॥ सा विद्या या विमुक्तये ॥

स्वामी रामानंद तीर्थ मराठवाडा विद्यापीठ, नांदेड

'ज्ञानतीर्थ', विष्णुपुरी, नांदेड – ४३१ ६०६ (महाराष्ट्र राज्य) भारत

SWAMI RAMANAND TEERTH MARATHWADA UNIVERSITY, NANDED

'Dnyanteerth', Vishnupuri, Nanded - 431 606 (Maharashtra State) INDIA

Established on 17th September, 1994, Recognized By the UGC U/s 2(f) and 12(B), NAAC Re-accredited with'B++' grade

स्वामी रामानंद तीर्थ मराठवाडा विद्यापीठ, नांदेड

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विज्ञान व तंत्रज्ञान विद्याशाखेतील पदवी स्तरावरील खालील विषयाचे CBCS Pattern नुसारचे सुधारित अभ्यासक्रम शैक्षणिक वर्ष २०२३—२०२४ पासून लागू करण्याबाबत.

प रि प त्र क

या परिपत्रकान्वये सर्व संबधितांना कळविण्यात येते की, प्रस्तुत विद्यापीठाच्या संलग्नित महाविद्यालयांतील विज्ञान व तंत्रज्ञान विद्याशाखेतील पदवी स्तरावरील C.B.C.S. (Choice Based Credit System) Pattern नुसारचे खालील सुधारित अभ्यासक्रम शैक्षणिक वर्ष २०२३—२४ पासून लागू करण्याच्या दृष्टीने मा. कुलगुरू महोदयानी मा. विद्या परिषदेच्या मान्यतेच्या अधीन राहून मान्यता दिलेली आहे.

1. B.Sc. Computer Management (I,II & III Year)
2. B. Sc. Information Technology (I,II & III Year)
3. BCA (Bachelor of Computer application) (II Year)

सदरील परिपत्रक व अभ्यासक्रम प्रस्तुत विद्यापीठाच्या www.srtmun.ac.in या संकेतस्थळावर उपलब्ध आहे. तरी सदरील बाब ही सर्व संबंधितांच्या निदर्शनास आणून द्यावी, ही विनंती.

विष्णुपुरी, नांदेड – ४३१ ६०६.

जा.क्र.:शैक्षणिक– /०१/परिपत्रक/UG/

पदवी–सीबीसीएस अभ्यासक्रम/२०२३–२४/346

दिनांक : २५.१०.२०२३

आपली विश्वासू

डॉ. सरिता लोसरवार

सहाय्यक कुलसचिव

प्रत माहिती व पुढील कार्यवाहीस्तव :

१) मा. अधिष्ठाता, विज्ञान व तंत्रज्ञान विद्याशाखा, प्रस्तुत विद्यापीठ.

२) मा. संचालक, परीक्षा व मूल्यमापन मंडळ यांचे कार्यालय, प्रस्तुत विद्यापीठ.

४) प्राचार्य, सर्व संबंधित संलग्नित महाविद्यालये, प्रस्तुत विद्यापीठ.

७) सिस्टम एक्सपर्ट, शैक्षणिक विभाग, प्रस्तुत विद्यापीठ. यांना देवून कळवण्यात येते की, सदरील परिपत्रक विद्यापीठाच्या संकेतस्थळावर प्रसिध्द करण्यात यावे.

Swami Ramanand Teerth Marathwada University,Nanded
(NAAC Re-accredited with 'A' Grade)

Syllabus of

Bachelor of Computer Application (3 years)

(Minor Revision - Revised CBCS pattern)

Introduced from Academic Year 2023-2024

Bachelor of Computer Application

Bachelor of Computer Application (3years) program / degree is a specialized program in computer applications. It builds the student on studies in applied use of computers and to become competent in the current race and development of new computational sciences. The duration of the study is of six semesters, which is normally completed in three years.

CBCS pattern

The Bachelor of Computer Application program as per CBCS (Choice based credit system) pattern, in which choices are given to the students under open electives and subject electives. The students can choose open electives from the wide range of options to them.

Eligibility and Fees

The eligibility of a candidate to take admission to **Bachelor of Computer Application** program is as per the eligibility criteria fixed by the University. More details on admission procedure and fee structure can be seen from the prospectus of the college / institution as well as on website of the University.

Credit Pattern

Every course has corresponding grades marked in the syllabus structure. There are 24 credits per semester. A total of 144 credits are essential to complete this program successfully. The Grading pattern to evaluate the performance of a student is as per the University rules.

Every semester has a combination of Theory (core or elective) courses and Lab courses. Each theory course has 04 credits which are split as 03 external credits and 01 internal credit. The university shall conduct the end semester examination for 03 external credits. For theory internal credit, student has to appear for 01 class test (15 marks) and 01 assignment (10 marks). Every lab course has 02 credits which are split as 01 external credit and 01 internal credit. For lab internal credit, the student has to submit Laboratory Book (05 marks) and remaining 20 marks are for the Lab activities carried out by the student throughout the semester. For lab external credit, 20 marks are reserved for the examinational experiment and 05 marks are for the oral / viva examinations.

The open elective has 04 credits which are purely internal. If students are opting for MOOCs as open elective , then, there must be a Faculty designed as MOOCs course coordinator who shall supervise learning through MOOCS. This is intentionally needed as the MOOCs course coordinator shall verify the MOOC details including its duration, staring date, ending date, syllabus contents, mode of conduction, infrastructure feasibility, and financial feasibility during start of each semester. This is precautionary as the offering of the MOOCs through online platforms are time specific and there must be proper synchronization of semester duration with the MOOCs duration. Students must opt for either institutional / college level open elective or a course from University recognized MOOCs platforms as open electives.

