

No	Information of Basic Electricity and Electronic	
1	Unit name:	Basic Electricity and Electronic
2	Code:	IT IT-21011
3	Classification:	Engineering subject
4	Credit value:	3
5	Semester/ Year Offered:	1/II
6	Pre-requisite:	Basic Electronic Course
7	Mode of delivery:	Lecture, Practical, Tutorial
8	Assessment system and breakdown of marks:	
	Tutorial:	10%
	Practical:	20%
	Mid-term/ final Examination	70%
9	Academic staff teaching unit:	Department of Information Technology Engineering
10	<p>Course outcome of unit:</p> <p>In this course, students will be able</p> <p>To memorize general knowledge of basic electricity and electronics</p> <p>To understand basic concepts of electricity and electronics in different circuit</p> <p>To estimate value of components in circuit by using different methods</p> <p>To develop circuit design by using hardware and software</p>	
11	<p>Synopsis of unit:</p> <p>IT-21011, Basic Electricity and Electronic. The course covers the fundamental of electricity and electronic. The course introduces electric circuit, Resistance variation, Chemical effects of electricity, Series and parallel networks, Capacitors and capacitance, Semiconductor, diodes and Transistors.</p>	
12	<p>Topic:</p> <p>1 Units Associated With Basic Electrical Quantities</p> <p>1.1 SI units</p>	

	1.2	Charge
	1.3	Force
	1.4	Work
	1.5	Power
	1.6	Electrical Potential and e.m.f.
	1.7	Resistance and Conductance
	1.8	Electrical Power and Energy
	1.9	Summary of terms, units, and their symbols
2		An Introduce to Electric Circuits
	2.1	Electrical/Electronic System Block Diagrams
	2.2	Standard Symbols for Electrical Components
	2.3	Electric Current and Quantity of Electricity
	2.4	Potential Difference and Resistance
	2.5	Basic Electrical Measuring Instruments
	2.6	Linear and Non-Linear Divices
	2.7	Ohm's Law
	2.8	Multiples and Sub-multiples
	2.9	Conductors and Insulators
	2.10	Electrical Power and Energy
	2.11	Main Effects of Electric Current
	2.12	Fuse
3		Resistance Variation
	3.1	Resistance and Resistivity
	3.2	Temperature Coefficient of Resistance
	3.3	Resistor Colour Coding and Ohmic Values
5		Series and Parallel Networks
	5.1	Series Circuits
	5.2	Potential Divider
	5.3	Parallel Networks
	5.4	Current Division
	5.5	Wiring Lamps in Series and in Parallel
6		Capacitors and Capacitance
	6.1	Electrostatic Field

	6.2	Electric Field Strength
	6.3	Capacitance
	6.4	Capacitors
	6.5	Electric Flux Density
	6.6	Permittivity
	6.7	The Parallel Plate Capacitors
	6.8	Capacitors Connected in Parallel and Series
	6.9	Dielectric Strength
	6.10	Energy Stored in Capacitors
	6.11	Practical Types of Capacitor
	6.12	Discharging Capacitors
7		Magnetic Circuits
	7.1	Magnetic Fields
	7.2	Magnetic Flux and Flux Density
	7.3	Magnetomotive Force and Magnetic Field Strength
	7.4	Permeability and B-H Curves
	7.5	Reluctance
	7.6	Composite Series Magnetic Circuits
	7.7	Comparison Between Electrical and Magnetic Quantities
	7.8	Hysteresis and Hysteresis Loss
11		Semiconductor diodes
	11.1	Types of materials
	11.2	Silicon and germanium
	11.3	n-type and p-type materials
	11.4	The p-n junction
	11.5	Forward and reverse bias
	11.6	Semiconductor diodes
	11.7	Rectification
12		Transistors
	12.1	The bipolar junction transistor
	12.2	Transistor action
	12.3	Transistor symbols
	12.4	Transistor connections

	<p>12.5 Transistor characteristics</p> <p>12.6 The transistor as an amplifier</p> <p>12.7 Current and voltage gains</p>
13	<p><b>Main references:</b> : Electrical and Electronic Principles and Technology (2<sup>nd</sup> Edition)</p> <p>Author: John Bird</p>
14	<p>Additional references:</p> <p><b>Stan Gibilisco: Teach Yourself Electricity and Electronics, 5<sup>th</sup> Edition</b></p>