover, How to write a better rollover, Creating a three-state rollover, Making rollovers accessible and 508 compliant, Making disjointed rollovers, Creating slideshows, Displaying random images.</p> <p>Building Smarter Forms :</p> <p>Creating jump menus, Creating dynamic menus, Requiring fields, Cross-checking fields, Displaying more informative errors, Verifying radio button selections, Setting one field with another field, Verifying email addresses.</p> <p>Handling Events:</p> <p>Responding to window events, Responding to mouse movements, Responding to mouse clicks, Responding to onBlur form events, Responding to onFocus form events, Responding to keyboard events</p>
2.	<p>Introduction to JQuery</p> <p>JQuery Intro, JQuery Syntax, JQuery Selectors, JQuery Events JQuery Effects (JQuery Hide/Show, JQuery Fade, JQuery Slide, JQuery Animate, JQuery stop(), JQuery Callback, JQuery Chaining) , JQuery Get, JQuery Set, JQuery Add, JQuery Remove, JQuery CSS Classes, JQuery css()</p> <p>Traversing (JQuery Traversing, JQuery Ancestors, JQuery Descendants, JQuery Siblings), JQuery with AJAX (JQuery AJAX Intro JQuery Load JQuery Get/Post), noConflict(), JQuery Filters</p>



Text Books

1. Dayley Brad and Dayley Brendan, "AngularJS, JavaScript, and jQuery All in One, Sams Teach Yourself"
2. Jon Duckett, "Web Design with HTML, CSS, JavaScript and JQuery Set"
3. Helder da Rocha :Learn Chart.js: Create interactive visualizations for the Web with Chart.js

References

1. Kyle Simpson: JavaScript and HTML5 Now
2. DT Editorial Services: HTML 5 Black Book (Covers CSS3, JavaScript, XML, XHTML, AJAX, PHP, JQuery)
3. Laurence Lars Svekis , Maaike van Putten: JavaScript from Beginner to Professional: Learn JavaScript quickly by building fun, interactive, and dynamic web apps, games, and pages
4. Oswald Campesato : jQuery, CSS3, and HTML5 for Mobile/Desktop Devices

External Exam Format : As per Table 1.1, 1.2 and 1.3



BS in Computer Science - Semester: II

(Effective from year 2024-25)

Course Code:	BSCS-202-P	Course Title:	Lab: Practical Based on BSCS-202
Course Credits:	02	Hour of Teaching/Week:	04
Internal Assessment Marks:	25	External Exam Marks:	25
Exam Duration	1Hrs		

Introduction, Installation, Syntax, Basics, Color, Options, Interactions, Legend, Title, Animation, Tooltip, Line Chart, Bar Chart, Radar Chart, Doughnut Chart, Pie Chart, Polar Area Chart, Bubble Chart, Scatter Chart, Mixed Chart, Cartesian Axis, Category Axis, Radial Axis

List of Sample Programs

1. Write a JavaScript program to display the current day and time in the following format.

Sample Output : Today is : Tuesday.

Current time is : 10 PM : 30 : 38

2. Write a JavaScript program to print the current window contents.

3. Write a JavaScript program to get the current date.

Expected Output :

mm-dd-yyyy, mm/dd/yyyy or dd-mm-yyyy, dd/mm/yyyy

4. Write a JavaScript program to find the area of a triangle where three sides are 5, 6, 7.

5. Write a JavaScript program to rotate the string 'w3resource' in the right direction. This is done by periodically removing one letter from the string end and attaching it to the front.

6. Write a JavaScript program to determine whether a given year is a leap year in the Gregorian calendar.

7. Write a JavaScript program to find out if 1st January will be a Sunday between 2014 and 2050.

8. Write a JavaScript program where the program takes a random integer between 1 and 10, and the user is then prompted to input a guess number. The program displays a message "Good Work" if the input matches the guess number otherwise "Not matched".

9. Write a JavaScript program to test whether the first character of a string is uppercase or not.

10. Write a JavaScript program to check a credit card number.

11. Write a pattern that matches e-mail addresses.

The personal information part contains the following ASCII characters.

- Uppercase (A-Z) and lowercase (a-z) English letters.
- Digits (0-9).



- Characters ! # \$ % & ' * + - / = ? ^ _ ` { | } ~
- Character . (period, dot or fullstop) provided that it is not the first or last character and it will not come one after the other.

12. Write a JavaScript program to search a date within a string.

13. Write a JavaScript program that works as a regular expression trim function (string).

14. Write a JavaScript program to count number of words in string.

Note :

- Remove white-space from start and end position.
- Convert 2 or more spaces to 1.
- Exclude newline with a start spacing.

