SHIVAJI UNIVERSITY, KOLHAPUR.

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New Revised Syllabus For
Bachelor of Science Part –I
Sem- I(Computer Science)
Sem- II(Computer Science)

Syllabus to be implemented from June 2013 onwards.

Shivaji University, Kolhapur
Bachelor of Science(Computer Science)

1. **SUBJECT : Computer Science**

2. **YEAR OF IMPLEMENTATION**: New Syllabi for the B.Sc- I Computer Science will be implemented from June 2013 onwards.

3. **PREAMBLE:**

　　　　Bachelor of Science is an integrated academic degree in the faculty of Science. The faculty is not ignoring the developments in the field of Computer Science. The revision of existing syllabus of Computer Science subject in Science Faculty is essential. This is a humble endeavor to initiate the process towards an era of knowledge. The students from Science faculty should also be competent for this change in the technology.

　　　　In this year, a student will able to handle computers, develop the programs in languages and other peripherals with confidence. In the subject, the student will also get a basic and proper knowledge in the field of Programming skills.

4. **GENERAL OBJECTIVES OF THE COURSE:**
    1) To introduce the basic knowledge of computers among the students.
    2) To introduce the computer software and hardware to the students.
    3) To develop the skills in handling of application software's to the students.
    4) To enable the students to get a basic and proper knowledge in the field of Computer Science.

5. **DURATION**
    - **The course shall be a full time course.**
    - **The duration of course shall be of Three years.**

6. **PATTERN:**
   Pattern of Examination will be Semester.

7. **FEE STRUCTURE :**
    As per Government /University rules

8. **ELIGIBILITY FOR ADMISSION:**
    As per eligibility criteria prescribed for respective degree programme and the merit in the qualifying examination.

9.   MEDIUM OF INSTRUCTION:

The medium of instruction shall be in English.

10. STRUCTURE OF COURSE-

11. SCHEME OF TEACHING AND EXAMINATION:-

[The scheme of teaching and examination should be given as applicable to the course/paper concerned.]

SEMESTER – I

Sr. No.	Subject /Paper	Teaching Scheme (Hrs/Week)				Examination Scheme Marks		
		L	T	P	Total	Theory	Practical	Total
1.	Introduction to Computers & Modern Operating Environments	2	-	-	2	50	-	50
2.	Introduction to Programming in 'C'	3	-	-	3	50	-	50
3.	Practical Paper I	-	-	4	4	-	-	-
	Total	5	-	4	9	100	-	100

SEMESTER – II

Sr. No.	Subject /Paper	Teaching Scheme (Hrs/Week)				Examination Scheme Marks		
		L	T	P	Total	Theory	Practical	Total
1.	Introduction to Database & HTML	2	-	-	2	50	-	50
2.	Programming techniques Using 'C'	3	-	-	3	50	-	50
3.	Practical Paper - I	-	-	4	4	-	50	50
	Total	5	-	4	9	100	50	150

12. **SCHEME OF EXAMINATION :-**
   • The examination shall be conducted at the end of each term for semester pattern.
   • The Theory paper shall carry 50 marks.
   • The evaluation of the performance of the students in theory papers shall be on the basis of Semester Examination of 50 marks.
   • Question Paper will be set in the view of the /in accordance with the entire Syllabus and preferably covering each unit of syllabi.

13. **STANDARD OF PASSING:-**
   [As Prescribed under rules & regulation for each degree/programme.]

14. **NATURE OF QUESTION PAPER AND SCHEME OF MARKING:- The nature of theory question paper will be same as B.Sc- I.**

Nature of Theory Question Paper

		Maximum Marks (50 marks)
Q. 1	10 Multiple Choice Questions (One Mark each)	10 marks
Q. 2	Attempt any TWO out of THREE(10 marks each)	20 marks
	i)	
	ii)	
	iii)	
Q. 3	Attempt any FOUR (5 marks each)	20 marks
	i)	
	ii)	
	iii)	
	iv)	
	v)	
	vi)	

Nature of Practical Question Paper

The practical question paper for B.Sc. Part – I will be of maximum 50 marks. The practical examination will be conducted by the college. The internal examiner has to provide the practical questions from given list of experiments in the Journal. The internal examiner of the college has to assign any two questions from the list of experiments given for the Journal. Each question carry 20 marks. 5 marks are reserved for certified journal and 5 marks are for viva based on practical question paper. The student appearing for the practical examination is expected to write paper work (Problem Analysis, algorithm, Flow Chart, Source code and Tracing if any) for questions. The duration of practical will be 4 hours. Out of which 120 minutes are for

paper work, 90 minutes are allocated for actual practical work and 30 minutes is allocated for viva.

