



SU/BOS/Science/349

Date: 24/06/2024

To,

The Principal,
All Concerned Affiliated Colleges/Institutions
Shivaji University, Kolhapur

Subject: Regarding Minor Change syllabi of B.Sc. Part-I (Sem.I & II) as per NEP-2020 (2.0) degree programme under the Faculty of Science and Technology.

Ref: SU/BOS/Science/877/ Date: 26/12/2023 Letter.

Sir/Madam,

With reference to the subject mentioned above, I am directed to inform you that the university authorities have accepted and granted approval to the Minor Change syllabi, nature of question paper B.Sc. Part-I (Sem. I & II) as per NEP-2020 (2.0) degree programme under the Faculty of Science and Technology.

B.Sc.Part-I (Sem. I & II) as per NEP-2020 (2.0)			
1.	Food Science and Technology (Entire)	6.	Biochemistry
2.	Food Science	7.	Biotechnology (Optional/Vocational)
3.	Food Science and Quality Control	8.	Biotechnology (Entire)
4.	Food Technology & Management (Entire)	9.	Pollution
5.	Computer Science (Opt)	10.	Environmental Science (Entire)

This syllabus, nature of question and equivalence shall be implemented from the academic year 2024-2025 onwards. A soft copy containing the syllabus is attached herewith and it is also available on university website www.unishivaji.ac.in NEP-2020@suk(Online Syllabus)

The question papers on the pre-revised syllabi of above-mentioned course will be set for the examinations to be held in October /November 2024 & March/April 2025. These chances are available for repeater students, if any.

You are, therefore, requested to bring this to the notice of all students and teachers concerned.

Thanking you,

Dy Registrar
Dr. S. M. Kubal

Copy to:

1	The Dean, Faculty of Science & Technology	4	B.Sc. Exam/ Appointment Section
2	Director, Board of Examinations and Evaluation	5	Computer Centre/ Eligibility Section
3	The Chairman, Respective Board of Studies	6	Affiliation Section (U.G.) (P.G.)

SHIVAJI UNIVERSITY, KOLHAPUR



Accredited By NAAC with 'A++' Grade

Programme with Multiple Entry and Multiple Exit Option

As per NEP-2020 (NEP 2.0)

Syllabus for

B.Sc. Part – I

Computer Science (Optional)

SEMESTER – I AND II

(Syllabus to be implemented from Academic Year 2024-25)

B.Sc. Part – I (Computer Science) Semester – I and II
Programme with Multiple Entry and Multiple Exit Option (NEP-2020)

Syllabus to be implemented from Academic Year 2024-25

Program Outcomes (PO):

Upon successful completion of the B.Sc. Computer Science (Optional), the student should have met the following Outcomes:

- PO1: Disciplinary Knowledge: Graduates will gain in-depth understanding in their specific major or discipline, mastering the foundational principles and theories, as well as advanced concepts. Execute strong theoretical and practical understanding developed from the specific programme in the area of work.
- PO2: Problem-Solving Skills: Graduates will learn to use their knowledge to identify, analyze, and solve problems related to their field of study.
- PO3: Analytical Skills: Graduates will gain the ability to collect, analyze, interpret, and apply data in a variety of contexts. They might also learn to use specialized software or equipment.
- PO4: Research Skills and Scientific temper: Depending on the field, graduates might learn how to design and conduct experiments or studies, analyze results, and draw conclusions. They might also learn to review and understand academic literature.
- PO5: Communication Skills: Many programs emphasize the ability to communicate effectively, both orally and in writing. Graduates may learn to present complex information clearly and succinctly, write detailed reports, and collaborate effectively with others.
- PO6: Ethics and Professionalism: Graduates may learn about the ethical and professional standards in their field, and how to apply them in real-world situations.
- PO7: Integration: Integrate knowledge of Computer Science with associated subjects like mathematics, statistics, electronics etc. to build and explore problem solving concepts.

