FUNDAMENTALS OF ELECTRICAL AND ELECTRONICS ENGINEERING

COURSE CONTENT	CODE	SYLLABUS
OVERVIEW OF ELECTRONIC COMPONENTS & SIGNALS	1	1.1 Passive components and their applications 1.1.1 Resistors, type of resistors 1.1.2 Capacitors, type of capacitor 1.1.3 Inductors , type of inductor 1.2 Types of waveform 1.2.1 Sinusoidal waveform as alternating Voltage Signal v(t) = Vmsin(wt) 1.2.2 Non Sinusoidal alternating waveforms (triangular, rectangular, square) as voltage signals
OVERVIEW OF BASIC (ANALOG) & DIGITAL ELECTRONICS	2	2.1 Introduction to Semi-Conductors 2.1.1 Different Semiconductor materials (Si, Ge) 2.2 Doping (impurities) in Semiconductors 2.2.1 Intrinsic and Extrinsic Semiconductor 2.2.2 Atomic structure of Intrinsic and Extrinsic Semiconductor 2.3 Conductivity 2.3.1 carrier transport: diffusion & drift current, mobility, resistivity 2.3.2 generation and recombination of charge carriers, PN junction 2.4 Active components and their application 2.4.1 Diodes, VI Characteristics, forward and reverse bias 2.4.2 Bipolar Junction Transistors (BJT), PNP and NPN BJT, Characteristics. 2.5 Boolean Algebra 2.5.1 Logic Gates (NOT, AND, OR, NAND, NOR, EX-OR, EX-NOR) 2.5.2 Binary code of a Decimal Number

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COURSE CONTENT	CODE	SYLLABUS
ELECTRIC AND MAGNETIC CIRCUITS:	3	3.1 EMF, Current, Potential Difference, Power and Energy, Ohm's Law, Combination of resistances 3.2 M.M.F, magnetic flux 3.3 Analogy between electric and magnetic circuits
A.C. CIRCUITS:	4	4.1 Introduction to AC waveform and terminology 4.1.1 Cycle 4.1.2 Frequency 4.1.3 Time Period 4.1.4 Amplitude 4.1.5 Angular velocity 4.1.6 RMS value 4.1.7 Average value 4.1.8 Form Factor
TRANSFORMERS	5	5.1 Principal of operation, emf equation, Construction. 5.2 Principle of single phase transformer, transformation ratio and step up and step down transformers