

UNIT – I D.C. AND A.C CIRCUITS

6

Ohm’s law – Kirchoff’s Laws, V – I Relationship of Resistor (R) Inductor (L) and capacitor (C).Series parallel combination of R, L&C – Current and voltage source transformation – mesh current & node voltage method –superposition theorem – Thevenin’s and Norton’s Theorem - Problems.

UNIT – II ELECTRICAL MACHINES

6

Construction, principle of operation, Basic Equations and applications - D.C.Generators and D.C.Motors. -Single phase Induction Motor - Single Phase Transformer.

UNIT – III BASIC MEASUREMENT SYSTEMS

6

Introduction to Measurement Systems, Construction and Operating principles of PMMC, Moving Iron, Dynamometer Wattmeter, power measurement by three-watt meter and two watt method – and Energy meter.

UNIT IV – SEMICONDUCTOR DEVICES

6

Basic Concepts of semiconductor devices – PN Junction Diode Characteristics and its Application – HWR, FWR – Zener Diode – BJT (CB, CE, CC) configuration & its characteristics.

UNIT V – DIGITAL ELECTRONICS

6

Number system – Logic Gates – Boolean Algebra – De-Morgan’s Theorem – Half Adder & FullAdder – Flip Flops.

Total No. of Periods: 30

Name of the instructor	Class handling	Office location	Office phone	Email (domain: @bharathuniv.ac.in)	Consultation
TEXT BOOKS: Mrs.Madhubara	All First Year Students	FIRST YEAR MAIN BULIDING			9.00 - 9.50 AM
1. N.Mittle “Basic Electrical Engineering”, Tata Mc Graw Hill Edition, New Delhi, 1990. 2. A.K. Sawhney, ‘A Course in Electrical & Electronic Measurements & Instrumentation’, Dhanpat Rai and Co, 2004.					
Mrs.Velvizhi	All First Year Students	FIRST YEAR MAIN BULIDING		velvizhisp@gmail.com	12.45 - 1.15 PM
3. Jacob Millman and Christos C-Halkias “Electronic Devices and Circuits”, Tata Mc Graw Hill					
Ms.Keerthikha	All First Year Students	FIRST YEAR MAIN BULIDING		keerthikhams@gmail.com	2.15 – 3.30 PM
REFERENCE BOOKS:					

1. Edminister J.A. “Theory and problems of Electric Circuits” Schaum’s Outline Series. McGraw Hill Book Compay, 2nd Edition, 1983.
2. Hyatt W.H and Kemmerlay J.E. “Engineering Circuit Analysis”, McGraw Hill Internatinal Editions, 1993.
3. D. P. Kothari and I. J. Nagrath “Electric machines” Tata McGraw-Hill Education, 2004
4. Millman and Halkias, “Integrated Electronics”, Tata McGraw Hill Edition,2004.

Computer usage : Yes

Professional component

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

Broad area : Computer science

Test Schedule

S. No.	Test	Tentative Date	Portions	Duration
1	Cycle Test-1	August 1 st week	Session 1 to 14	2 Periods
2	Cycle Test-2	September 2 nd week	Session 15 to 28	2 Periods
3	Model Test	October 2 nd 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	[T1]
13.	Program	No	
14.	Purpose	Yes	
15.	Algorithm	No	
16.	Flowcharts	No	
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.

Cycle Test – I - 5%

Cycle Test – II - 5%

Model Test - 10%

Attendance - 5%

Seminar / Assignments /

online tests / Quiz - 5%

Final exam - 70%

Prepared by: Ms.Madhubala, Asst. Professor

Addendum

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

- a) The ability to apply knowledge of mathematics, science, and engineering fundamentals.
- b) The ability to identify, formulate and solve engineering problems.
- c) The 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) The ability to design and conduct experiments, as well as to analyze and interpret data
- e) The ability to use the techniques, skills, and modern engineering tools necessary for engineering practice.
- f) The ability to apply reasoning informed by the knowledge of contemporary issues.
- g) The ability to broaden the education necessary to understand the impact of engineering solutions in a global, economic, environmental, and societal context.
- h) The ability to understand professional and ethical responsibility and apply them in engineering practices.
- i) The ability to function on multidisciplinary teams.
- j) The ability to communicate effectively with the engineering community and with society at large.
- k) The 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) The ability to recognize the need for, and an ability to engage in life-long learning.

Program Educational Objectives

PEO1: PREPARATION:

Mechanical Engineering graduates are enthusiastic to provide strong foundation in mathematical, scientific and engineering fundamentals necessary to analyze, formulate and solve engineering problems in the field of Mechanical Engineering.

PEO2: CORE COMPETENCE:

Mechanical Engineering graduates have competence to enhance the skills and experience in defining problems in the field of Mechanical Engineering and Technology design and implement, analyzing the experimental evaluations, and finally making appropriate decisions.

PEO3: PROFESSIONALISM:

Mechanical Engineering graduates made competence to enhance their skills and embrace new thrust areas through self-directed professional development and post-graduate training or education.

PEO4: PROFICIENCY:

Mechanical Engineering graduates became skilled to afford training 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:

Mechanical Engineering graduates are morally merged to apply the ethical and social aspects of modern Engineering and Technology innovations to the design, development, and usage of new products, machines, gadgets, devices, etc.

Course Teacher	Signature
Ms.Madhubala	

Course Coordinator

HOD/MECH

Ms.Fathima