Program Specific Outcomes (PSO):

- PSO1: Technical Expertise: Implement fundamental knowledge of core and programming computer subjects like C programming, operating system etc. For developing effective technical and computing solutions by incorporating creativity and logical reasoning.
- PSO2: Successful Career: Deliver professional services and knowledge with updated new technologies like, Python, HTML, and PHP etc. in Computer science career.
- PSO3: Interdisciplinary and Life Long Learning: Develop Mathematical and Electronical, Computation abilities. It also develops analytical, reasoning and logical abilities of students. Undergo higher studies, certifications and technology research as per market needs.
- PSO4: Human Values and Ethics: Understand professional and ethical responsibilities in order to work at different positions in organizations and at a societal context.

- 1. TITLE: Computer Science**
- 2. YEAR OF IMPLEMENTATION:** Revised Syllabus will be implemented from June 2024 onwards.
- 3. DURATION:** B.Sc. in Computer Science Part – I. The duration of course shall be one year and two semesters.
- 4. PATTERN:** Pattern of examination will be semester.
- 5. STRUCTURE OF COURSE:**

STRUCTURE OF COURSE

Semester	Subject Type	Course Code	Course Title	Marks	Credits	Lectures Per week (60 min.)
SEM – I	Course I	DSC – I	Basics of C Programming	50	02	02
		DSC – II	Database Concepts	50	02	02
		DSC P – I	Practical Based on DSC – I and DSC – II	50	02	02
	OE	OE – I	Office Automation	50	02	02
SEM – II	Course I	DSC – III	Advanced C Programming	50	02	02
		DSC – IV	Advanced Database	50	02	02
		DSC P – II	Practical Based on DSC – III and DSC – IV	50	02	02
	OE	OE – II	Basics of HTML	50	02	02

6. EXAMINATION SCHEME

Theory: Theory examination will be conducted at the end of each semester. Paper Duration: 2 Hrs., **Maximum Marks: 40.** Minimum for passing: 35%.

10 Marks for Term work / Internal

10 Marks for Assignments / Unit Test / Mid test / presentation or activity-based learning/ Group exercise/ Laboratory work/ Library work

Practical: Practical Examination will be conducted at the end of each semester. Duration: 3 hours, Maximum Marks: 50, Minimum for passing: 35%.

➤ NATURE OF QUESTION PAPER AND SCHEME OF MARKING (Theory)

For all courses

Que. No.	Question	Marks
Q.1.	08 Multiple Choice Questions (One Mark each)	08 Marks
Q.2.	Attempt any TWO out of THREE (08 marks each)	16 Marks
	a)	
	b)	
	c)	
Q.3.	Attempt any FOUR (4 marks each)	16 Marks
	a)	

	b)	
	c)	
	d)	
	e)	
	f)	
	Total Marks	40 Marks

➤ **Nature of Practical Examination:** **(Maximum Marks 50)**

The Practical Examination is conducted at the end of each semester which will be of 3 hours duration and of 50 maximum marks. There will be four questions, out of these, student has to attempt Any Two questions. ***No paper work is required for the Practical exam.*** The marks distribution for the practical paper is given below:

Each question carries	: 20 marks (20 X 2 = 40 marks)
Certified Journal carries	: 5 marks.
Viva based on practical carries	: 5 marks.

B.Sc. Part – I Computer Science Optional (Semester– I) (NEP)
Course I **Course Code: DSC-I**
Course Title: Basics of C Programming
Total Contact Hours: 30 Hrs (30 lectures of 60 min.)
Teaching Scheme: Theory – 02 Lect. / Week

Credits: 02

Total Marks: 50

Course Outcomes:

After successful completion of this course, students will able to:

- 1) Demonstrate a familiarity of computer programming language concepts.
 - 2) Understand to develop C programs on Linux platform.
 - 3) Use basics of C language syntax as identifiers, keywords, variables, data types and operators
 - 4) Apply the concept of branching, looping, decision-making statements and Array for problem solving.
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Unit – 1 Problem Solving Using Computers **(15 hrs.)**

(A) Planning the Computer Program: Concept of problem solving, Problem definition, Program design, Debugging, Types of errors in programming, Documentation.

