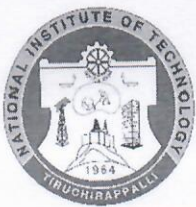




**NATIONAL INSTITUTE OF TECHNOLOGY,
TIRUCHIRAPPALLI**

**DEPARTMENT OF ELECTRONICS AND COMMUNICATION
ENGINEERING**

COURSE PLAN – PART I			
Name of the programme and specialization	B.Tech [Civil-B]		
Course Title	Basics of Electrical and Electronics Engineering		
Course Code	EEIR11	No. of Credits	2
Course Code of Pre-requisite subject(s)			
Session	July – 2022	Section (if, applicable)	A
Name of Faculty	Dr. R. Parthasarathy	Department	ECE
Email	parthasarathy@nitt.edu	Telephone No.	
Name of Course Coordinator(s) (if, applicable)	-		
E-mail		Telephone No.	
Course Type	<input checked="" type="checkbox"/> Core course <input type="checkbox"/> Elective course		
Syllabus (approved in BoS)			
<p>DC & AC Circuits: Current, voltage, power, Kirchoff's Laws - circuit elements R, L and C, phasor diagram, impedance, real and reactive power in single phase circuits.</p> <p>DC & AC Machines: DC Motor, Induction motor, Synchronous motor, Synchronous generator and Transformers- construction, principle of operation, types and applications.</p> <p>House wiring & safety: Single phase and three phase system – phase, neutral and earth, basic house wiring - tools and components, different types of wiring – staircase, florescent lamp and ceiling fan, basic safety measures at home and industry.</p> <p>Analog Electronics: semiconductor devices – p-n junction diode, Zener diode, BJT, operational amplifier – principle of operation and applications – Introduction to UPS.</p> <p>Digital Electronics: Introduction to numbers systems, basic Boolean laws, reduction of Boolean expressions and implementation with logic gates.</p>			
COURSE OBJECTIVES			
<p>This course aims to equip the students with a basic understanding of Electrical circuits and machines for specific types of applications.</p> <ul style="list-style-type: none"> • The course gives a comprehensive exposure to house wiring. 			



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• This course also equips students with an ability to understand basics of analog and digital electronics.

COURSE OUTCOMES (CO)

Course Outcomes	Aligned Programme Outcomes (PO)
CO1: The students shall develop an intuitive understating of basic concepts of DC and Ac circuits.	
CO2: The students shall develop an intuitive understanding of the circuit analysis, basic concepts of electrical machines, house wiring and basics of electronics and be able to apply them in practical situation.	
CO3: Generalize the design techniques and analyze the characteristics of diodes, BJT and all other electronics devices and be able to apply them in practical situation.	
CO4: Describe and verify the methods to solve Boolean functions.	
1. The students shall develop an intuitive understating of basic concepts of DC and Ac circuits.	2, 3, 6
2. The students shall develop an intuitive understanding of the circuit analysis, basic concepts of electrical machines, house wiring and basics of electronics and be able to apply them in practical situation.	1,2,3,4, 6, 8
3. Generalize the design techniques and analyze the characteristics of diodes, BJT and all other electronics devices and be able to apply them in practical situation.	5, 11
4. Describe and verify the methods to solve Boolean functions.	11, 12

COURSE PLAN – PART II

COURSE OVERVIEW

Analysis of DC and AC circuits using ohms and Kirchhoff's laws-Working Principle of AC machines, DC motors and transformer-House wiring-Semiconductor, working principle of PN junction diode, BJT and operational amplifiers_ Number system (Binary, Octal and Hexadecimal)- Boolean laws-Reduction and implementation of Boolean expression using basic gates.