15. Write a JavaScript function to check whether a given value is IP value or not.

16. Write a JavaScript function to count the number of vowels in a given string.

Test Data :

```
console.log(alphabetize_string('United States'));
```

Output :

```
"SUadeeinsttt"
```

17. Display appropriate chats using chart.js library.

External Exam Format : As per Table 1.1, 1.2 and 1.3



BS in Computer Science - Semester: II

(Effective from year 2024-25)

Course Code:	BSCS-203-A	Course Title:	Statistical Computing
Course Credits:	04	Hour of Teaching/Week:	04
Internal Assessment Marks:	50	External Exam Marks:	50
Exam Duration	2Hrs		

Unit	Contents
1.	Basic Statistics: Types of Statistics, Different Statistical Techniques, Steps in Statistical Investigation, Uses and Limitations of statistics, Collection of Data: Sources of collecting primary and Secondary Data, Limitations of Secondary Data, Criteria of evaluating secondary data, Organization of data, Graphs of Grouped Frequency Distribution, Tabulation of Data, Parts of Table Measures of Central Tendency: Kinds of measures of central tendency (statistical averages or averages): Arithmetic Mean: Simple Arithmetic Mean, Methods of calculating Simple Arithmetic Mean, Arithmetic Mean in case of Individual Series, Discrete series and continuous series, Weighted Arithmetic Mean, Combined Arithmetic Mean. Geometric Mean: Simple Geometric Mean, Methods of calculating Simple Geometric Mean, Geometric Mean in case of Individual Series, Discrete series and continuous series, Weighted Geometric Mean, Harmonic Mean: Simple Harmonic Mean, Methods of calculating Simple Harmonic Mean, Harmonic Mean in case of Individual, Discrete series and continuous series, Weighted Harmonic Mean
2.	Median: Methods of Calculating Median in case of Individual, Discrete series and continuous series Partition Value: Quartile, Quintiles, Hexiles, Septiles, Octiles, Deciles, Percentiles Mode: Methods of Calculating Mode in case of Individual Series, Discrete series and continuous series
3.	Range: Computation of Range, Inter Quartile Range, Computation of Inter Quartile Range, Percentile Range and Computation of Percentile Range. Mean Deviation, Computation of Mean Deviation, Standard Deviation, Calculation of Standard Deviation, Variance, Calculation of Standard Deviation for individual Series, Discrete Series and Continuous Series, Coefficient of Standard Deviation and coefficient of variation.
4.	Correlation Analysis: Definition, Types of Correlation: Positive, Negative, Simple, Multiple, Partial,



Total, Linear and Non-Linear. Need of Correlation Analysis, Correlation and Causation, Techniques for Measuring Correlation: Scatter Diagram Method, Graphic Method, Karl Pearson's Coefficient of Correlation: Correcting incorrect coefficient of correlation, calculating Karl Pearson's coefficient of correlation in case of grouped series, Probable Error, Coefficient of Determination, Spearman's coefficient of Correlation (Rank correlation)

1. Gupta S.C, Kapoor V.K. : Fundamentals of mathematical Statistics, Sultan Chand & Sons.
2. Gupta, S.P., 2003 : Statistical Methods, S. Chand.
3. Affi, A.A, 1979 : Statistical Analysis: A Computer Oriented Approach, Academic Press, Inc.

External Exam Format : As per Table 1.1, 1.2 and 1.3



BS in Computer Science - Semester: II

(Effective from year 2024-25)

Course Code:	BSCS-203-B	Course Title:	Management Information System
Course Credits:	04	Hour of Teaching/Week:	04
Internal Assessment Marks:	50	External Exam Marks:	50
Exam Duration	2Hrs		

Unit	Contents
1.	Information Systems – Introduction and Types Introduction to information Systems – introduction and types Office automation systems Transaction processing systems Management information systems Decision support systems Executive information systems Expert systems
2.	Management Information Systems Management Information Systems (MIS) – Importance and Evolution Logical foundations of MIS, Typical MIS Information and managerial effectiveness Business information systems Business functions and information needs of business Pitfalls in MIS System
3.	Information Systems Environment Systems theory Classic view of organization Transitional views Modern organization theory Major organizational considerations Managerial roles Decision making models Role of information systems in decision The impact of computers on organizations and individuals
4.	Information Systems and Managerial Process Managerial decision making Decision making environment Planning and Security for IT infrastructure Portfolio approach and identifying its proposals Evaluating IT investments and information systems



Text and Reference Books:

1. Muneesh kumar: Business Information Systems - Vikas Publishing
 2. E Turban: Management Information Systems and Decision Support Systems – Tata McGraw Hill
- Sadagopan: Management Information Systems - Narosa Publications

External Exam Format : As per Table 1.1, 1.2 and 1.3



BS in Computer Science - Semester: II

(Effective from year 2024-25)

Course Code:	BSCS-206-P	Course Title:	Practical Skills in R
Course Credits:	02	Hour of Teaching/Week:	04
Internal Assessment Marks:	25	External Exam Marks:	25
Exam Duration	1Hr		