The number of hours needed for completion of theory and practical courses as well as the passing rules, grading patterns, question paper pattern, number of students in practical batches, etc shall be as per the recommendations, norms, guidelines and policies of the UGC, State Government and the SRTM University currently operational. The course structure is supplemented with split up in units and minimum numbers of hours needed for completion of the course, wherever possible.

Under the CBCS pattern, students would graduate **Bachelor of Computer Application** with a minimum number of required credits which includes compulsory credits from core courses, open electives and program specific elective course. All students have to undergo lab / practical activities leading to specific credits and project development activity as a part of professional UG program.

1. **B.Sc. Computer** Application Degree / program would be of 144 Credits. Total credits per semester= 24
2. Each semester shall consist of three core courses, one elective course, one open elective course and two practical courses. Four theory courses (core+elective) = 16 Credits
3. Two practical / Lab courses= 4 Credits in total (02 credits each) , One Open elective= 4 credit
4. One Credit = 25 marks , Two Credits = 50 Marks, Four Credits = 100 Marks

PEO, PO and CO Mappings

1. **Program Name** : Bachelor of Computer Application

2. **Program Educational Objectives**: After completion of this program, the graduates / students would

PEO I :Technical Expertise	Implement fundamental domain knowledge of core courses for developing effective computing solutions by incorporating creativity and logical reasoning.
PEO II : Successful Career	Deliver professional services with updated technologies in C**omputer application** based career.
PEO III :Hands on Technology and Professional experience	Develop leadership skills and incorporate ethics, team work with effective communication & time management in the profession.
PEO IV :Interdisciplinary and Life Long Learning	Undergo higher studies, certifications and research programs as per market needs.

3. **Program Outcome(s):** Students / graduates will be able to

PO1: Apply knowledge of mathematics, science and algorithm in solving Computer problems and applied use of banks.
PO2: Learn various custom software
PO3: Design component, or processes to meet the needs within realistic constraints.
PO4: Identify, formulate, and solve problems using computational temperaments.
PO5: Comprehend professional and ethical responsibility in computing profession.
PO6: Express effective communication skills.
PO7: Recognize the need for interdisciplinary, and an ability to engage in life-long learning.
PO8: Actual hands on technology to understand it's working.
PO9: Knowledge of contemporary issues and emerging developments in computing profession.

PO10: Utilize the techniques, skills and modern tools, for actual development process
PO11: Function effectively as an individual and as a member or leader in diverse teams and in multidisciplinary settings in actual development work
PO12: Research insights and conduct research in computing environment.

4. **Course Outcome(s):** Every individual course under this program has course objectives and course outcomes (CO). The course objectives rationally match with program educational objectives. The mapping of PEO, PO and CO is as illustrated below

5. Mapping of PEO& PO and CO

Program Educational Objectives	Thrust Area	**Program Outcome**	Course Outcome
PEO I	Technical Expertise	PO1,PO2,PO3,PO6	All core courses
PEO II	Successful Career	PO4,PO5,PO11,	All discipline specific electives courses
PEO III	Hands on Technology and Professional experience	PO8,PO10	All Lab courses
PEO IV	Interdisciplinary and Life Long Learning	PO7,PO9,PO12	All open electives and discipline specific electives

SWAMI RAMANAND TEERTH MARATHWADA UNIVERSITY, NANDED
Choice Based Credit System (CBCS)
SEMESTER PATTERN
Faculty of Science & Technology
Under Graduate (UG) Program
Program: Bachelor of Computer Application w.e.f. AY 2023-2024

Year	**Semester**	**Course category**	**Course Code**	**Course Title**	**Credits *** *(split up will be given separately)
First	**First**	Core Course	BCA-101	Fundamentals of Computer Science and Information Technology	04
		Core Course	BCA-102	Office Automation	04
		Core Course	BCA-103	Programming in C	04
		Chose any one from the below Elective courses			
		Elective Subject	BCA-104 A	Element of Statistics	04
			BCA-104 B	Mathematical Technique In Computer Science (MTCS)	
		Chose any one Open Elective courses			
		Open Elective	BCA-105 A	University recognized MOOC (NPTEL / SWAYAM / others) OR Intra / Inter Departmental courses OR	04
			BCA-105 B	Applied English OR Business Communication	
		Lab / Practical	BCA-106	C Programming	02
			BCA-107	Office Automation	02
Total					**24**
First	**Second**	Core Course	BCA-201	Java Script	04
		Core Course	BCA-202	Graphics Design And Content Management Tools	04
		Core Course	BCA-203	Web Technology	04
		Chose any one from the below Elective courses			
		Elective Subject	BCA-204A	E-Commerce	04
			BCA-204B	Business Accounting With Tally	
		Chose any one Open Elective courses			
		Open Elective	BCA-205A	University recognized MOOC (NPTEL / SWAYAM / others) OR Intra / Inter Departmental courses OR	04
			BCA-205B	Functional English OR Corporate English	
		Lab / Practical	BCA-206	Java Script	02
			BCA-207	Web Technology	02
Total					**24**
For skill enhancement, if any, in all semesters, online course with internal credits is mandatory					

Name of Course	Bachelor of Computer Application (BCA)
Semester	I
Name of Subject	**Fundamentals of Computer Science and Information Technology**
Subject Code	BCA-101
Marks	75 Marks
Lectures	50 Lectures

Objectives

Through this paper Student should learn basic principles of computer. The paper is designed to aim at importing basic level of Computer.

Outcome

To learn Basic Function of Devices like I/O, HDD etc. To Understand the Fundamental of Software and Hardware. Understand the Concept of Operating System and Network.

