

Regulation GRBT-20	Godavari Institute of Engineering & Technology (Autonomous)	I B.Tech			
Course Code	<b>BASIC ELECTRICAL AND ELECTRONICS ENGINEERING (Common for Mech, CE, AME, PET, MM, ECE, EEE)</b>				
Teaching	Total contact hours-45	L	T	P	C
Prerequisite(s): Basics of Physics		3	0	0	3

**Course Objective:**

1. To learn the basic principles of electrical law's and analysis of networks.
2. To understand the principle of operation and construction details of DC machines.
3. To learn the principle of operation and constructional details of transformers, alternator and induction motors.
4. To study the operation of PN junction diode, half wave, full Wave rectifiers and OP-AMPS
5. To study operation of PNP and NPN transistors and various amplifiers.

**Course Outcomes:**

On Completion of the course, the students will be able to-	
CO1:	Analyze the various electrical networks
CO2:	Understand the operation of DC machines,3-point starter and conduct the Swinburne's Test.
CO3:	Analyze the performance of transformer, operation of 3-phase alternator and 3-phase induction motors.
CO4:	Analyze the operation of half Wave, full wave rectifiers, op-amps.
CO5:	Explain the single stage CE amplifier and concept of feedback amplifier.



University Nominee  
(Dr.Y.Srinivasa Kishore Babu)



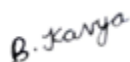
Subject Expert  
(Dr.N.Viswanathan)



Subject Expert  
(Dr.B.Ravi Kumar)



Internal Member  
(Mr.T.Amar Kiran)



Internal Member  
(Mrs B Kavya Santhoshi)



Internal Member  
(Mr V Suresh)



Chairman-BOS  
(Dr.D.Ravi Kishore)

**Syllabus:**

**UNIT –I Introduction to Electrical Circuits**

Basic definitions, Electrical circuit elements (R, L and C), Ohm’s Law, Series & Parallel circuits, Kirchoff’s Laws, Simple problems.

**UNIT- II DC Generator**

Generator-Principle of Operation, Construction, EMF equation, Classification, O.C.C, internal and external characteristics of shunt generator, Applications.

**UNIT- III DC Motor**

Motor-principle of operation, Torque equation, Classification Speed Control Methods, Operation of 3 point starter, Applications.

**UNIT –IV Rectifiers & Linear Integrated Circuits**

PN junction diodes, diode applications - Half wave and bridge rectifiers. Characteristics of operation amplifiers (OP-AMP) - application of OP-AMPS (inverting, non-inverting, integrator and differentiator).

**UNIT –V Transistors**

PNP and NPN junction transistor, transistor as an amplifier, single stage CE amplifier, frequency response of CE amplifier, concepts of feedback amplifier.



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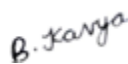
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**Text books:**

1. Principles of Electrical and Electronics Engineering by V.K.Mehta, S.Chand& Co.
2. Introduction to Electrical Engineering – M.S Naidu and S. Kamakshaiah, TMH Publ.
3. Electronic Devices and Circuits, R.L. Boylestad and Louis Nashelsky, 9th edition, PEI/PHI 2006.
4. Electrical Technology by Surinder Pal Bali, Pearson Publications.
5. Electrical Circuit Theory and Technology by John Bird, Routledge Taylor & Francis Group

**Reference Books:**

1. Basic Electrical Engineering by M.S.Naidu and S.Ka1nakshiah, TMH Publications
2. Fundamentals of Electrical Engineering by Rajendra Prasad, PHI Publications, 2th edition
3. Basic Electrical Engineering by Nagsar1car, Sukhija, Oxford Publications,2nd edition
4. Industrial Electronics by GK. Mittal, PHI

**Web Links:**

1. [www.electrical4u.com](http://www.electrical4u.com)
2. [www.nptel.com](http://www.nptel.com)



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**CO-PO Mapping:**

( 1: Slight [Low]; 2: Moderate[Medium]; 3: Substantial[High], '-' : No Correlation)

	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
CO1	2	3	2	1	3	-	-	2	-	1	-	1
CO2	2	3	-	-	3	-	-	2	3	-	-	1
CO3	2	3	-	-	3	-	-	2	3	-	-	1
CO4	2	1	2	-	3	-	-	2	2	-	-	1
CO5	2	1	-	-	3	-	-	2	-	1	-	1



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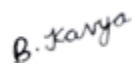
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