



National Institute of Technology Meghalaya
An Institute of National Importance

CURRICULUM

Programme	Bachelor of Technology	Year of Regulation	2018
Department	Electronics and Communication Engineering	Semester	I/II

Course Code	Course Name	Credit Structure				Marks Distribution			
		L	T	P	C	INT	MID	END	Total
EC101	Basic Electronics	2	0	0	2	50	50	100	200

Course Objectives	To develop the student's ability to apply the basic principles of electronics in circuit analysis.	Course Outcomes	CO1	Verify the V-I characteristics of p-n junction diode, schottky diode, zener diode (Voltage Regulation), LED and study of rectifier and filtering Circuits.
	To develop the student's ability to design basic circuits based on diode, transistor and digital logic ICs.		CO2	Study the characteristics and switching action of BJT in CE, CB and CC mode.
	To provide the students with some knowledge and analysis skills associated with the principles of operation and applications of the digital systems.		CO3	Interpret the truth tables of logic gates and De-morgan's theorems for digital electronics circuits.
	To develop the student's ability to communicate effectively the knowledge of electronics and communication systems.		CO4	Understand about Radio Frequency Spectrum, modulation and its application in transmitter and receivers.
			CO5	Explain the working of electronic instruments like Cathode Ray Oscilloscope & Digital Storage Oscilloscope, Function Generator, Power Supply, Digital Multimeter.

No.	COs	Mapping with Program Outcomes (POs)												Mapping with PSOs			
		PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3	PSO4
1	CO1	3	2	0	0	0	0	0	0	0	0	0	0	3	0	3	3
2	CO2	3	2	0	0	0	0	0	0	0	0	0	0	2	0	2	3
3	CO3	3	2	0	0	0	0	0	0	0	0	0	0	2	3	2	3
4	CO4	3	2	0	0	0	0	0	0	0	0	0	0	2	3	2	3
5	CO5	3	2	0	0	0	0	0	0	0	0	0	0	0	0	0	3

SYLLABUS

No.	Content	Hours	COs
I	Introduction Fundamentals concept of semiconductor (Energy Bandgap, Mobility, Conductivity & Resistivity) and Junction (Metal-Semiconductor and Semiconductor – Semiconductor (homo and hetero-junction)). Diode and it's circuits Basic p-n junction Diode Theory, Zener Diode, Photodiode, Light Emitting Diode, Varactor Diode, and Schottky Diode. Half Wave Rectifier Circuit, Full Wave Rectifier Circuit and Bridge Rectifier Circuit, Filtering Circuits (C, L, L-C & π filters), Voltage Multipliers.	07	CO1
II	Diode and it's circuits Transistor Theory, Transistor Action, Transistor Symbols, Common Collector, Common Emitter and Common Base Configurations, Different Biasing Techniques, Concept of Transistor Amplifier.	04	CO2
III	Digital Electronics Boolean Algebra, Logic Gates, Combinational Circuits.	03	CO3
IV	Communication Introduction to Radio Frequency Spectrum, Modulation, Need of Modulation, Different Types of Modulation, Basic Circuits of Modulation and Demodulation, Transmitters and Receivers, Application of Modulation.	06	CO4
V	Instrumentation Cathode Ray Oscilloscope & Digital Storage Oscilloscope: Theory and Applications, Function Generator, Power Supply, Digital Multimeter.	04	CO5
Total Hours		24	

Essential Readings
1. Basic Electronics, Chattopadhyay & Rakshit, New Age Publisher, 2009
Supplementary Readings
1. Electronics Principles, Albert P. Malvino, Publisher: Tata McGraw-Hill, 2010
2. Electronics Devices, Thomas L. Floyd, Publisher: Pearson Education, 2008