Unit I		
1.	Introduction to Computer and History	15 Lectures
	1.1 Definition of Computer	
	1.2 Basic Computer Organization	
	1.3 Characteristics of Computer	
	1.4 Generations of Computer	
	1.5 Types of Computer:- Microcomputer, Minicomputer, Mainframe Computer, Workstations, Client and Server	

Unit II		
2.	Computer Peripherals & Memory	10 Lectures
	2.1 Input Devices :- Keyboard, Mouse, Trackball, Joystick, Light pen	
	2.2 Output Devices :- Monitor, Printer, Projector, Biometric Devices	
	2.3 Computer Memory :- RAM, ROM, Cache Memory	

Unit III		
3.	Storage Devices and Operating System	15 Lectures
	3.1 Compact Disk, Digital Versatile Disk	
	3.2 Hard Disk Drive	
	3.3 USB Flash Drive	
	3.4 Memory Card	
	3.5 Definition of operating System	
	3.6 Types of Operating System	
	3.7 Disk Operating System	
	3.8 Windows Operating System	
	3.9 Linux Operating System	

Unit IV

4. Introduction to Computer Network & Internet — 10 Lectures

- 4.1 Definition of Network
- 4.2 Types of Network :- LAN,MAN,WAN
- 4.3 Data Transmission Modes
- 4.4 OSI Model
- 4.5 E-Mail
- 4.6 File Transfer Protocol
- 4.7 Web Browser
- 4.8 Types of Web Browser

References:-

1. Fundamental of Computer –5th& 6th Edition, P.K.Sinha, BPB Publication
2. Fundamental of Computer - V. Raja Raman, PHI Publication

Name of Course	Bachelor of Computer Application (BCA)
Semester	I
Name of Subject	Office Automation
Subject Code	BCA-102
Marks	75 Marks
Lectures	50 Lectures

Objectives

The main objective of Office Automation is to enhance and upgrade the existing system by increasing its efficiency and effectiveness. It will simplify the task and reduce the paper work means the software improves the working methods by replacing the existing manual system with the computer-based system.

Outcomes

After completion of this course student will be able to understand the computer software, hardware, made available to simplify and automate a variety of office operations such as data processing, data manipulating and data presentation with various application those are presents in Microsoft office tools packages.

Unit I

1. Introduction to MS-Word. 20 Lectures
   - 1.1 Word 2010 Basics: - Opening screen of MS-word,
   - 1.2 Home menu- font tab,
   - 1.3 Paragraph tab,
   - 1.4 Styles tab
   - 1.5 Editing options in MS-Word
   - 1.6 Insert menu- table tool
   - 1.7 Header and Footer tool
   - 1.8 Mail-merge
   - 1.9 Custom dictionary
   - 1.10 Printing in MS-Word
   - 1.11 Creating Index in MS-Word.

Unit II

2. Working with MS-Excel. 10 Lectures
   - 2.1 Introduction to MS-Excel
   - 2.2 Formatting cells
   - 2.3 Formatting columns
   - 2.4 Row height
   - 2.5 Merging
   - 2.6 Splitting columns and connecting the worksheets
   - 2.7 Working with Formulas and Functions
   - 2.8 Creating charts
   - 2.9 Goal seek
   - 2.10 Data validation
   - 2.11 Conditional Formatting.

Unit III	

3. Working with Microsoft power point. 10 Lectures

- 3.1 Opening Screen of MS PowerPoint
- 3.2 Creating a new presentation based on template
- 3.3 Design template and blank presentation
- 3.4 Slide Transition
- 3.5 Custom Animation effects
- 3.6 Slide show
- 3.7 Adding audio and video on slides.

Unit IV	

4. Introduction to MS-Access. 10 Lectures

- 4.1 Opening screen of MS-Access
- 4.2 Advantages and disadvantages of MS-Access
- 4.3 Performing Queries
- 4.4 Generating the report
- 4.5 Creating the database in Access
- 4.6 Creating forms and adding new records in MS-Access.

References:-

1. MS-DOS 6.22 by Russell A Stultz BPB publication.

Name of Course	Bachelor of Computer Application (BCA)
Semester	I
Name of Subject	Programming in C
Subject Code	BCA-103
Marks	75 Marks
Lectures	50 Lectures

Programming in 'C' Objective

It is general purpose and procedure oriented programming language. In which we are able to develop OS and MAC operating system, application software and programming languages. Programming Language are also used to build students logic for programming.

Programming in 'C' Outcomes

To study of structure of programming languages, structure of c program. To study different keyword for making program. To develop programs using operators and control statement. To describe an array, structure, union, string and functions. Student are able to develop application software.

UNIT I

1. Introduction to Programming in C — 15 Lectures
   - 1.1 History
   - 1.2 Compilers and Interpreters
   - 1.3 Algorithms
   - 1.4 Flowcharts
   - 1.5 Structure of a C program
   - 1.6 C Tokens
     - 1.6.1 Keywords
     - 1.6.2 Variables
     - 1.6.3 Primary Data types
     - 1.6.4 Operators
   - 1.7 Formatted I/O Statement
   - 1.8 Unformatted I/O Statement

UNIT II

2. Controlling Statement — 10 Lectures
   - 2.1 Decision Making Statement
     - 2.1.1 If Statement
     - 2.1.2 If- else Statement
     - 2.1.3 Nested if –else Statement
     - 2.1.4 Else if Ladder Statement
     - 2.1.5 Switch Statement

2.2 Loop Statement
    2.2.1 For Loop
    2.2.2 While Loop
    2.2.3 Do-while Loop
    2.2.4 Nested for Loop
2.3 Break, goto and Continue

UNIT III

3. Function in C — 10 Lectures
    3.1 Functions in C
    3.2 What is a function?
    3.3 User defined functions
        3.3.1 Declaration
        3.3.2 Definition
        3.3.3 Function calling
    3.4 Recursion

UNIT IV

4. Array and Structure — 15 Lectures
    4.1 Arrays
    4.2 Array declaration, initialization
    4.3 One dimensional Array
    4.4 Two dimensional Array
    4.5 Standard String library functions
    4.6 Creating structures
    4.7 Accessing structure members (dot Operator)
    4.8 Unions

References:

1. Complete C Reference – Herbert Schildt (Thomson learning publications)
2. The C Programming language – Kernighan and Ritchie
3. Structured Programming approach using C – Forouzan and Gilberg,

Name of Course	Bachelor of Computer Application (BCA)
Semester	I
Name of Subject	Elective: Element of Statistics
Subject Code	BCA-104 A
Marks	75 Marks
Lectures	50 Lectures

Objective:

Interact ideas of random variable, frequency distribution, calculate and interact various measures in statistics.