(B) Logical Continuum of Program of Programming: Linux Operating System and C Language, Introduction to GCC Compiler, Components of Compilation Process, C Program Structure, Vi Editor, Whittling the First ‘C’ Program, Checking Whether the Compiler Is Working, Execution of Make file, Character Set, C Tokens (Keywords, Identifiers, Constants, Stings, Special Symbols, Operators), Getting Used to the Data Types (Primary or fundamental, Derived and User-defined), Data type modifiers, Built-In Standard Library, Variable Declaration, Input / Output Statement, Format Specifiers, Escape Sequences, Operators, Operator Precedence.

Unit – 2 Control Structures and Arrays **(15 hrs.)**

(A) Decision Making and Looping Constructs: Introduction, the if Statement, the if-else Statement, Nested if-else, The Switch Case Statement, the while Loop, the odd Loop (do while), the for Loop, Loop Control Statements, Infinite Loop.

(B) Arrays: Features, Definition, Types of Arrays, Initialization of array, Memory representation of array, Single-Dimensional Array, Two-Dimensional Array, Multi-Dimensional Array.

(C) Predefined String functions

Reference Books:

1. “C Programming in an Open Source Paradigm: A Hands on approach”, K.S.Oza, S.R.Patil, R.K.Kamat River Publisher Series in Information Science and Technology, Netherland 978-87-93237-67-4 ,2015
2. ANSI C – E.Balgurusamy
3. Let us C – Y.C.Kanetkar
4. ‘C’ programming – DennisRitchie
5. Programming in ‘C’ - Venugopal

B.Sc. Part – I Computer Science (Optional) (Semester –I) (NEP)
Course I Course Code: DSC-II
Course Title: Database Concepts
Total Contact Hours: 30 Hrs (30 lectures of 60 min.)
Teaching Scheme: Theory – 02 Lect. / Week

Credits: 02

Total Marks: 50

Course Outcomes:

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

- 1) Describe the basic concepts of DBMS and various databases used in real applications.
 - 2) Demonstrate the principles behind systematic database design approaches.
 - 3) Describe the fundamental elements of Relational Database Management Systems.
 - 4) Use various commands in data languages with example.
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Unit – 1 Basics of RDBMS

(15 hrs.)

Characteristics of database approach, advantages and disadvantages of DBMS, Data models: Hierarchical, Network, Relational, Schema and Instances, DBMS architecture: Three Schema Architecture, Internal, Conceptual, External, Data independence: Logical, Physical, Concept of RDBMS, Terminologies: relation, attribute, domain, tuple, entities, Integrity Constraints (Domain, Entity, Referential), Entity Relationship Model, Entity Relationships: one-one, one-many, many-one, many-many, Key: Super key, Composite Key, Candidate Key, Primary Key, Alternate Key or Secondary Key, Foreign Key), Normalization: 1NF, 2NF, 3NF, De-normalization, Relational algebra.

Unit – 2 Basics of MySQL

(15 hrs.)

Features of MySQL, Data types, User management, Database (Create, Use, Drop, Show, Copy), DDL, DML, DCL, TCL Commands, Clauses – Order by, where and group by, Operators : Arithmetic (DIV, /, -, +, *, %, MOD), Comparison operator (=, <>, >, <, >=, <=), Set operators: Union, Union all, Intersect, Minus Another Operator: like, in, not, between, exists, all, any, is null, is not null, distinct.