B.Sc Part- I (Sem-I)
Paper I: Introduction to Computers & Modern Operating Environments

Objective: To impart the basic knowledge of Computers and application software.

Lectures

Unit-1 Introduction to Computers & Data representation: 10

Evolution and History of computers, Computer generations, Basic Computer organization (Block diagram of Computer), classification and applications of computers, **Number Systems**: Binary, Decimal, Octal, Hexadecimal, and conversions, Codes: BCD, EBCDIC, ASCII, Gray code.

Unit-2 Computer Languages and I/O devices: 10

Need of languages, Types of languages- machine dependent, machine independent, High-level, low-level, assembly level, their advantages and disadvantages, Translators- Interpreter, Compiler, Assembler. Input devices- Keyboard, mouse, scanner, Output Devices- Screen, Printer, Primary storage - RAM, ROM, PROM, EPROM, secondary storage floppy disk, hard disk, CD-ROM.

Unit-3 Logic gates and Flip-flops:

10

Introduction to gates, AND, OR, NOT, XOR, Universal gates, NOR, NAND, De Morgans Law, Construction of gate using Universal gate. Flip-Flops: RS, D, JK, JK-Master Slave,

Unit-4 Modern Operating Environments 10

Definition of OS and examples, Types of OS, Basic functions, features of OS, (DOS & Windows), Use and features and applications of **Microsoft Word**, Creating, formatting and printing the documents, Table option, mail merge, **Microsoft Excel:** Use and features and applications of Microsoft Excel, Creating, formatting and printing the worksheet, Formula, different functions and graphs.

Reference Books:
1. Computer Today- S. Basandara
2. Computer Fundamentals- P. K. Sinha
3. Computer Fundamentals- V. Rajaraman
4. Introduction to Computer and Data Processing- D. R. Patil, Pawar, Lad, Shinde, (Dreamtech)

Lab Experiments:
1. Demonstration of Windows Operating System.
2. Managing files and folders using windows Explorer.
3. Managing desk top using control Panel and other utilities.

4. Experiments on **MS-word**: Creating letter, formatting documents, tables, headers and footers, back color, borders, bullets, numbering, and other features, Mail-merge.
5. Experiments on **MS-Excel**: Creating and saving worksheets, Use of different formula and functions, Creating worksheets and demonstrating various graphs

B.Sc Part- I (Sem-I)
Paper II: Introduction to Programming in 'C'
Objective: To develop the basic knowledge of Programming in C.

Lectures

Unit –1. Algorithm And flowchart
(8)

Step involving in problem solving, Problem definition, Algorithm, Characteristics, Notation of Algorithm, Flowcharts- Definition, Symbol, features,Running and debugging the program.

Unit-2. Introduction to 'C'language
(12)

History, Character set and keywords, Structure of 'C' programs, Constant and its type, Variable and its type Data types, Operators- Arithmetic, logical, relational, bitwise, Increment, decrement, conditional.

Unit-3. Branching & Looping
(12)

Conditional branching- if, if else, nested if, switch , Unconditional branching- Forward and Backward Jumping, goto, Looping – for statements, nested for, while, do-while statements Unconditional control statements- break, continue, goto.

Unit-4 Arrays
(8)

Array definition and declaration, initialization of arrays, One, Two and multidimensional array, String functions (strcmp,strcpy,strlen,strcmp)

Reference Books:
1. Introduction to Programming Using C- A. J Pawar, R. A. Lad, S. S. Shinde, D. R. Patil(Wiley-Dreamtech)
2. Programming in ANSI C - E. Balagurusamy.
3. Programming in C – Schuam outline Series
4. Let Us C – Yashwant Kanetkar

Lab Experiments:
1. Write a program to accept 5 subject marks and calculate total marks, percentage and grade of student.

2. Write a program to input n numbers and find the Odd and Even numbers.

3. Write a program to find an age of a person (Input birth date and today date).

4. Write a program to input the day number and display day of week.

5. Write a program to find the sum of first n natural numbers.

6. Write a program to accept the range and generate Fibonacci Series.

7. Write a program to find prime numbers between given range.

8. Write a program to sort the numbers in ascending and descending order using array.

9. Write a program accept any string and check given string is Palindrome or not(Use string functions).

10. Write a program to find the product of given two matrices.

B.Sc Part- I (Sem-II)
Paper III: Introduction to Database & HTML

Objective: To develop the concepts in database and web page development.

Lectures

Unit-1 Database System Concept
 (5)

Basic Concept, Advantages of DBMS over file processing system, data abstraction, Database languages, Data independence, Components of DBMS and Structure of DBMS.

Unit 2 Data Model & Relational Algebra
(10)

Network Model, Hierarchical Model, E-R Model, Relational Algebra: Select, Project, Union, Intersection Difference, Cartesian product, Simple Join .

