Academic Course Description

BHARATH UNIVERSITY
FACULTY OF ENGINEERING AND TECHNOLOGY
DEPARTMENT OF COMPUTER SCIENCE AND ENGINEERING

BCS101 FUNDAMENTALS OF COMPUTING AND PROGRAMMING

FIRST SEMESTER, 2017-18(ODD SEMESTER)

Course (catalog) description

Students will understand the basics of computers and solve computer oriented problems using various computing tools.

Compulsory/Elective course : Compulsory for all branch students

Credit & Contact hours : 3 credits & 45 Hours

Course Coordinator : Dr.K. P. Kaliyamurthy, Asst. Professor

Instructors :

Name of the instructor	Class handling	Office location	Office phone	Email (domain:@ bharathuniv.ac.in	Consultation
Dr.K. P. Kaliyamurthy	All First Year Students	FIRST YEAR MAIN BULIDING			9.00 - 9.50 AM
Mrs.Velvizhi	All First Year Students	FIRST YEAR MAIN BULIDING			12.45 - 1.15 PM
Ms.Keerthikha	All First Year Students	FIRST YEAR MAIN BULIDING			2.15 – 3.30 PM

Relationship to other courses:

Pre –requisites **:** BCS101- Fundamentals of Computing And Programming

Assumed knowledge : The students will understand background of basics of computers.
In particular, working knowledge of c programming including Structures, Pointers, Arrays and knowledge of C++ programming.

Following courses : BCS 1L2 COMPUTER PRACTICE Laboratory

Syllabus Content

UNIT I INTRODUCTION TO COMPUTER 9

Introduction- Characteristics of computer-Evolution of Computers-Computer Generations -Classification of Computers- Basic Computer Organization-Number system. Computer Software: Types of Software—System software-Application software-Software Development Steps

UNIT II PROBLEM SOLVING AND OFFICE AUTOMATION 9

Planning the Computer Program – Purpose – Algorithm – Flowcharts– Pseudo code Introduction to Office Packages: MS Word, Spread Sheet, Power Point, MS Access, Outlook.

UNIT III INTRODUCTION TO C 9

Overview of C-Constants-Variables-Keywords-Data types-Operators and Expressions. Managing Input and Output statements-Decision making-Branching and Looping statements.

UNIT IV ARRAYS AND STRUCTURES 9

Overview of C-Constants, Variables and Data types-Operators and Expressions -Managing Input and Output operators-Decision making-Branching and Looping.

UNIT V INTRODUCTION TO C++ 9

Overview of C++ - Applications of C++-Classes and objects-OOPS concepts -Constructor and Destructor- A simple C++ program –Friend classes and Friend Function

Computer usage : Yes

Professional component

General	-	0%
Basic Sciences	-	100%
Engineering sciences & Technical arts	-	0%
Professional subject	-	0%

Broad area : Computer science

Test Schedule

S. No.	Test	Tentative Date	Portions	Duration
1	Cycle Test-1	August 1st week	Session 1 to 14	2 Periods
2	Cycle Test-2	September 2nd week	Session 15 to 28	2 Periods
3	Model Test	October 2nd week	Session 1 to 45	3 Hrs
4	University Examination	TBA	All sessions / Units	3 Hrs.

Mapping of Instructional Objectives with Program Outcome

To develop problem solving skills and understanding of circuit theory through the application of techniques and principles of electrical circuit analysis to common circuit problems. This course emphasizes:	Correlates to program outcome		
	H	M	L
1. Learn the fundamental principles in computing.	b,c,d,j	a,f,k	e,g
2. Learn to write simple programs using computer language	b,c,f	a,d,g,h	j
3. To enable the student to learn the major components of a computer system.	a,d,e	b,g	j,k
4. Computing problems & To learn to use office automation tools.	a,d,e	b,g,h,k	f,j
5. To interpret and relate programs	e	a,b,c,d,g	j,k

H: high correlation, M: medium correlation, L: low correlation

Draft Lecture Schedule

Session	Topics	Problem solving (Yes/No)	Text / Chapter
UNIT I - INTRODUCTION TO COMPUTER			
1.	Introduction	No	[T1]
2.	Characteristics of computer	No	
3.	Evolution of Computers	No	
4.	Computer Generations	No	
5.	Classification of Computers	No	
6.	Basic Computer Organization	No	
7.	Number system	Yes	
8.	Computer Software: Types of Software	No	
9.	System software	No	
10.	Application software	No	
11.	Software Development Steps	No	
UNIT II - PROBLEM SOLVING AND OFFICE AUTOMATION			
12.	Planning the Computer	No	
13.	Program	No	
14.	Purpose	Yes	
15.	Algorithm	No	