Reference Books:

1. R. Elmasri, S.B. Navathe, Fundamentals of Database Systems 6th Edition, Pearson Education, 2010.
2. R. Ramakrishnan, J. Gehrke, Database Management Systems 3rd Edition, McGraw-Hill, 2002.
3. A. Silberschatz, H.F. Korth, S. Sudarshan, Database System Concepts 6th Edition, McGraw Hill, 2010.
4. R. Elmasri, S.B. Navathe Database Systems Models, Languages, Design and application Programming, 6th Edition, Pearson Education, 2013.
5. Database System Concept – Silberschatz, Korth
6. Introduction to Database Systems C. J. Date Pearson Education
7. Learning MySQL- Hugh Williams, Saied Tahaghoghi
8. MySQL in a Nutshell, 2nd Edition-A Desktop Quick Reference- Russell Dyer

B.Sc. Part – I Computer Science (Optional) (Semester –I) (NEP)
Course I Course Code: DSC P – I
Course Title: Practical Based on DSC – I and DSC – II
Teaching Scheme: Theory – 04 Lect. / Week / Batch

Credits: 02

Total Marks: 50

Course Outcomes:

After successful completion of this course, students will able to:

- 1) Understand basic structure if C Programming, declaration and usage of variables, use of data type and operators.
 - 2) Implement control structures and array to develop a C program.
 - 3) Design database for business applications.
 - 4) Use various commands in data languages on databases.
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Practical Based on DSC – I

Following is a sample list of assignments for practical, instructors are advised to provide more lab assignments to students to meet the course specified outcomes.

1. Write a program to convert the given temperature from Fahrenheit to Celsius
2. Write a program to find the area of rectangle, square, circle and triangle by accepting suitable input parameters from user.
3. Write a program to accept 4 subject marks and calculate total marks, percentage and grade of student.
4. Write a program to input a number and find the given number is Odd or Even.
5. Write a menu driven program to convert the given temperature from Fahrenheit to Celsius and vice versa depending upon user's choice.
6. Write a program to find factorial of a given number.
7. Write a program to display the first n terms of Fibonacci sequence.
8. Write a program to print palindrome numbers between given range.
9. Write a program to find sum of the following series for n terms: $1 - \frac{3}{2} + \frac{4}{3} - \dots - \frac{n}{n-1}$
10. Write a program to sort given array in ascending as well as descending order.
11. Write a program to calculate the product of two compatible matrices.
12. Write a program to check whether a given number is prime or not.
13. Write a program to find maximum and minimum numbers in given array.
14. Write a program to add and subtract two matrices

Practical Based on DSC – II

Following is a sample list of assignments for practical, instructors are advised to provide more lab assignments to students to meet the course specified outcomes.

1. A practical on create, use and drop database.
2. A practical on DDL commands –Create table, Alter table : Add, modify, drop, rename column, rename table using first/after; Drop, Rename, Truncate)
3. A practical on DML commands – insert record, update record, select and delete record
4. A practical on creating table and use of different constraints on table. Insert at least 10 records.
5. A practical on user management in MySQL.
6. A practical on DCL commands – Grant, Revoke
7. A practical on TCL commands – Rollback, Commit, Save Point

B.Sc. Part – I Computer Science (Optional) (Semester –I) (NEP)
Open Elective Course Code: OE-I
Course Title: Office Automation
Total Contact Hours: 30 Hrs (30 lectures of 60 min.)
Teaching Scheme: Theory – 02 Lect. / Week

Credits: 02

Total Marks: 50

Course Outcomes:

After successful completion of this course, students will able to:

- 1) Understand about the use of Office Package and internet in daily life
 - 2) Surf details through Internet.
 - 3) Understand the components of office automation
 - 4) Prepare different types of official documents using OpenOffice Writer.
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Unit – 1 Internet and Advanced Communication

(10 hrs.)

Internet and Web Browsers: Definition & History of Internet, Uses of Internet, Definition of Web Addressing – URL, Different types of Internet Connections; Dial up connection, Broad band (ISDN, DSL, Cable), Wireless (Wi-Fi, WiMax, Satellite, Mobile) naming convention, browsers and its types, internet browsing, searching - Search Engines - Portals - Social Networking sites Blogs - viewing a webpage, downloading and uploading the website; Creating an email-ID, e-mail reading, saving, printing, forwarding and deleting the mails, checking the mails, viewing and running file attachments, addressing with cc and bcc.

Unit – 2 Introduction to OpenOffice and Writer

(20 hrs.)

