Department of Computer Science and Engineering

Lesson Plan cum Dairy (2015-2016)

Name of the Subject: ELECTRONIC DEVICES AND CIRCUITS (14BT30431)
Class & Semester: II B. Tech – I Semester
Name of the faculty Member:

Sl. No.	Topic	No. of periods required	Date(s) Covered	No. of periods Used	Book(s) followed	Remarks
UNIT – I: DIODE, RECTIFIERS AND REGULATORS					
1.	Introduction to PN Junction Diode and Equation	1			T1	
2.	Volt-Ampere (V-I) Characteristics, Temperature Dependence of V-I Characteristics	1			T1	
3.	Ideal versus Practical Characteristics, Static and Dynamic Resistances	1			T1	
4.	Tutorial-1	1				
5.	Diode Equivalent Circuits, Junction capacitances	1			T1	
6.	Break Down Mechanisms in Semiconductor Diodes	1			T1	
7.	Zener Diode Characteristics	1			T1	
8.	Tutorial-2	1				
9.	PN Junction as a Rectifier, Half Wave Rectifier, Ripple Factor	1			T1	
10.	Full Wave Rectifier, Harmonic Components in a Rectifier Circuit	1			T1	
11.	Inductor Filter, Capacitor Filter	1			T1	
12.	Tutorial-3	1				
13.	L & π Section Filters, comparison of various filter circuits in terms of ripple factors	1			T1	
14.	Use of Zener Diode as a Regulator, Problems on Rectifier Circuits and Voltage Regulator, Formative Test-1	1			T1, R2	
Total periods required:		**14(11+3)**	**Total periods Used:**			
UNIT – II: BIPOLAR JUNCTION TRANSISTOR AND BIASING					
15.	Transistor Construction, BJT Operation, BJT Symbol, Transistor as an Amplifier	1			T1	
16.	Tutorial-4	1				
17.	Transistor currents and their relations	1			T1	
18.	Input and Output Characteristics of Transistor in CE Configuration	1			T1	
19.	Input and Output Characteristics of Transistor in CB & CC Configuration	1			T1	

Sl. No.	Topic	No. of periods required	Date(s) Covered	No. of periods Used	Book(s) followed	Remarks
20.	Tutorial-5	1				
21.	BJT specifications, Operating Point	1			T1, R1	
22.	DC and AC Load Lines, Importance of Biasing	1			T1	
23.	Fixed Biasing, Emitter Feedback Bias, Collector to Emitter feedback Bias	1			T1	
24.	Tutorial-6	1				
25.	Problems on Biasing Circuits, Voltage Divider Bias	1			T1, R1	
26.	BJT Hybrid Modeling for CB Configurations	1			T1	
27.	BJT Hybrid Modeling for CE & CC Configurations	1			T1	
28.	Tutorial-7	1				
29.	Determination of h-parameters from Transistor Characteristics, Measurement of h-Parameters	1			T1	
30.	Analysis of CE, CB and CC configurations using h-Parameters	1			T1	
31.	Comparison of CB,CE and CC Configurations, Simplified Hybrid Model	1			T1	
32.	Tutorial-8	1				
Total periods required:		**18(13+5)**	**Total periods Used:**			

UNIT -III: FIELD EFFECT TRANSISTOR

Sl. No.	Topic	No. of periods required	Date(s) Covered	No. of periods Used	Book(s) followed	Remarks
33.	Junction Field Effect Transistor(Construction, Principle of Operation, Symbols)	1			T1	
34.	Pinch-off Voltage, Volt-Ampere Characteristics of JFET	1			T1	
35.	MOSFET Characteristics in Enhancement and Depletion Modes	1			T1	
36.	Tutorial-9	1				
37.	Biasing of FET	1			T1	
38.	Small Signal Model of JFET & MOSFET	1			T1	
39.	Generalized FET Amplifier	1			T1	
40.	Tutorial-10	1				
41.	Common Source and Common Drain Amplifiers using FET	1			T1	
42.	FET as Voltage Variable Resistor	1			T1	
43.	Comparison between BJT and FET, Formative Test-2	1			T1	
44.	Tutorial-11	1				
Total periods required:		**12(9+3)**	**Total periods Used:**			

UNIT – IV: FEEDBACK AMPLIFIERS AND OSCILLATORS

Sl. No.	Topic	No. of periods required	Date(s) Covered	No. of periods Used	Book(s) followed	Remarks
45.	Feedback Concepts, Types of Feedback Circuits(block diagram representation)	1			T1	
46.	General characteristics of negative feedback amplifier	1			T1	
47.	Effect of Feedback on Amplifier characteristics	1			T1	
48.	Tutorial-12	1				

Sl. No.	Topic	No. of periods required	Date(s) Covered	No. of periods Used	Book(s) followed	Remarks
49.	Barkhausen Criterion, Hartley & Colpitts oscillators	1			T1	
50.	Phase Shift Oscillators	1			T1	
51.	Crystal Oscillator, Formative Test-3	1			T1	
52.	Tutorial-13	1				
	Total periods required:	**8(6+2)**	**Total periods Used:**			

UNIT – V: SPECIAL PURPOSE ELECTRONIC DEVICES

Sl. No.	Topic	No. of periods required	Date(s) Covered	No. of periods Used	Book(s) followed	Remarks
53.	Principle and Operation of Tunnel Diode	1			T1	
54.	Characteristics of Tunnel Diode	1			T1	
55.	Uni-Junction Transistor (UJT)	1			T1	
56.	Tutorial-14	1				
57.	Varactor Diode	1			T1	
58.	Silicon Control Rectifier(SCR)	1			T1	
59.	Principle of operation of Schottky Barrier Diode	1			T1	
60.	Tutorial-15	1				
	Total periods required:	**08(6+2)**	**Total periods Used:**			
	Grand total periods required:	**60**	**Grand Total periods Used:**			

TEXT BOOKS:

T1. J. Millman, Christos C. Halkias and Satyabrata Jit, Electronic *Devices and Circuits,* 3rd Edition, TMH, 2010.

REFERENCE BOOKS:

R1. R.L. Boylestad and Louis Nashelsky, *Electronic Devices and Circuits,* 10th Edition, PHI, 2009.

R2. S. Salivahana, N. Suresh Kumar, Electronic *Devices and Circuits*, 3rd Edition*,* Mc-Graw Hill, 2008*.*

R3. David A. Bell, *Electronic Devices and Circuits,* 5$^{th\ Edition}$, Oxford University press, 2008.

Signature of the faculty Member   **Signature of Course coordinator**   **Signature of the HOD**