

NATIONAL INSTITUTE OF TECHNOLOGY TIRUCHIRAPPALLI
DEPARTMENT OF ELECTRICAL AND ELECTRONICS ENGINEERING

COURSE OUTLINE TEMPLATE			
Course Title	Basics of Electrical and Electronics Engineering		
Course Code	EEIR 11 (for I st year MME department)	No. of Credits	02
Department	Electrical and Electronics Engineering	Faculty	Mr. Karthik Thirumala
Pre-requisite Course	---		
Course Coordinator	Dr. S. Sudha		
E-mail	thirumala@nitt.edu	Telephone No.	9848626021
Course Type	<input checked="" type="checkbox"/> Core course <input type="checkbox"/> Elective course <input type="checkbox"/> Laboratory course		
COURSE OVERVIEW			
<p>Electrical and Electronics Engineering is one of the prime and important engineering streams. In this course students get exposure to the fundamentals of electric and electronic devices and circuits. Students will be taught about the principle of operation of several electrical machines and their applications in the real power system. Students will understand the house wiring and electrical safety techniques and have an opportunity to make a practical attempt on house wiring. Further they will be exposed to basics of analog and digital electronic devices, circuits and simple applications.</p>			
COURSE OBJECTIVES			
<p>The course aims to equip the students with a basic understanding of Electrical circuits and machines for specific types of applications. The course gives a comprehensive exposure to house wiring. This course also equips student with an ability to understand basics of analog and digital electronics.</p>			
COURSE OUTCOMES (CO)			
Course Outcomes	Aligned Programme Outcomes (PO)		
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.	--		

COURSE TEACHING AND LEARNING ACTIVITIES

S. No.	Week	Topic	Mode of Delivery
1.	7 th and 9 th of August (2 hours)	Basics of DC circuits and circuit elements	PPT
2.	16 th of August (1 hour)	Kirchhoff's law and introduction to AC circuits and elements	PPT
3.	21 st and 23 rd of August (2 hours)	Phasor diagrams, impedance, power factor and analysis of AC circuits	PPT or Chalk & Talk
4.	28 th of August (1 hour)	Numerical solving	Tutorial
5.	30 th of August and 4 th , 6 th of September (3 hours)	Construction, principle of operation, types and application of DC motor and Induction motor	PPT
6.	11 th and 13 th September (2 hours)	Construction, principle of operation, types and application of synchronous motor and generator	PPT
7.	18 th September (1 hour)	Construction, principle of operation, types and application of Transformer	PPT or Chalk & Talk
8.	20 th September (1 hour)	Numerical solving	Tutorial
9.	25 th & 27 th September and 4 th & 9 th October (4 hours)	House wiring – important tools and components, types of wiring & safety measures. Single phase and three phase systems	PPT
10.	11 th , 16 th and 23 rd October (3 hours)	Introduction to analog electronics, semiconductor devices, types of diodes	PPT or Chalk & Talk
11.	25 th and 30 th October (2 hours)	Operation and application of Operational amplifiers and introduction to UPS	PPT or Chalk & Talk
12.	1 st November (1 hour)	Numerical solving	Tutorial
13.	6 th and 8 th November (2 hour)	Introduction to digital electronics and number systems	PPT
14.	13 th and 15 th November (2 hours)	Boolean laws and reduction of Boolean expressions	PPT or Chalk & Talk

15.	20 th November (1 hour)	Implementation with logic gates	PPT or Chalk & Talk
16.	22 nd November (1 hour)	Numerical solving	Tutorial

COURSE ASSESSMENT METHODS

S. No.	Mode of Assessment	Week/Date	Duration	% Weightage
1.	First cycle test (1 st and 2 nd units)	5 th week of September	1 hour	20%
2.	Second cycle test (3 rd and 4 th units)	2 nd week of November	1 hour	20 %
3.	Take home or assignment	4 th week of August to 4 th week of November	-	10%
4.	Compensation test (First four units)	4 th to 9 th December	1 hour	20%
5.	End Semester Examination	11 th to 22 nd December	3 hours	50%

Note:

1. Attending all the assessments (1, 2, 3 and 5) are mandatory for every student.
2. If any student fails to attend the 1st and 2nd cycle test due to genuine reason, student is permitted to attend the compensation test with 20 % weightage.
3. In any case, compensation test is not considered as an improvement test.

ESSENTIAL READINGS : Textbooks, reference books, Website addresses, journals, etc

- 1) Hughes revised by Mckenzie Smith with John Hilcy and Keith Brown, "Electrical and Electronics Technology", 8th Edition, Pearson, 2012.
- 2) P. S. Dhogal, "Basic Electrical Engineering – Vol. I & II," 42nd Reprint, Mc Graw Hill, 2012.
- 3) A.E. Fitzgerald, D. E. Higginbotham, A. Grabel, "Basic Electrical Engineering", 5th Edition, McGraw-Hill, 1985.
- 4) A. P. Malvino, D. P. Leach and Gowtham Sha, "Digital Principles and Applications," 6th Edition, Tata Mc Graw Hill, 2007.
- 5) Vincent Del Toro, "Electrical Engineering Fundamental", Prentice Hall India, 2012.

COURSE EXIT SURVEY

Shall be obtained at the end of the course or semester

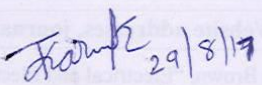
COURSE POLICY

1. All the students are expected to attend all the contact hours. Students should maintain 75% minimum physical attendance by the end of the semester to attend the end semester examination.
2. Any student who fails to maintain 75 % attendance needs to appear for the compensation test. Only students who score more than 50 % marks in the compensation test will be eligible for attending the end semester examination.
3. Students not having 75 % minimum attendance at the end of the semester and also scores less than 50 % in the compensation test will have to REDO the course.
4. The minimum marks for passing this course and grading pattern will adhere to the regulations of the institute.
5. In case of any student found guilty indulging in any mal practice, the student will be awarded no marks in that particular assessment. If found using mobile phones or any other gadgets for any mal-practice during the final examination, the answer sheet of the student will not be evaluated and will be awarded ZERO marks.


ADDITIONAL COURSE INFORMATION

1. The Faculty is available for consultation during the time intimated to the students then and there.
2. All correspondence will be sent to the webmail id of the students alone if required.
3. The students will be communicated through the email id: thirumala@nitt.edu for any academic related issues (including sharing of study materials) with respect to this course.

FOR SENATE'S CONSIDERATION


[Mr. Karthik Thirumala, TF/EEE]
Course Faculty


Course Coordinator


HoD (Dept. of EEE)