What Is Apache OpenOffice? [Writer (word processor), Calc (spreadsheet), Impress (presentations), Draw (vector graphics), Base (database), Math (formula editor)], Advantages of OpenOffice, Minimum Requirements, How to Get and Install the Software, Extensions and Add-Ons, Starting OpenOffice, Parts of the Main window, Starting a New Document, Opening an Existing Document, Saving a Document, Password Protection, Using the Navigator, Using the Open and Save As Dialogs, Undoing and Redoing Changes, Reloading a Document, Closing a Document, Closing OpenOffice.

What Is Writer?, The Writer Interface, Changing Document Views, Moving Quickly through a Document, Working with Documents, Working with Text, Formatting Text, Formatting Pages, Adding Comments to a Document, Creating a Table of Contents, Creating Indexes and Bibliographies, Adding Images and Other Graphics, Adding Tables, Spreadsheets, and Charts, Adding a Movie or Sound, Printing, Using Mail Merge, Tracking Changes to a Document, Using Fields, Linking to Another Part of a Document, Using Master Documents, Creating Fill-in Forms.

Reference Books:

1. Introduction to Information Technology - Alexis Leon, Mathews Leon, and Leena Leon, Vijay Nicole Imprints Pvt. Ltd., 2013.
2. Apache OpenOffice Version 4.1 Getting Started by AOO Documentation Team
3. Open Office Basic: An Introduction by James Steinberg
4. A Conceptual Guide to OpenOffice.org 3 by R. Gabriel Gurley
5. OpenOffice 3.4 Volume I: Writer: Black and White by by Christopher N. Cain, Riley W. Walker
6. Apache open office writer 4.1 eBook: Introduction to apache open office writer 4.1 by by Lalit Mali
7. LibreOffice 7.5 Getting Started Guide by LibreOffice Documentation Team
8. Libre Office 5.1 Writer, Calc, Math Formula Book- Vol 1 - Introduction To Libre Office 5.1 by Lalit Mali

Web References:

1. https://wiki.openoffice.org/wiki/Documentation/AOO4_User_Guides/AOO4.1_User_Guide_Chapters
2. <https://documentation.libreoffice.org/assets/Uploads/Documentation/en/GS6.0/GS60-GettingStartedLO.pdf>

B.Sc. Part – I Computer Science (Optional) (Semester –I) (NEP)
Open Elective Course Code: OE-I
Course Title: Practical Based on OE – I
Teaching Scheme: Practical – 04 Lect. / Week / Batch

Credits: 02

Total Marks: 50

Course Outcomes:

After successful completion of this course, students will able to:

- 1) Use internet and internet tools.
- 2) Perform various activities based on internet.
- 3) Perform operations using OppenOffice Writer.
- 4) Prepare various documents using Writer.

Following is a sample list of assignments for practical, instructors are advised to provide more lab assignments to students to meet the course specified outcomes.

1. Create file, folder, save and save as file in different format. Compress folder and file, search file on computer.
2. Convert any document file to pdf, pdf to word, PPT to pdf. Create meeting using Video Conferencing app- eg. Zoom, Google Meet, Webex
3. Searching for a web site / application / text documents viewing and downloading., Create an E-mail account, retrieving messages from inbox, replying, attaching files filtering and forwarding.
4. Create Account to any online job portal (e.g Nokari.Com, Monster.com, Shine.com
5. Preparing a Govt. Order / Official Letter / Business Letter / Circular Letter Covering formatting commands - font size and styles - bold, underline, upper case, lower case, superscript, subscript, indenting paragraphs, spacing between lines and characters, tab settings etc.
6. Preparing a newsletter: To prepare a newsletter with borders, two columns text, header and footer and inserting a graphic image and page layout.
7. Creating and using styles and templates to create a style and apply that style in a document to create a template for the styles created and assemble the styles for the template.
8. Creating and editing the table to create a table using table menu to create a monthly calendar using cell editing operations like inserting, joining, deleting, splitting and merging cells To create a simple statement for math calculations viz. Totaling the column.
9. Creating numbered lists and bulleted lists to create numbered list with different formats (with numbers, alphabets, roman letters) To create a bulleted list with different bullet characters.
10. Printing envelopes and mail merge. To print envelopes with from addresses and to addresses to use mail merge facility for sending a circular letter to many persons to use mail merge facility for printing mailing labels.
11. Using the special features of word to find and replace the text to spell check and correct. To generate table of contents for a document to prepare index for a document
12. Create an advertisement Prepare a resume. Prepare a Corporate Circular letter inviting the shareholders to attend the Annual Meeting.