Outcomes:

1. Explain the use of data collection & statistics.
2. Recognize, examine & interact the basic principles of describing and presenting data.

UNIT I

1. Introduction & Collection of Data — 10 Lectures
   - 1.1 Definition of Statistics
   - 1.2 Importance of Statistics
   - 1.3 Limitation of Statistics
   - 1.4 Scope of Statistics (Computer Science, Industry, Economics)
   - 1.5 Collection of data.

UNIT II

2. Measures of Central Tendencies & Variations — 15 Lectures
   - 2.1 Concept
   - 2.2 Mean, formula, ungrouped & grouped data, numerical example, merits & demerits.
   - 2.3 Mode, formula, ungrouped & grouped data numerical example, merits & demerits.
   - 2.4 Median, formula, ungrouped & grouped data numerical example merits & demerits.
   - 2.5 Standard deviation, formula, examples
   - 2.6 Variance, formula, example.

UNIT III

3. Correlation & Regression — 10 Lectures
   - 3.1 Correlation, types, scatters diagram.
   - 3.2 Karl person's coefficient of correlation.
   - 3.3 Ungrouped data examples.
   - 3.4 Regression ,regression lines
   - 3.5 Example.

UNIT IV

4. Probability 15 Lectures
   - 4.1 Permutation & combination
   - 4.2 Sample space, event.
   - 4.3 Definition of probability
   - 4.4 Theorems of
     - probability a.
     - P(A)=1-P(A')
     - b. O≤ P(A) ≤1
     - c. P(AUB)=P(A)+P(B)-P(A∩B)
   - 4.5 Numerical example.

Reference Books

1. Foundation of Mathematics statistics – S. C. Gupta & V. K. Kapoor
2. Statistical methods – S. C. Gupta.

Name of Course	Bachelor of Computer Application (BCA)
Semester	I
Name of Subject	Elective: Mathematical Technique in Computer Science (MTCS)
Subject Code	BCA-104 B
Marks	75 Marks
Lectures	50 Lectures

Objective:

Knowledge, skill & understanding develop understanding & fluency in mathematics through inquiry, exploring & connecting mathematical concept choosing & applying problem – solving skills.

Outcomes:

- Able to use standard mathematical techniques to solve elementary problem.
- Understand the nature of mathematical proof & be able to write clear & concise proof.

UNIT I

1. Set theory — 10 Lectures
   - 1.1 Definition & types of set
   - 1.2 Venn diagram
   - 1.3 Set operation
   - 1.4 Properties of sets
   - 1.5 Numerical example

UNIT II

2. Arithmetical ability — 10 Lectures
   - 2.1 Numbers, Asthmatic progression & Geometric progression
   - 2.2 Divisibility tests
   - 2.3 H.C.F.and L.C.M. of numbers
   - 2.4 Time, Work and distance.

UNIT III

3. Matrices & determinants — 15 Lectures
   - 3.1 Matric & types
   - 3.2 Algebra & Matrices
   - 3.3 Definition of determinants
   - 3.4 Adjoint of matrix
   - 3.5 Inverse of matrix

UNIT IV

4. Group theory — 15 Lectures
   - 4.1 Definition & types of groups
   - 4.2 Degree of vertices
   - 4.3 Isomorphism graph
   - 4.4 Connected & disconnected group
   - 4.5 Walks, paths & circuits
   - 4.6 Binary tree

Reference Books

1) Discrete mathematics – C. L. Lui
2) Group theory- Nimkar & Solapurkar
3) Quantitative Aptitude - Dr. R. S. Aggarwal

Name of Course	Bachelor of Computer Application (BCA)
Semester	I
Name of Subject	**Open Elective: University recognized MOOC (NPTEL / SWAYAM / others) OR Intra / Inter Departmental courses**
Subject Code	BCA-105 A
Marks	75 Marks
Lectures	50 Lectures

OR

Name of Course	Bachelor of Computer Application (BCA)
Semester	I
Name of Subject	**Open Elective:** Applied English
Subject Code	BCA-105 B
Marks	75 Marks
Lectures	50 Lectures

Objectives of the Course:

1. To make a comprehensive use of English in day-to-day life.
2. To help Students develop the ability to learn and contribute critically.
3. To develop the writing skills of the students.
4. To help the students to understand the basic usages of English.

Course outcome: By the end of this course students should be able to:

1. Understand and demonstrate Basic English usages for their different purposes.
2. Clear entrance examination and aptitude tests.
3. Write various letters, reports required for professional life.

