



National Institute of Technology Meghalaya
An Institute of National Importance

CURRICULUM

Programme	Bachelor of Technology in Electronics and Communication Engineering	Year of Regulation	2018-19
Department	Electronics and Communication Engineering	Semester	III

Course Code	Course Name	Credit Structure				Marks Distribution		
		L	T	P	C	CONTINUOUS EVALUATION	VIVA	Total
EC 251	Electronic Devices Lab	0	0	2	1	70	30	100

Course Objectives	Course Outcomes	
	To understand the fundamentals of electronic devices	CO1 Will develop understanding on electronic devices and TCAD tool
	To understand the concepts of junction diode and transistors	CO2 Will develop understanding on IV and CV of the junction diode
To understand the use of TCAD tool	CO3 Will develop understanding on IV and CV of the BJT and FET	

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	2	3	2	-	-	-	-	-	-	-	-	-	3	1	-	-
2	CO2	3	3	2	-	-	-	-	-	-	-	-	-	3	1	-	-
3	CO3	3	2	3	-	-	-	-	-	-	-	-	-	3	1	-	-

SYLLABUS

No.	Content	Hours	COs
I	Introduction to the TCAD tool and its use.	12	CO1, CO2, CO3
II	Observe P-N Junction Diode Characteristics in forward and reverse bias for silicon		
III	Simulate P-N Junction Diode, LED, Photodiode Characteristics		
IV	Observe Zener Diode Characteristics in reverse bias condition		
V	Determination npn BJT input, output and transfer Characteristics		
VI	Determination pnp BJT input, output and transfer Characteristics		
VII	Determination of MOSFET input, output and transfer Characteristics		
VIII	Study about fabrication process		
Total Hours		12	

Essential Readings

- G. Streetman and S. K. Banerjee, "Solid State Electronic Devices", Pearson, Seventh Edition, 2014.
- D.A. Neamen, "Semiconductor Physics and Devices", Tata McGraw Hill Education, Third Edition, 2007
- C.C. Hu, "Modern Semiconductor Devices for Integrated Circuits", Pearson, 2010.

Supplementary Readings

- S. M. Sze and K. N. Kwok, "Physics of Semiconductor Devices", John Wiley & Sons, Third Edition, 2006.
- C.T. Sah, "Fundamentals of solid state electronics," World Scientific Publishing Co. Inc, 1991.
- Y. Tsidis and M. Colin, "Operation and Modeling of the MOS Transistor," Oxford Univ.Press, 2011..