B.Sc. Part – I Computer Science Optional (Semester– II) (NEP)
Course I Course Code: DSC-III
Course Title: Advanced C Programming
Total Contact Hours: 30 Hrs (30 lectures of 60 min.)
Teaching Scheme: Theory – 02 Lect. / Week

Credits: 02

Total Marks: 50

Course Outcomes:

After successful completion of this course, students will able to:

- 1) Understand the concept and importance of pointers in C language.
- 2) Demonstrate an understanding of functions in problem solving.
- 3) Understand working of structure and dynamic memory allocation.
- 4) Apply file handling techniques using C language.

Unit – 1 Pointers and Functions:

(15hrs.)

- (A) **Pointers:** Definition and Declaration, Pointer Declaration, Pointer Initialization, Pointer Arithmetic, Arrays and Pointers, Pointers and One-Dimensional Arrays, Pointers and Two-Dimensional Arrays, Call by value and call by reference, Dynamic Memory Allocation
- (B) **Programming for Functional Functions:** Introduction, types of functions, Function Declaration, Function Definition, Function Call, Scope of variables, Nested Functions, Recursion, Storage classes.

Unit – 2 Structures and File Handling:

(15 hrs.)

- (A) **Structure:** User-Defined Data Types, Defining and declaring structure, size of structure, accessing members using Member direct selector operator (.), Nested Structure, Structure and Array.
- (B) **File Handling:** Defining and opening a file, File opening modes- read, write, append, closing a file, Input/Output Operations on file: getc(), putc(), getw(), putw(), fprintf(), fscanf(), ftell(), fseek(), rewind().

Reference Books:

1. “C Programming in an Open Source Paradigm: A Hands on approach”, K.S.Oza, S.R.Patil, R.K.Kamat River Publisher Series in Information Science and Technology, Netherland 978-87-93237-67-4 ,2015
2. ANSI C – E.Balgurusamy
3. Let us C – Y.C.Kanetkar
4. ‘C’ programming – DennisRitchie
5. Programming in ‘C’ - Venugopal

B.Sc. Part – I Computer Science (Optional) (Semester –II) (NEP)
Course I Course Code: DSC-IV
Course Title: Advanced Database
Total Contact Hours: 30 Hrs (30 lectures of 60 min.)
Teaching Scheme: Theory – 02 Lect. / Week

Credits: 02

Total Marks: 50

Course Outcomes:

After successful completion of this course, students will able to:

- 1) Understand various functions and subqueries.
- 2) Understand various joins and views.
- 3) Use the control statements and stored procedures.
- 4) Use the cursors and triggers.

Unit – 1 MySQL Functions, Subqueries and Join (15hrs.)

Functions in MySQL: Aggregate functions (avg, count, min, max, sum), String Functions (concat, instr, mid, length, strcmp, trim, ltrim, rtrim), Math Functions (abs, ceil, floor, mod, pow, sqrt), Date and Time Functions (adddate, datediff, day, month, year, hour, min, sec).

Subqueries – Concepts of Subqueries, subqueries with IN, EXISTS, NOT EXISTS, subqueries restrictions, Nested subqueries, ANY/ALL clause, correlated sub queries, Group by and Having clause.

Concepts of Join, Types of Joins - Inner Join, Outer Join, Left Join, Right Join, Cross Join

Views (creating, altering dropping, renaming and manipulating views).

Unit – 2 Advanced MySQL (15 hrs.)