Unit I		
1.	Grammar in use:- 1.1 Word Classes:- Open Close 1.2 Phrase	15 Lectures
Unit II		
2.	Basic Sentence Elements. 2.1 Phrase 2.2 Classes:- Noun, Adjective, Adverb 2.3 Sentence:- Simple, Compound, Complex	10 Lectures
Unit III		
3.	Transformation:- 3.1 Voice: Active & Passive. 3.2 Speech: Direct & Indirect	15 Lectures
Unit IV		
4.	Error Detaching/Spoofing the Crosse in the use 4.1 Determiners: 4.2 Subject – Verb Agreement 4.3 Tense:	10 Lectures

References:-

1 Fundamental of Computer –5th& 6th Edition, P.K.Sinha, BPB Publication
2 Fundamental of Computer - V. Raja Raman, PHI Publication

OR

Name of Course	Bachelor of Computer Application (BCA)
Semester	I
Name of Subject	**Open Elective:** Business Communication
Subject Code	BCA-105 B
Marks	75 Marks
Lectures	50 Lectures

Objectives of the Course:

5. To make a comprehensive use of English in day-to-day life.
6. To help Students develop the ability to learn and contribute critically.
7. To develop the writing skills of the students.
8. To help the students to understand the basic usages of English.

Course outcome:

By the end of this course students should be able to:

4. Understand and demonstrate Basic English usages for their different purposes.
5. Clear entrance examination and aptitude tests.
6. Write various letters, reports required for professional life.

Unit I		
1.	Basic English Grammar 1.1 Noun 1.2 Verb 1.3 Adjective 1.4 Adverb	15 Lectures
Unit II		
2.	Transformation of Sentences: 2.1 Simple to Complex 2.2 Complex to Compound	10 Lectures
Unit III		
3.	Writing Skills 3.1 Essay Writing 3.2 Email Writing 3.3 Resume	15 Lectures
Unit IV		
4.	Group Discussion 4.1 Group Discussion: 4.2 Seminar Conference 4.3 Meeting 4.4 Interview	10 Lectures

References:-

1 Fundamental of Computer –5th& 6th Edition, P.K.Sinha, BPB Publication
2 Fundamental of Computer - V. Raja Raman, PHI Publication

Name of Course	Bachelor of Computer Application (BCA)
Semester	I
Name of Subject	Lab-Course : CProgramming
Subject Code	BCA-106
Marks	50 Marks

1) Demonstrate C programming Structure
2) Use of data types
3) Use of control statements
4) Use of looping statements
5) Demonstrate input output statements
6) Use of user define function
7) Demonstrate recursion function
8) Use of array
9) Demonstrate string library function
10) Demonstrate structure

Name of Course	Bachelor of Computer Application (BCA)
Semester	I
Name of Subject	Lab-Course : Office Automation
Subject Code	BCA-107
Marks	50 Marks

1) Study of Word Opening screen
2) Study of EXCEL Opening screen
3) Study of PowerPoint Opening screen
4) Study of Access Opening screen
5) Study of Find and Replace Dialog Box in Microsoft Word
6) Study of Page Setup Dialog Box
7) Study of Table Formatting
8) Study of Custom Dictionary & Go to Dialog Box
9) Study of mail merge
10) Study of creating charts.
11) Study of border and shading dialog box
12) Study of paragraph dialog box
13) Working of Formulas in Excel
14) Creating Presentation in Power Point
15) Creating database file in Access

Name of Course	Bachelor of Computer Application (BCA)
Semester	II
Name of Subject	JavaScript
Subject Code	BCA-201
Marks	75 Marks
Lectures	50 Lectures

Learning Objectives:

I. Understand the JavaScript language & the Document Object Model.
II. Alter, show, hide and move objects on a web page.
III. Check information inputted into a form.
IV. JavaScript allows programming to be performed without server interaction.
V. JavaScript can respond to events, such as button clicks.
VI. JavaScript can validate data before sending out a request.
VII. JavaScript can adjust an HTML document for special effects.
VIII. JavaScript can create cookies! Cookies can be used to store and retrieve information from the user's computer

Course Outcomes:

After successful completion of this course, students should be able to:

I. Students will be a Front-End website developer.
II. JavaScript ensures student to have a responsive, mobile-first website.
III. It paces up the development process by offering resources such as templates and themes, which can be customized according to the project needs.

Unit I: Overview & Introduction to JavaScript	Hours
What is JavaScript? The development workflow Selecting the right tools for the job Just enough HTML and CSS Understanding objects Understanding variables Making comparisons Understanding events Writing your first script Internal vs. external scripts Using comments in scripts Using the NoScript Creating alert dialogs Understanding conditional statements Getting confirmations from users Creating prompts for users Understanding functions Making links smarter	17

Using switch/case statements Handling errors	
Unit II: JavaScript Language Essentials	15
Getting started Creating loops Passing values to functions Detecting objects Reading arrays Returning values from functions Writing arrays Building do and while loops Re-using functions	
Unit III: Creating Rollovers and More	Hours
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	10
Unit IV: Building Smarter Forms & Handling Events Cookies	Hours
Getting started 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 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 The DOM, Nodes, and Objects Working with Dates and Times	18

References:

1 JavaScript: The Definitive Guide,David Flanagan, O'Reilly Media; 7th edition (14 May 2020),ASIN : B088P9Q6BB.

2 Eloquent JavaScript,Marijin Haverbake, 3rd Edition,ISBN-13: 978-1593279509

3 JavaScript: The Good Parts,Douglas Crockford,Shroff; First edition,ISBN-10 : 8184045220

Name of Course	Bachelor of Computer Application (BCA)
Semester	II
Name of Subject	Graphics Design and Content Management Tools
Subject Code	BCA-202
Marks	75 Marks
Lectures	50 Lectures

Learning Objectives:

i. Create, manipulate, and edit text and graphics to obtain desired graphical outcomes.
ii. Define a relational database management system (RDBMS) and describe its structure.
iii. Define data definition language (DDL) and data manipulation language (DML).
iv. Provide the skills to effectively create and operate WordPress sites.

