

Punyashlok Ahilyadevi Holkar Solapur University, Solapur



NAAC Accredited-2015

'B' Grade (CGPA 2.62)

Name of the Faculty: Science & Technology

CHOICE BASED CREDIT SYSTEM

Syllabus: Computer Science

Name of the Course: B.Sc. I (Sem-I & II)

(Syllabus to be implemented from w.e.f. June 2019)

Punyashlok Ahilyadevi Holkar Solapur University, Solapur

Faculty of Science

Choice Based Credit System (CBCS), (w.e.f.2019-20) Structure for

B. Sc-I (Computer Science)

Subject/ Core Course	Name and Type of the Paper		No. of papers/ Practical	Hrs/week			Total Marks Per Paper	UA	CA	Credits
	Type	Name		L	T	P				
Class :		B.Sc.- I Semester – I								
Ability Enhancement Course(AECC)		English (communication skill)	Paper- I	4.0			100	80	20	4.0
Core (*Students can opt any Four Subjects from the Twelve Subjects Listed below. Out of these Four Subjects One Subject will be CORE and other Three will be ELECTIVE Subjects.)		DSC 1A	Paper-I Fundamentals of Computer	2.5	--	--	50	40	10	4.0
			Paper-II Programming Using C-I	2.5	--	--	50	40	10	
		DSC 2A		2.5	--	--	50	40	10	4.0
				2.5	--	--	50	40	10	
		DSC 3A		2.5	--	--	50	40	10	4.0
				2.5	--	--	50	40	10	
		DSC 4A		2.5	--	--	50	40	10	4.0
				2.5	--	--	50	40	10	
Total				24	--	--	500	400	100	20
Class :		B.Sc.- I Semester - II								
Ability Enhancement Course(AECC)		English (communication skill)	Paper- II	4.0			100	80	20	4.0
Core (*Students can opt any Four Subjects from the Twelve Subjects Listed below. Out of these Four Subjects One Subject will be CORE and other Three will be ELECTIVE Subjects.)		DSC 1B	Paper-III Introduction to Web Designing	2.5	--	--	50	40	10	4.0
			Paper-IV Programming Using C - II	2.5	--	--	50	40	10	
		DSC 2B		2.5	--	--	50	40	10	4.0
				2.5	--	--	50	40	10	
		DSC 3B		2.5	--	--	50	40	10	4.0
				2.5	--	--	50	40	10	
		DSC 4B		2.5	--	--	50	40	10	4.0
				2.5	--	--	50	40	10	

			2.5	--	--	50	40	10	
	Democracy, Elections and Good Governance		3.0			50	40	10	NC
Total (Theory)			27	--	--	550	440	110	20
Core	DSC 1 A & 1B	Practical I and II	--	--	4	100	80	20	4.0
	DSC 2 A & 2B		--	--	4	100	80	20	4.0
	DSC 3A & 3B		--	--	4	100	80	20	4.0
	DSC 4A & 4B		--	--	4	100	80	20	4.0
Total (Practical)					16	400	320	80	16
Grand Total			51		16	1450	1160	290	56

***Core Subjects**

**Chemistry/Physics/Electronics/Computer Science/Mathematics/Statistics/Botany/Zoology/
Microbiology/Geology/ Geography/Psychology**

Fundamentals of Computers

Unit I:-Introduction to Computer

[10]

Introduction to computers, Evolution of personal computers; Generation of computers; Elements of a computer processing system- Hardware & Software, various categories of software; Computer organization Overview- CPU, I/O devices, storage devices and media; Various type of displays and other peripherals used in PCs.

Unit II:-Operating System Concept

[10]

Introduction to Operating system, Purpose of Operating Systems, services and features of OS, Types of Operating System, Components of OS.

Introduction to PC Operating Systems: - DOS, Windows operating System, Linux operating system, Concept and working with files and folders.

Introduction to Mobile Operating System: -Android, Windows, IOS, Symbian

Introduction to Green IT:-Environmental Impacts of IT, Holistic Approach to Greening IT, Green IT Standards and Eco-Labeling, Enterprise Green IT Strategy , Green IT: Burden or Opportunity?

Hardware: Life Cycle of a Device or Hardware, Reuse, Recycle and Dispose

Software: Introduction, Energy-Saving Software Techniques, Evaluating and Measuring Software Impact to Platform Power.

