Academic Course Description

BHARATH UNIVERSITY
FACULTY OF ENGINEERING AND TECHNOLOGY
Department of Electrical and Electronics Engineering

BCS101 FUNDAMENTALS OF COMPUTING AND PROGRAMMING
FIRST SEMESTER (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 and 45 hours

Course Coordinator : Ms.Keerthikha, Asst. Professor

Instructors : Ms.Keerthikha

Name of the instructor	Class handling	Office location	Office phone	Email (domain:@ bharathuniv.ac.in	Consultation
Ms.Keerthikha	All First Year Students	FIRST YEAR MAIN BULIDING	**04422290125**	keerthikhams@gmail.com	2.15 – 3.30 PM

Relationship to other courses:

Pre –requisites **:** +2 level Computer Science

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.

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	-	0%
Engineering sciences & Technical arts	-	100%
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 18	2 Periods
2	Cycle Test-2	September 2nd week	Session 19 to 36	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	No	
8.	Computer Software: Types of Software	No	
9.	System software, Application software, Software Development Steps	No	
UNIT II - PROBLEM SOLVING AND OFFICE AUTOMATION			
10.	Planning the Computer	No	[T1]
11.	Program	No	
12.	Purpose	No	
13.	Algorithm	No	
14.	Flowcharts, Pseudo code	No	
15.	Introduction to office packages–MS Word		
16.	Power Point	No	
17.	MS Access, Outlook		

18.	Spread Sheet	No	
UNIT III - INTRODUCTION TO C			
19.		No	[T1]
20.	Constants	No	
21.	Variables	No	
22.	Keywords	No	
23.	Data types	No	
24.	Operators and Expressions	No	
25.	Managing Input and Output statements	No	
26.	Decision making	No	
27.	Branching and Looping statements.	No	
UNIT IV - ARRAYS AND STRUCTURES			
28.	Arrays	No	[T1]
29.	Handling of character strings	No	
30.	Pointers	No	
31.	Structures	No	
32.	Functions	No	
33.	Recursion	No	
34.	Call by value and call by reference	No	
35.	Call by value and call by reference	No	
36.	Call by value and call by reference	No	
UNIT V - INTRODUCTION TO C++			
37.	Overview of C++	No	[T1]
38.	Applications of C++	No	
39.	Classes and objects	No	
40.	OOPS concepts	No	
41.	Constructor and Destructor	No	
42.	A simple C++ program	No	
43.	A simple C++ program	No	
44.	Friend classes and Friend Function		
45.	Friend classes and Friend Function		

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	-	10%
Assignment	-	5%
Attendance	-	5%
Final exam	-	70%

Prepared by: Ms.Keerthikha, Assistant professor , Department of CSC **Dated :**

Addendum

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

a) An ability to apply knowledge of mathematics, science, and engineering fundamentals.
b) An ability to identify, formulate, and solve engineering problems.
c) An ability to design a system, component, or process to meet the desired needs within realistic constraints such as economic, environmental, social, political, ethical, health and safety, manufacturability, and sustainability.
d) An ability to design and conduct experiments, as well as to analyze and interpret data.
e) An ability to use the techniques, skills, and modern engineering tools necessary for engineering practice.
f) An ability to apply reasoning informed by the knowledge of contemporary issues.
g) An ability to broaden the education necessary to understand the impact of engineering solutions in a global, economic, environmental, and societal context.
h) An ability to understand professional and ethical responsibility and apply them in engineering practices.
i) An ability to function on multidisciplinary teams.
j) An ability to communicate effectively with the engineering community and with society at large.
k) An ability in understanding of the engineering and management principles and apply them in project and finance management as a leader and a member in a team.
l) An ability to recognize the need for, and an ability to engage in life-long learning.

Program Educational Objectives

PEO1: PREPARATION

Electrical Engineering Graduates are in position with the knowledge of Basic Sciences in general and Electrical Engineering in particular so as to impart the necessary skill to analyze and synthesize electrical circuits, algorithms and complex apparatus.

PEO2: CORE COMPETENCE

Electrical Engineering Graduates have competence to provide technical knowledge, skill and also to identify, comprehend and solve problems in industry, research and academics related to power, information and electronics hardware.

PEO3: PROFESSIONALISM

Electrical Engineering Graduates are successfully work in various Industrial and Government organizations, both at the National and International level, with professional competence and ethical administrative acumen so as to be able to handle critical situations and meet deadlines.

PEO4: SKILL

Electrical Engineering Graduates have better opportunity to become a future researchers/ scientists with good communication skills so that they may be both good team-members and leaders with innovative ideas for a sustainable development.

PEO5: ETHICS

Electrical Engineering Graduates are framed to improve their technical and intellectual capabilities through life-long learning process with ethical feeling so as to become good teachers, either in a class or to juniors in industry.

Course Teacher	Signature
Ms.Keerthikha	

Course Coordinator **HOD/EEE**

(Ms.Keerthikha) ( )