Course Outcomes:

After successful completion of this course, students should be able to:

i. Utilize several Flash tools and tactics learned throughout the course to produce an interactive flash based website.
ii. Publish flash movies in numerous formats and contexts in a professional and web friendly manner.
iii. Know types of databases and how to design them.
iv. Know advanced queries and advanced concepts in MySQL.
v. Plan website by choosing colour schemes, fonts, layouts, and more.
vi. Select, install, and activate a theme in word press.
vii. Design e-commerce site using woo commerce plugin.

Unit I: Getting Started with Flash & Advanced Drawing Techniques	Hours
Create Flash movie file, Draw the characters and background, Basic drawing tools i.e. Pencil, Brush, Paint Bucket, and Text tools, Previewing and Publishing Movie, Scenes, Layers, and Library Symbols, Frames, Tweening, and Onion Skinning, Creating Curves, Importing Illustrator/Photoshop Files, Understanding Blend Effects Animating 3D motion, Articulated Motion with Inverse Kinematics, Constraining Joints, Inverse Kinematics with Shapes, Designing a Layout, Creating Buttons and Actions, Creating Event Handlers, Using Sounds, Using Adobe Media Encoder, Playback of External Video, Working with Video and Transparency, Embedding Flash Video, Using Components, Creating Masks, Adding Metadata, Publishing Movie for the Web	20
Unit II: RDBMS with MySQL	Hours
Introduction to database, Features of MySQL, Basics of Relational Databases, Creating and Selecting a Database, Creating a Table, Loading Data into a Table, Modifying and Deleting Data from Table, Retrieving Information from a Table, Selecting All Data, Selecting Particular Rows, Selecting Particular Columns,	10

Sorting Rows, Date Calculations, Working with NULL Values, Pattern Matching, Counting Rows, Using More Than one Table, Getting Information About Databases and Tables, Creating Sequence, Database Backup and Restore	
Unit III: Website Development using WordPress	Hours
Installing WordPress, Installing Themes, Creating a Child Theme, Modifying a Theme, Setting Up a WordPress Site, Starting the MRP Theme, The WordPress Loop, Continuing with the Loop, Splitting the Page into Templates, Creating a Page for Single Posts, Creating Pages, Customizing the Navigation Menu, Customizing the Sidebar, Creating a Custom Page Template, Adding a Contact Form, Uploading a WordPress Site	10
Unit IV: Advanced WordPress Concepts & Woo Commerce Plugin	Hours
What are plugins? Finding plugins, Installing plugins, Activating and deactivating plugins, Editing plugin settings, Deleting plugins, Adding, editing, and deleting users, User roles and permissions, Importing content from another site, Exporting your WordPress data, WordPress General settings, Changing the site title and tagline, Changing your URL, Using a different homepage, Updating the admin email address, Changing time zones Date/Time formats Introduction to Woo Commerce, Woo Commerce installation, Convert HTML to Woo commerce using [short-code], Recent Products, Featured Products, Variable Products, Woo commerce Settings, Payment Gateway Integration, Moving woo commerce site from Local Server to Live Server	20

Reference Books:

1. Adobe Flash Professional CS6 Classroom in a Book by Adobe Creative Team
2. Exploring Adobe Flash CS4-Annesha Hartman, Cengage Learning Publication
3. MySQL Explained by Mr. Andrew Comeau, CreateSpace Independent Publishing Platform
4. Professional WordPress: Design and Development by Brad Williams, David Damstra, Hal Stern
5. WordPress To Go by Sarah McHarry.
6. WooCommerce Explained by Stephen Burge

Name of Course	Bachelor of Computer Application (BCA)
Semester	II
Name of Subject	Web Technology
Subject Code	BCA-203
Marks	75 Marks
Lectures	50 Lectures

Objectives:

To improve the skill to create the static web page.

To develop the ability to create the dynamic web pages.

To enhance the ability of Insert a graphic within a web page.

To improve the skills to Create, validate and publish a web page.

Outcome:

1. Be able to use HTML programming

UNIT – I

1. Introduction of HTML Documents 15 Lectures
   - 1.1 Historical Roots of HTML,
   - 1.2 Web page, Website,
   - 1.3 Structure of HTML documents and Basic Tags: HTML, HEAD, TITLE, BODY
   - 1.4 Formatting Tags: Paragraph Tags, List tags, HR Tag.
   - 1.5 Headings Tags, PRE tag, DIV tag, SPAN tag.
   - 1.6 FONT Tag, ADDRESS tag, MARQUEE tag.
   - 1.7 Text-Level Elements & other different formatting tags.

UNIT – II

2. Technologies for Web Application 10 Lectures
   - 2.1 WWW, Web browser.
   - 2.2 U.R.L. concept.
   - 2.3 Web server, Web protocols: HTTP, FTP, Telnet.
   - 2.4 Hyperlink (Anchor) Tag & it's all attributes,
   - 2.5 Creating Email Hyperlinks (using mail to anchor)
   - 2.6 The Role of Images on the Web, tag & it's all attributes, Using Images as links.
   - 2.7 Tables in HTML:- TABLE, TR, TH, TD tag with example, table with all Attributes

UNIT – III

3. Basic Interactivity and DHTML 15 Lectures
   - 3.1 Frames in HTML: FRAMESET & FRAME tags & its attributes
   - 3.2 Simple Frame Example. Forms in HTML: Introduction to forms.
   - 3.3 FORM element & it's attributes (Action, Method (GET, POST), Name)
   - 3.4 Form controls: Text Controls, Password Field, Multiline Text Input,
     1. Pull-Down Menus, Check Box, Radio Buttons, Scrolled List,
     2. Reset Button and Submit button.
   - 3.5 Introduction of DHTML, Ramifications of DHTML
   - 3.6 Rollover Buttons.