Control Statements- If, case and loop, **Block Structure and Stored procedures** – Creating and executing procedures with and without parameters, **Cursors-** Declare, open, fetch, close, **Triggers-** Create, show and drop trigger, Types of triggers.

Reference Books:

1. R. Elmasri, S.B. Navathe, Fundamentals of Database Systems 6th Edition, Pearson Education, 2010.
2. R. Ramakrishnan, J. Gehrke, Database Management Systems 3rd Edition, McGraw-Hill, 2002.
3. A. Silberschatz, H.F. Korth, S. Sudarshan, Database System Concepts 6th Edition, McGraw Hill, 2010.
4. R. Elmasri, S.B. Navathe Database Systems Models, Languages, Design and application Programming, 6th Edition, Pearson Education, 2013.
5. Database System Concept – Silberschatz, Korth
6. Introduction to Database Systems C. J. Date Pearsons Education
7. Learning MySQL- Hugh Williams, Saied Tahaghoghi
8. MySQL in a Nutshell, 2 nd Edition-A Desktop Quick Reference- Russell Dyer

B.Sc. Part – I Computer Science (Optional) (Semester –II) (NEP)
Course I Course Code: DSC P – II
Course Title: Practical Based on DSC – III and DSC – IV
Teaching Scheme: Theory – 04 Lect. / Week / Batch

Credits: 02

Total Marks: 50

After successful completion of this course, students will able to:

- 1) Understand how to reuse code using functions and pointers and MLA functions to allocate memory at run time.
- 2) Define a structure to declare the data members of different data types according to needs and handles different file handling techniques using C language.
- 3) Use of functions, queries, sub queries, joins and views on databases.
- 4) Use of stored procedures and triggers on databases.

Practical Based on DSC – III

Following is a sample list of assignments for practical, instructors are advised to provide more lab assignments to students to meet the course specified outcomes.

1. Write a function which adds three number and display output on the screen.
2. Write a function to find factorial of a given number.
3. Write a function to reverse a given number.
4. Write a program to calculate factorial of given number using recursive function.
5. Write a program using function which swap two number using
 - a) call by value and b) call by reference.
6. Write a program to dynamically allocate memory of n items to an integer pointer, display their sum and average.
7. Write a program to dynamically allocate memory of n items to a character array, end it with '\0' and count number of vowels, consonants and spaces in it.
8. Write a program which create student structure which accept- students rollno, student name, address, subject marks, percentage and display same on screen.
9. Write a file handling program which accept student information store it into disk file.
10. Write a program to separate even and odd numbers available in file.
11. Write a program to copy contain of text file into another text file.
12. Write a program to count number of lines and characters of given text file
13. Write a program to remove blank lines from a file.
14. Write a program to count the no. of words in a given text file.

Practical Based on DSC – IV

Following is a sample list of assignments for practical, instructors are advised to provide more lab assignments to students to meet the course specified outcomes.

1. A practical to demonstrate different date & time functions
2. A practical to demonstrate different mathematical functions
3. A practical to demonstrate different string functions
4. A practical to demonstrate different aggregate functions
5. A practical to demonstrate different other functions
6. A practical to demonstrate different clauses
7. A practical to demonstrate simple and nested query
8. A practical to demonstrate different join types.
9. A practical on how to create view and drop view.
10. A practical on how to create stored procedure and other operations.
11. A practical to demonstrate different iterative statements
12. A practical to demonstrate different control flow statements
13. A practical on how to create and drop triggers.

B.Sc. Part – I Computer Science (Optional) (Semester –II) (NEP)

Open Elective Code: OE-II

Course Title: HTML

**Total Contact Hours: 30 Hrs (30 lectures of 60 min.) Teaching
Scheme: Theory – 02 Lect. / Week**

Credits: 02

Total Marks: 50

Course Outcomes:

After successful completion of this course, students will able to:

- 1) Learn HTML tags and programming concepts and techniques.
 - 2) Analyze a web page and identify its elements and attributes.
 - 3) Develop the ability to logically plan and develop web pages.
 - 4) Learn to write, test, and debug web pages using HTML.
-

Unit I – Introduction to Internet and HTML Basics

(15 hrs.)