Unit 3: Relational Database and SQL (13)

Concept of domain, tuple, Structure query Language. : Features of SQL , Data types, Integrity constraints, Classification of SQL command, DDL (Create, Alter, Drop) and DML(Insert , Update , Delete), SQL operator and Clauses :- Logical, relational, in, between, like operator, Order by , group by, Having clause, SQL Function :-> Numeric (ABS, POWER, SQRT), Conversion (to_number, to_char), Aggregate(SUM, MAX, MIN, COUNT, AVG)

Unit 4 Internet & HTML: (12)

Internet Basics : Creating, sending emails, searching, browsing, **HTML:** Features and limitations, Essential Tags: <HTML>, <HEAD>, <TITLE>, <BODY>, Creating simple web pages using HTML, Adding comments,
, <P> tag, Heading tags: <H1> to <H6>, Formatting tags: <B>, <I>, <U>, <P>, Font tag , Adding lists: Ordered, unordered and definition lists: <OL>, <UL>, <LI>, Creating hyperlink using Anchor tag<A>, table tags.

Reference Book

1. Computer Today- S. Basandara
2. Computer Fundamentals- P. K. Sinha
3. Ms- Office – Dreamtech Publication
4. Operating System – Achyut Godbole
5. Introduction to Computer and Data Processing- D. R. Patil, Pawar, Lad, Shinde, (Dreamtech)

Lab Experiments:

1. Create table , insert record, select record. Selection of specific record using condition
2. Create tables and use simple join,

3. Selecting the data from the table using various logical, relational operators.
4. Use Having, order by, group by clause on the table.
5. Show the use of numeric, conversion and aggregate functions
6. Internet – browsing, searching information using search engines, creating e-mail accounts, sending, receiving, forwarding, deleting, trash, junk mails, attaching documents.
7. Creating Web pages using HTML tags.
    1. Using essential tags.
    2. Use of Heading tags, formatting tags.
    3. Use of Anchor Tag.
    4. Use of List tags.
    5. Use of table tags.

B.Sc Part- I (Sem-II)
Paper IV: Programming techniques Using 'C'

Objective: To develop the techniques for developing Programs .

Lectures

Unit –1: Functions
(10)
Definition, declaration,Local and global variable, User defined function, Categories of functions, Storage classes.

Unit – 2: Pointers **(10)**
Definition and declaration, Operations on pointer, Pointer initialization, Pointer and function, Pointer and array, Call by value and Call by reference.

Unit – 3: Structure **(10)**
Definition and declaration, Array of structures, structure to function,Structure within structure, Pointer to structure, Nested structure, self referential structure.

Unit – 4: File Handling **(10)**
Defining and opening a file, File opening mode- read, write, append, Closing a file, Input/Output Operations on file: getc(), putc(), getw(), putw(), fprintf(), fscanf(), ftell(), fseek(), rewind().

Reference Books:
1. Introduction to Programming Using C- A. J Pawar, R. A. Lad, S. S. Shinde, D. R. Patil(Wiley-Dreamtech)
2. Programming in ANSI C - E. Balagurusamy
3. Programming in C – Schuam outline Series
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Lab Experiments:
1. Write a program to create a function to find the given number is Armstrong or not.

2. Write a recursive function to find the factorial of a given number.

3. Write a function to sort given names in ascending order.

4. Write a program to create strcpy() function using pointer.

5. Write a program to create function to swap two numbers(Call by reference).

6. Create a structure program to input employee info(empno, name, salary) and display it on the screen.

7. Create a structure which stores item information and Calculate the amount using formula amount = price * quantity.

8. Write a program to create a structure of marks of 3 subjects and total for three students. Find the total of each student.

9. Write a program to read a file and count number of lines, number of characters and number of words in a given file.

10. Write a program which writes book information into disk file and display book information on the screen.

15. Equivalence of Papers Old with New papers:

Sr. No.	Paper No.	New Paper	Sr. No.	Paper No.	Old Paper
1.	Paper I	Introduction to Computers & Modern Operating Environments	1.	Paper I	Modern Operating Environment
2.	Paper II	Introduction to Programming in 'C'	2.	Paper II	Introduction to Programming
3.	Paper III	Introduction to Database & HTML	3.	Paper III	Fundamentals of Databases
4.	Paper IV	Programming techniques Using 'C'	4.	Paper IV	Procedure Oriented Programming through 'C'

**Prof. Deepak R. Patil
(Chairman)**

Members:

1. **Prof. D. A. Patil**

2. **Prof. L. P. Gawande**

3. **Prof. C. S. Nikam**

4. **Prof. Mrs. P. P. Kinikar**