UNIT – IV

4. CSS and Java Script 10 Lectures
   - 4.1 Introduction to Cascading Style Sheets
   - 4.2 Embedded Styles, Inline Styles, Imported/External Styles.
   - 4.3 Introduction of JAVA Script
   - 4.4 Adding script to documents with example. Variables.
   - 4.5 Input and Output statements of JAVA Script

Reference Books:

1. HTML The complete Reference (2nd Edition Thomas A Powel Tata McGraw Hill publication)
2. The complete Reference (HTML & XHTML)- 5th Edition Thomas A Powel Tata McGraw Hill publication

Name of Course	Bachelor of Computer Application (BCA)
Semester	II
Name of Subject	Elective : E-Commerce
Subject Code	BCA-204 A
Marks	75 Marks
Lectures	50 Lectures

Objective:

The objective of this course is to provide students with an overview and understanding of e- commerce with a specific emphasis on Internet Marketing.

Specifically, students will:

- Examine the ways that marketing can be done, and is being done, using the Internet.
- Gain an understanding of networked computers and the Internet. Students will learn to use the several Internet services such as the World Wide Web, Email. Use of these services for marketing purposes.

Outcome:

At the end of the course, the students is expected to realize the problems involved in designing and building e-commerce systems; understand the need to design EC systems that fully meet the requirements of the intended users; appreciate the need to ensure that the implementation of a design is adequately tested to ensure that the completed EC system meets the specifications.

UNIT I

1. Electronic Commerce — 15 Lectures
   - 1.1 Electronic Commerce
   - 1.2 Electronic Data Interchange (EDI)
   - 1.3 E-commerce Types
   - 1.4 E-Commerce and the world at large
   - 1.5 Internet Connectivity
   - 1.6 E-Commerce Case Studies
     a. Intel
     b. Amazon
   - 1.7 E-Governance Case Studies
     a. The US Government
     b. The UK Government

UNIT II	

2. PCS & Networking — 10 Lectures

2. Networking

1 a. Network Topologies
Communication Media

2.
2

a. VSAT
b. Access Schemes
c. VSAT Network Components

UNIT III	

3. Electronic Data Interchange (EDI) — 10 Lectures

3.1 Electronic Data Interchange (EDI)
3.2 Costs and Benefits
3.3 Components of EDI Systems
a. EDI Software
b. Communication of EDI Messages
3.4 EDI Implementation Issues

UNIT IV	

4. Electronic Payment Systems & Internet Banking — 15 Lectures

4.1 Payment Gateway
4.2 Internet Banking
4.3 PayPal
4.4 The Secure Electronic Transaction Protocol
4.5 Electronic Cash
4.6 Electronic Cheque
4.7 Elements of Electronic Payments

Reference Book

1. E-Commerce II Edition by K K Bajaj & D Nag (TATA McGraw HILL)

Name of Course	Bachelor of Computer Application (BCA)
Semester	II
Name of Subject	Elective : Business Accounting with Tally
Subject Code	BCA-204 B
Marks	75 Marks
Lectures	50 Lectures

Objective:

1. To impart basic accounting knowledge
2. To understand the concept, process and importance of financial accounting.
3. To gain knowledge of business accounting
4. To help students to acquaint with application of Tally in the business world.

Outcome:

1. Students will able to do Accounting Using Tally

UNIT I

1. Introduction to Financial Accounting 10 Lectures
   - 1.1 Introduction: Financial Accounting-definition and Scope, objectives of Financial Accounting, Accounting v/s Book Keeping Terms used in accounting, Users of accounting information and limitations of Financial Accounting.
   - 1.2 Accounting Concepts, Types of Accounts, Accounting Principles or concepts , Mode of Accounting, Rules of Accounting, Double entry system of book keeping

UNIT II

2. Conceptual Framework 10 Lectures
   - 2.1 Accounting Standards in India-concept, objectives, benefits Accounting Policies
   - 2.2 Accounting as a measurement discipline, valuation Principles, accounting estimates

UNIT III

3. Recording of transactions 15 Lectures
   - 3.1 Company Creation, Alter, Backup & Restore,
   - 3.2 Creating book of account, Group, subsidiary Group, Ledgers
   - 3.3 Voucher system; Accounting Process, Journals, Subsidiary Books, Ledger, Cash Book, Bank Reconciliation Statement, Trial Balance.
   - 3.4 Depreciation: Meaning, need & importance of depreciation, methods of charging depreciation.(WDV & SLM)
   - 3.5 Stock Groups : Multiple Stock Groups , Stock Categories , Multiple Stock Categories , Units of Measure , Godowns ,Stock Items

UNIT IV

4. Preparation of final accounts 15 Lectures
   - 4.1 Preparation of Trading and Profit & Loss Account and Balance Sheet of sole proprietary business
   - 4.2 Introduction to Company Final Accounts: Important provisions of Companies Act, 1956 in respect of preparation of Final Accounts.
   - 4.3 Understanding of final accounts of a Company.

Recommended Books

1) Fundamentals of Accounting & Financial Analysis: By Anil Chowdhry (Pearson Education)
2) Financial accounting: By Jane Reimers (Pearson Education)
3) Accounting Made Easy By Rajesh Agarwal & R Srinivasan (Tata McGraw –Hill)
4) Mastering Tally ERP 9: Basic Accounts, Invoice, Inventory by Asok K. Nadhani(BPB Publication)

Name of Course	Bachelor of Computer Application (BCA)
Semester	I
Name of Subject	**Open Elective: University recognized MOOC (NPTEL / SWAYAM / others) OR Intra / Inter Departmental courses**
Subject Code	BCA-205 A
Marks	75 Marks
Lectures	50 Lectures

OR

Name of Course	Bachelor of Computer Application (BCA)
Semester	II
Name of Subject	**Open Elective:** Functional English
Subject Code	BCA-205 B
Marks	75 Marks
Lectures	50 Lectures

Objectives of the Course:

1. A comprehensive use of English in day-to-day life.
2. To help Students develop the ability to learn and contribute critically.
3. To develop the writing skills of the students.
4. To help the students to understand the basic usages of English.