(A) Introduction to Internet:

- Introduction to Internet, Web, Web Site, Web Page, URL

(B) Introduction to HTML

- Overview of HTML and its evolution
- Key features and improvements in HTML
- HTML Elements, Tags (Self closing, Inline and Block level) and Attributes

(C) HTML Document Structure:

- HTML document structure: **<!DOCTYPE>**, **<html>**, **<head>**, **<title>**, **<body>**
- New semantic elements: **<header>**, **<nav>**, **<article>**, **<section>**, **<footer>**

(D) HTML Elements

- Using **<p>**, **<pre>**, **
, **<div> and ****
- Text Formatting – Logical and Physical Style tags, Heading tags
- Lists – Ordered, Unordered and Definition Lists
- Images and Image mapping- ****, **<map>**, **<area>**
- Hyperlinks - **<a>**
- HTML Tables - **<table>**, **<caption>**, **<thead>**, **<tbody>**, **<tfoot>**, **<th>**, **<td>**, **<tr>**

Unit II – Advanced HTML

(15 hrs.)

(A) HTML Forms:

- **<form>** and **<input>** tag and attributes
- Using **<select>**, **<textarea>**
- New input types: **<input>** attributes for email, URL, date, etc.
- Form validation and attributes
- **<datalist>** for autocomplete options

(B) Multimedia in HTML:

- **<audio>** and **<video>** elements
- Embedding multimedia content

(C) Responsive Web Design:

- Media queries for responsive layouts
- Flexbox and Grid for flexible page design

Reference Books:

1. HTML and CSS – Complete Reference, Thomas A Powell, Mc Graw Hill
2. HTML and XHTML – Definitive Guide, by Chuck Musciano and Bill Kennedy, O'Reilly
3. HTML 5 -Black Book, Dreamtech
4. Foundation HTML 5 with CSS 3 A modern guide and reference, Craig Cook, Jason Garber, Apress
5. Beginning HTML and CSS – Rob Larsen, Wrox

B.Sc. Part – I Computer Science (Optional) (Semester –II) (NEP)
Open Elective Course Code: OE-II
Course Title: Practical Based on OE – II
Teaching Scheme: Practical – 04 Lect. / Week / Batch

Credits: 02

Total Marks: 50

Course Outcomes:

After successful completion of this course, students will able to:

- 1) Apply data validation, data formatting and conditional formatting using OpenOffice Calc.
- 2) Perform the data analysis computations by using various functions and formulae in OpenOffice Calc.
- 3) Improve presentation skills using OpenOffice Impress.
- 4) Create business multimedia presentations using OpenOffice Impress.

Following is a sample list of assignments for practical, instructors are advised to provide more lab assignments to students to meet the course specified outcomes.

1. Demonstrate the Validating Cell Contents.
2. Demonstrate the use of different charts using various examples.
3. Demonstrate Formatting Data, Auto-formatting Cells and Sheets, Formatting Spreadsheets Using Themes.
4. Demonstrate the Conditional Formatting
5. Perform the sorting and filtering activity.
6. Prepare the spreadsheet containing Roll. Nos. & Marks in 5 subjects of a students. Calculate the grades of the students.
7. Prepare spreadsheet of 10 salesmen containing Name & Sale amount. Calculate their bonus.
8. Prepare spreadsheet of 10 costumers containing Name & no. of units consuming the electricity. Calculate their electricity bill.
9. Creating a new Presentation based on a template – using Auto content wizard, design template and Plain blank presentation and applies Transition – Automatic and Manual with different effects
10. Creating a Presentation applying Custom Animation effects – Applying multiple effects to the same object and changing to a different effect and removing effects. Creating and Printing handouts.

Course Code: IKS - I:	Syllabus will be considered as per Shivaji University, Kolhapur
VEC-I(2) (Democracy, Election and Constitution)	