COURSE TEACHING AND LEARNING ACTIVITIES

S.No.	Week/Contact Hours	Topic	Mode of Delivery
1.	Third and 4 th week of November of 2022 (3 contact hours)	DC Circuits: Current, Voltage, Power, ohms law	Chalk and Talk/ PPT
2.	5 th Week/ of November/ First week December 2022 (3 contact hours)	DC Circuits: Current, voltage, power, kirchhoff's Laws AC circuits: Introduction and RL circuit analysis	



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3.	Second week of December 2022 (2 contact hours)	AC circuits: RC and RLC Circuits Introduction to Digital Electronics		
4.	Third week of December 2022 (2 contact hours)	Introduction to numbers systems (Binary, octal and Hexa-decimal)		
5.	Fourth week of December 2022 (3 contact hours)	Basic Boolean laws, reduction of Boolean expressions Implementation of Boolean's expression with logic gates.		
6.	ASSESSMENT - 1			Written
7.	Fifth week of December 2022 (2 contact hours)	Semiconductor devices- PN Junction diode, Zener diode.		
8.	First week of January 2023 (2 contact hours)	Bipolar Junction Transistors	Chalk and Talk/ PPT	
9.	Second week of January 2023 (2 contact hours)	Introduction to operational amplifiers- principle of operation and applications- Introduction to UPS.		
10.	Third week of January (2 contact hours)	DC Machines: DC Motor, AC Machine: Synchronous generator.		
11.	ASSESSMENT-II			Written
12.	Fourth week of January 2023 (2 contact hours)	AC Machines: Synchronous motor, Induction motor.	Chalk and Talk/ PPT	
13.	Fourth week of January 2023/ First week of February 2023 (2 contact hours)	Transformers- construction, principle of operation, types and applications, House wiring: Introduction to single phase and three phase system and basic house wiring.		
14.	Second and third week of February (4 contact hours)	Different types of wiring- staircase, florescent lamp and ceiling fan. Basic safety measures at home and industry.		



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15.	FINAL ASSESSMENT	Descriptive Exam		
COURSE ASSESSMENT METHODS (shall range from 4 to 6)				
S.No.	Mode of Assessment	Week/Date	Duration	% Weightage
1	ASSESSMENT I Descriptive Type Examination (2 Units)	As per CCM Common schedule	60 mins	20
2	ASSESSMENT II Descriptive Type Examination (2 Units)	As per CCM Common schedule	60 mins	20
3	ASSESSMENT III Assignments/ Class Test			10
4	Compensation Assessment (2 Units)	As per Institute Common schedule	60 mins	20
4	END SEMESTER Descriptive Type Examination (Unit 1, 2,3,4 &5)	As per Institute Common schedule	180 mins	50
*mandatory; refer to guidelines on page 4				
COURSE EXIT SURVEY (mention the ways in which the feedback about the course shall be assessed)				
Feedback from the students through MIS and class committee meetings.				
COURSE POLICY (preferred mode of correspondence with students, policy on attendance, compensation assessment, academic honesty and plagiarism etc.)				
<u>MODE OF CORRESPONDENCE (email/ phone etc)</u>				
All the students are advised to check their NITT WEBMAIL regularly. All the correspondence (schedule of classes/ schedule of assessment/ course material/ any other information regarding this course) will be intimated in Class Only.				
<u>ATTENDANCE</u>				
<ul style="list-style-type: none"> ➤ At least 75% attendance in each course is mandatory. ➤ A maximum of 10% shall be allowed under On Duty (OD) category. ➤ Students with less than 65% of attendance shall be prevented from writing the final assessment and shall be awarded 'V' grade. 				
<u>ASSESSMENT POLICY</u>				
<ol style="list-style-type: none"> 1. Attending all the assessments is MANDATORY for every student. 2. If any student is not able to attend any of the Continuous Assessments due to genuine reason, student is permitted to attend the compensation assessment* (CPA) with Corresponding weightage. (This is not valid for students who have attendance lag also.) 3. Please refer institute B.Tech Regulations/guidelines for grading policy. 				
<u>ACADEMIC HONESTY & PLAGIARISM</u>				



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- Carrying bits of paper, talking to other students, copying from others during an assessment will be treated as punishable dishonesty.
- Zero mark to be awarded for the offenders. For copying from another student, both students get the same penalty of zero mark.
- The departmental disciplinary committee including the course faculty member, CC-chairperson and the HoD, as members shall verify the facts of the malpractice and award the punishment if the student is found guilty. The report shall be submitted to the Academic office.

The above policy against academic dishonesty shall be applicable for all the programme.

ADDITIONAL INFORMATION

Queries may also be emailed to the Course Coordinator directly at parthasarathy@nitt.edu

FOR APPROVAL

Course Faculty

CC-Chairperson

HOD