Course outcome:

By the end of this course students should be able to:

1. Understand and demonstrate Basic English usages for their different purposes.
2. Clear entrance examination and aptitude tests.
3. Write various letters, reports required for professional life.

Unit I	
1. Business Correspondence:-	15 Lectures
1.1 E-mail Writing: Invitation, job.	
1.2 Essay Writing: Types, Structures etc.	
1.3 Resume, Bio-data, and CV.	

Unit II	
2. Reading Comprehension:	15 Lectures
2.1 Basic Approaches for understanding English	
2.2 Para Jumbles	

Unit III	
3. Practical Grammar:	10 Lectures
3.1 Basic usages of Tenses	
3.2 Auxiliaries (Modal and Primary)	
3.3 Phrasal Verbs	

Unit IV

4. Vocabulary 10 Lectures
   - 4.1 One word substitution
   - 4.2 Idioms and Phrases
   - 4.3 Synonyms and Antonyms
   - 4.4 Spelling Mistakes

Reference Books -

1) Modern English Grammar-L. S. Deshpande (creative Publication)

2) A Practical English Grammar- A. J. Thomson. (Oxford University)

3) Macmillan Foundation English. - R. K. Dwivedi & a. Kumar (Mammalian India Ltd)

4) Writing English for You- G. Radhakrishna Pillai (Emerland Publication)

5) High School English Grammar & Composition - Wren & Martin (S. Chand)

6) Radiance Communication Skills- Editorial Board (SRTM University) Orient Black Swan.

7) English Grammer and Composition – Rejendra Pal and Prem Lata Suri (Sultan Chand and Sons)

OR

Name of Course	Bachelor of Computer Application (BCA)
Semester	II
Name of Subject	**Open Elective:** Corporate English
Subject Code	BCA-205 B
Marks	75 Marks
Lectures	50 Lectures

Objectives of the Course:

1. A comprehensive use of English in day-to-day life.
2. To help Students develop the ability to learn and contribute critically.
3. To develop the writing skills of the students.
4. To help the students to understand the basic usages of English.

Course outcome:

By the end of this course students should be able to:

1. Understand and demonstrate Basic English usages for their different purposes.
2. Clear entrance examination and aptitude tests.
3. Write various letters, reports required for professional life.

Unit I	
1. Practical usage of English:	10 Lectures
1.1 Group Discussion	
1.2 Seminar and Conference	
1.3 Interview	

Unit II	
2. Business Communication:	10 Lectures
2.1 E-mail and Cover letter writing	
2.2 Resume and CV	
2.3 Report writing	

Unit III	
3. Functional English	15 Lectures
3.1 Articles	
3.2 Prepositions	
3.3 Conjunctions	
4.4 Quantifiers	

Unit IV	
4. Basic Structures:	15 Lectures
4.1 Phrases	
4.2 Clauses	
4.3 Sentence: Basic Structures	

Reference Books -

1) Modern English Grammar -L. S. Deshpande (creative Publication)
2) A Practical English Grammar - A. J. Thomson. (Oxford University)
3) Developing Communication Skills.- Krishna Mohan & Meera Banerji (Macmillan India Ltd)
4) Macmillan Foundation English. - R. K. Dwivedi & a. Kumar (Mammalian India Ltd)
5) Writing English for You- G. Radhakrishna Pillai (Emerland Publication)
6) High School English Grammar & Composition - Wren & Martin (S. Chand)
7) Radiance Communication Skills- Editorial Board (SRTM University) Orient Black Swan.

Name of Course	Bachelor of Computer Application (BCA)
Semester	II
Name of Subject	Lab-Course: JavaScript
Subject Code	BCA-206
Marks	50 Marks

Learning Objectives:

i To impart the knowledge on basics concepts of JavaScript.
ii To provide the familiarity in the concept of developing JavaScript Code.
iii To converse an idea of creating application using JavaScript.

Course Outcomes:

After successful completion of this course, students should be able to:

i To develop background knowledge as well as core expertise in JavaScript.
ii To understand the Dynamic form creation and provide knowledge for creating applications.
iii To learn the advanced JavaScript.

Lab Work/ Practical List

Programs for the demonstration of all the concepts in JavaScript.
Following List should be covered after the Programs for the demonstration of concepts of Windows Programming

1. Defining interactive response and performance to web pages

   *** JavaScript provides users to interact with web pages as per the below examples as per the requirements
2. Show/hide more data or user information using with the click of a button
3. Change the color of a button after hovering the mouse hovers over it
4. Slide by a carousel of images on the home webpage
5. Zooming in/zooming out feature on an image
6. Performing a timer and defining count-down on a website
7. Performing animation implementations
8. Using a drop-down interactive on menu
9. Performing audio and video on a web page

Name of Course	Bachelor of Computer Application (BCA)
Semester	II
Name of Subject	Lab-Course : Web Technology
Subject Code	BCA-207
Marks	50 Marks

1. Create a web page for describing the structure of HTML
2. Create a web page on text level elements
3. Create a web page for p, font, address, marquee tags.
4. Create a web page with anchor tag with all attributes.
5. Create a web page for img tag with all attributes.
6. Create a web page for table tag with all attributes.
7. Describe a frame tag with all attributes.
8. Create a web page for user registration form using all controls and attributes of form tag.
9. Create a web page for rollover button.
10. Create a web page for CSS of embedded styles
11. Create a web page for CSS of Inline styles.
12. Create a web page for CSS for imported/external styles.
13. Write a program for adding java script to documents in web page.
14. Write a program on input and output statements of java script.