Unit III:-Microsoft Office

[20]

Microsoft Word:-Introduction to MS Word, opening, creating, saving, deleting document, page setting, formatting page, formatting text, adding images, Header footers, border and shading, bullets, mail merge, Table, graphics, label, Templates, Wizards and Printing Techniques.

Microsoft Excel: -Introduction to excel, File management in excel, operations related to workbook, formatting sheet, adding formulae and functions, charts and maps, data menu, view menu, work with multiple worksheets, importing and exporting of data.

Microsoft PowerPoint: Introduction and Applications of Power Point, create a New Presentation, Adding Slides, Clip Arts, Smart art, Charts, Text, images and other objects, Templates and Master Slides, Giving Animation effects, Links and Action buttons

Reference Books

1. Computer Fundamentals - P.K. Sinha.
2. Fundamental of computers - V. Raja Raman.
3. Computer Fundamentals- Anita Goel
4. Fundamentals of Information Technology - Chetan Srivastava.
5. Computer Fundamental -B. Ram
6. San Murugesan, G. R. Gangadharan: Harnessing Green IT, WILEY 1st Edition-2013

DSC 1A : Paper - II
Programming Using C-I

Unit I:-Introduction to Programming

[8]

Programming languages (Machine Languages, Assembly Languages, High level languages), Compiler, Assembler, Interpreter.

Planning the Computer Program: Concept of problem solving, Problem definition, Program design, Debugging, Types of errors in programming, Documentation., Concept of Algorithm, Characteristics, Notation of Algorithm, Designing Algorithms Writing step by step procedure,

Flowcharts- Definition, Symbol, features, representation in terms of Flow chart, Advantages and Limitations of Flow Charts, Pseudo code generation, Tracing, Testing,

Unit II:-Introduction to 'C'

[16]

History, Features of C, Structure of 'C' programming, C-Tokens, Data types, Operators, Control Statements- Conditional control statements, Looping, Unconditional control statements

Unit III: -Arrays and String

[16]

Array definition and declaration, Types of array, Accessing Array, array manipulation, searching, insertion, deletion of an element from an array, basic matrix operations, dynamic array, String-Declaration and Initialization of String, operation on string, inbuilt String handling functions, arithmetic operation on string, table of string.

References

1. Let us C- Y. C. Kanetkar
2. C programming- Dennis Ritchie
3. Programming in C- Goterfried
4. Programming in C - E. Balagurusamy

Introduction to Web Designing

Unit I:- Overview of HTML & HTML5

[12]

Introduction to Networking, Network topology, LAN, MAN, WAN, Introduction to Internet, Requirement for Internet.

Introduction to HTML, Overview of basic HTML , Structure of HTML, Creating and opening HTML file, Singular and paired tags, Text formatting tag, Anchor tag, Lists, Image, Image Map, Table, Frames and Frameset, HTML5: Introduction to HTML5, Need of HTML5, DOCTYPE Element, Tags-Section, Article, aside, header, footer, nav, dialog, figure etc. Events in HTML5, Input tag (Type, Auto focus, placeholder, required etc. attributes.) in HTML5, Graphics in HTML5, Media tags in HTML5

Unit II:- Introduction to CSS

[8]

Introduction to CSS, Use of CSS, Types of CSS, Selectors, Properties, Values.

CSS Properties: - Background, Text, Fonts, Link, List, Table, Box Model, Border, Margin, Padding, Display, Positioning, Floating, Opacity, Media type, Backgrounds and Borders Image, Values and Replaced Content, Text Effects, 2D/3D, Transformations, Animations, Multiple Column Layout, User Interface, CSS interact with JavaScript.

Unit III:- JavaScript

[20]

Introduction to JavaScript, JavaScript Variables & Data types, Operators, Built in functions in JavaScript Control structure in JavaScript, DOM, Math, Array, History, Navigator, Location, Windows, String, Date, Document objects, user defined function, Validation in JavaScript, event & event handling in JavaScript.

Reference Books:-

1. HTML5 Black Book Kogent Learning Solutions Inc Dreamtech.
2. Beginning JavaScript and CSS Development with jQuery Richard York.
3. Beginning HTML and CSS Rob Larsen.
4. HTML_&_CSS_The_Complete_Reference Thomas A. Powell. (Fifth Edition).