Unit	Contents
1.	<p>Collection of data, classification and tabulation of data, Types of data: Primary data, Secondary data, Presentation of data Diagrammatic and Graphical Representation: Histogram, frequency curve, frequency polygon, stem and leaf chart.</p> <p>Loading Data (Reading Tabular Data files, Reading CSV files, Importing data from excel.) ; Manipulating Data (Selecting rows/observations, Selecting columns/fields, Merging data, Relabeling the column names, Converting variable types, Data sorting, Data aggregation), Commonly used Mathematical Functions , Commonly used Summary Functions , Commonly used String Functions</p>
2.	<p>Data visualization (Box plot , Histogram, Pie graph , Line chart , Scatter plot)</p> <p>Implementation of Central Tendency and Dispersion (Arithmetic Mean (A.M.), Mode, Median, Geometric Mean (G.M.), Harmonic Mean (H.M.), Weighted Mean and Standard Deviation)</p> <p>Implementation of Correlation (correlation-scatter diagram, Karl Pearson's Coefficient of Correlation and Spearman's rank Correlation)</p>



BS in Computer Science - Semester: II

(Effective from year 2024-25)

Course Code:	BSCS-207-P	Course Title:	Practical Skills in Desktop Publishing
Course Credits:	02	Hour of Teaching/Week:	04
Internal Assessment Marks:	25	External Exam Marks:	25
Exam Duration	1Hr		

Unit	Contents
1.	Corel Draw: Introduction, Surfing the Interface, Getting to know the status bar. Getting to scrollbar and color palette. Understanding Dialog box, Exploring the standard toolbar, Toolbox. Browsing the Menus, File, Edit, View, Layout, Arrange, Effect, Bitmaps, Text, Tools, Drawing and working with Lines and Curves. Drawing and working with Rectangles, Ellipse and Polygons, Adding Text and Formatting Text, Working with Objects, Defining Outline and Fill Color, Working with outlines, The outline pen dialog, The outline color dialog, Understanding fills, Fountain fills, Pattern fills, Creating Special Effects, Using an envelope, Creating perspective effects, Blending objects
2.	Photo Shop: Photoshop's Environment Graphics and Environment Elements Navigating in Photoshop. Sizing Images, Image Size and Resolution Cropping. Selecting Image Areas. The Rectangular and Elliptical Marquee Tools. The Lasso Tools and Saving Selections. The Magic Wand Tool. The Magnetic Lasso Tool and Modifying Selections Layers, Feathering Edges: Image Modes, Color and Painting, Selecting Colors, Painting Tools and the Clone Stamp Tool. Text, Layer Effects, and Filters, Filters, Merging, and Flattening. Adjusting Images, Brightness/Contrast and Levels Adjustment Layers, Toning Tools and Hue/Saturation

Text and Reference Books

Mastering Corel Draw by Rick Altman, BPB 4th Edition

Tay Vaughan, "Multimedia – Making it Works". Tata MacGraw Hill

Online Resources:

<https://www.classcentral.com/swayam-animations-13880>



BS in Computer Science - Semester: II
(Effective from year 2024-25)

Course Code:	BSCS-001	Course Title:	Summer Internship and Viva
Course Credits:	04	Hour of Teaching/Week:	-
Internal Assessment Marks:	-	External Exam Marks:	100
Exam Duration	-		

- Summer Internship shall be of 60 Hours.
- This course shall be application for those students who wish to exit from the course and wants avail certificate after successful completion of one year
- Summer Internship can be Online, subject to the approval from the authority in special case.
- At the end of the Internship students has to submit a project report and face a viva to avail a certificate.
- In special circumstances, if any students fail to get a suitable summer internship then he/she should be allowed to perform in-house project, subject to approval from the authority.



Value added Courses (VAC) in B.S in Computer Science

Semester – I (Select Any One)		
Sr. No	Name of the Subject	Remarks
1.	Introduction to Indic Knowledge System – I	<i>Syllabus and Paper Pattern</i>
2.	Bhagavad Gita and Life Management	<i>As per the BCA and MSc (CA&IT) Curriculum</i>
Semester – II (Select Any One)		
1.	Try to Understand our Mother Earth	<i>Syllabus and Paper Pattern As per the BCA and MSc (CA&IT) Curriculum</i>
2.	Yoga- Nityansh	
3.	Human Values and Professional Ethics	
4.	NCC	
5.	Youth, Leadership and Nation Building (NSS)	
6.	Integrated Personality Development Course-1	



Ability Enhancement Courses (AEC) in B.S in Computer Science

Semester – I (Select Any One)		
Sr. No	Name of the Subject	Remarks
1.	Communication Skills in English	<i>Syllabus and Paper Pattern As per the BCA and MSc (CA&IT) Curriculum .</i>
2.	Gujarati	
3.	Hindi	
4.	Sanskrit	
Semester – II (Select Any One)		
1.	Soft Skills and Personality Development	<i>Syllabus and Paper Pattern As per the BCA and MSc (CA&IT) Curriculum</i>
2.	Gujarati	
3.	Hindi	
4.	Sanskrit	
5.	English	