16.	Flowcharts	No	[T1]
17.	Pseudo code		
18.	Introduction to office packages–MS Word, Spread Sheet, Power Point, MS Access, Outlook	No	
UNIT III - INTRODUCTION TO C			
19.	Overview of C	No	[T1]
20.	Constants	No	
21.	Variables	No	
22.	Keywords	No	
23.	Data types	No	
24.	Operators and Expressions	Yes	
25.	Managing Input and Output statements	No	
26.	Decision making	Yes	
27.	Branching and Looping statements.	Yes	
UNIT IV - ARRAYS AND STRUCTURES			
28.	Arrays	Yes	[T1]
29.	Handling of character strings	Yes	
30.	Pointers	Yes	
31.	Structures	Yes	
32.	Functions	Yes	
33.	Recursion	Yes	
34.	Call by value and call by reference	Yes	
UNIT V - INTRODUCTION TO C++			
35.	Overview of C++	No	[T1]
36.	Applications of C++	No	
37.	Classes and objects	No	
38.	OOPS concepts	No	
39.	Constructor and Destructor	Yes	
40.	A simple C++ program	Yes	
41.	Friend classes and Friend Function	Yes	

Teaching Strategies

The teaching in this course aims at establishing a good fundamental understanding of the areas covered using:

- Formal face-to-face lectures
- Tutorials, which allow for exercises in problem solving and allow time for students to resolve problems in understanding of lecture material.
- Laboratory sessions, which support the formal lecture material and also provide the student with practical construction, measurement and debugging skills.
- Small periodic quizzes, to enable you to assess your understanding of the concepts.

Evaluation Strategies

Cycle Test – I	-	5%
Cycle Test – II	-	5%
Model Test	-	5%
Assignment	-	5%
Attendance	-	10%
Final exam	-	70%

Prepared by: Dr.K. P. Kaliyamurthy, Assistant professor , Department of CSC **Dated :**

Addendum

ABET Outcomes expected of graduates of B.Tech / Civil / program by the time that they graduate*:*

(a) an ability to apply knowledge of mathematics, science, and engineering

(b) an ability to design and conduct experiments, as well as to analyze and interpret data

(c) an ability to design a system, component, or process to meet desired needs within realistic constraints such as economic, environmental, social, political, ethical, health and safety, manufacturability, and sustainability

(d) an ability to function on multidisciplinary teams

(e) an ability to identify, formulate, and solve engineering problems

(f) an understanding of professional and ethical responsibility

(g) an ability to communicate effectively

(h) the broad education necessary to understand the impact of engineering solutions in a global, economic, environmental, and societal context

(i) a recognition of the need for, and an ability to engage in life-long learning

(j) a knowledge of contemporary issues

(k) an ability to use the techniques, skills, and modern engineering tools necessary for engineering practice.

Program Educational Objectives

PEO1: PREPARATION

Civil Engineering graduates will have knowledge to apply the fundamental principles for a successful profession and/or for higher education in Civil Engineering based on mathematical, scientific and engineering principles, to solve realistic and field problems that arise in engineering and non engineering sectors

PEO2: CORE COMPETENCE

Civil Engineering graduates will adapt to the modern engineering tools and construction methods for planning, design, execution and maintenance of works with sustainable development in their profession.

PEO3: PROFESSIONALISM

Civil Engineering Graduates will exhibit professionalism, ethical attitude, communication and managerial skills, successful team work in various private and government organizations both at the national and international level in their profession and adapt to current trends with lifelong learning.

PEO4: SKILL

Civil Engineering graduates will be trained for developing soft skills such as proficiency in many languages, technical communication, verbal, logical, analytical, comprehension, team building, inter personal relationship, group discussion and leadership skill to become a better professional.

PEO5: ETHICS

Civil Engineering graduates will be installed with ethical feeling, encouraged to make decisions that are safe and environmentally-responsible and also innovative for societal improvement.

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Course Teacher	Signature
Mrs.Velvizhi	

Course Coordinator **HOD/Civil**