Programming Using C-II

Unit I: -Function and Pointer

[16]

Definition, declaration, function prototypes, Local and global variables, User defined functions, recursion, passing array and string to function, Storage classes Pointers-Definition and declaration, Operation on pointer, Pointer initialization, Pointer and function, Pointer and array, Pointer of pointer, Call by value and Call by reference, Dynamic memory allocation

Unit II: -Structures and Union

[10]

Definition and declaration, copying and comparing of structure, Array of structures, Passing structure to function, Pointer to structure, Nested structure, self-referential structure, Size of and type def, Definition and declaration of union, difference between structure, union and array.

Unit III:-File Handling

[14]

Defining, opening and closing of file, operations on file, Standard input and output functions, formatted input and output functions, File opening modes, Error handling, Random access of file, command line argument. Macros and Preprocessing-Features of C preprocessor, Macro - Declaration, Expansion, File Inclusion Graphics using C - VDU Basics, Simple library functions-getpixel, putpixel, line, rectangle, circle, ellipse, arc etc.

Reference Books:-

1. Let us C- Y. C. Kanetkar
2. C programming- Dennis Ritchie
3. Programming in C- Goterfried
4. Programming in C - E. Balagurusamy

DSC 1A and 1B : Practical - I and Practical - II

1. Demonstration of peripherals
2. DOS – external and internal commands, batch files commands
3. Windows Operating System –
4. Windows explorer, program manager, control panel, printmanager, Creating folders, files, icons, shortcuts
5. MS – WORD – Creating new documents, typing, deleting, selecting text,undo, Redo, formatting text – auto format, formatting characters, dropcaps, Paragraphs, line spacing, margins, page setup, headers and footersWriter’s tools – spelling checker, auto format, auto correct, find andreplace Mail merge – Data source, Main document, creating mail mergedocument.
6. MS – EXCEL - Creating worksheet, Graphs, resizing graphs, formulas, ifStatement, types of functions
7. MS-Powerpoint-Creating presentation, slideshow, adding slides, insertingclip arts, smart art, images, sound files, linking etc.
8. Internet – creating e – mail accounts, browsing.
9. Design HTML page to display student Information
10. Design HTML page for all lists.
11. Design HTML page for Image map, table, frameset tags.
12. Create a web page using the Internal/Linked/External style sheet usingText formatting properties, CSS Borders, Margin Properties, Colorproperties, Use DIV and SPAN tag properties.
13. Write a JavaScript code working with functions: the alert Box, theconfirm Box , the prompt Box etc.
14. Solve Following program using JAVA Script to check given number is
 - a. even or odd
 - b. Prime or not
 - c. palindrome or not.
 - d. perfect or not
15. Write a JavaScript code block using objects: String Object, BooleanObject, Number Object, Date Object, Math Object, Window Object,Navigator Object, History Object, Screen Object, Location Object etc.
16. Write a Program to convert the Temperature in centigrade degree to theFahrenheit degree.
17. check whether given number is even or odd.
18. Write a program to find out First Fifty Prime numbers.
19. Write a program to find GCD & LCM of given number.
20. Write a program to convert given Binary number into its Octal / Decimal,Hexadecimal Equivalent.
21. Write a program to display Fibonacci series.

22. Write a Recursive function to find out the Factorial of Given Number.
23. Write a program to remove blank lines from a file.
24. Write a program to count the no. of words in a given text file.
25. Write a program to reverse the given number.
26. write a program to calculate Matrix Addition, Multiplication using Functions as well as without Functioning.
27. Write a program to find given string is Palindrome or not using function.
28. Write a program that accepts the Roll No, Name, Marks obtained in three tests of 'N' students & display the total and Average in tabular format.
29. Write a program to accept two alphabets and pass them to the Function via Pointers Which checks for type of these alphabets. If both alphabets are Vowels then function should return to the calling function, their previous alphabets. If both alphabets are Constant then function should return their successor alphabets.
30. Write a program which uses simple graphics functions.
31. Write a program to add two Matrices; Use two Dimensional array as Pointer & Dynamic Memory allocation.
32. Write a program to input 10 names each of the length at least 8 characters' sort them in a alphabetical order.
33. Write a program to demonstrate macro substitution.
34. Write a program to demonstrate file inclusion mechanism.

Abbreviations :

L: Lectures

T: Tutorials

P: Practicals

UA : University Assessment

CA : College Assessment

DSC / CC: Core Course

AEC : Ability Enhancement Course

DSE : Discipline Specific Elective Paper

SEC : Skill Enhancement Course

GE : Generic Elective

CA: Continuous Assessment

ESE: End Semester Examination