

GOPALAN COLLEGE OF ENGINEERING AND MANAGEMENT

Department of Electronics and Communication

Academic Year: **2016-17**Semester: **EVEN****COURSE PLAN**Semester: **II**Subject Code & Name: **15ELN15/25ME & Basic Electronics**Name of Subject Teacher: **Guruprasad. K**Name of Subject Expert (Reviewer): **Kavitha M.V**

For the Period: From: 06-02-17 to 02-06-17

Details of Book to be referred:

Text Books	<ol style="list-style-type: none">1. David A. Bell, "Electronic Devices and Circuits", Oxford University Press, 5th Edition, 2008.2. D.P. Kothari, I. J. Nagrath, "Basic Electronics", McGraw Hill Education (India) Private Limited, 2014. Reference Books: MuhammadAliMazidi, "The 8051 Microcontroller and Embedded. Systems. Using Assembly and C." Second Edition, 2011, Pearson India.
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Lecture NO	Topic Planned	Practical Applications & Brief objectives	Book referred with Pg No.	Planned Date	Executed Date	Deviation Reasons thereof	How Made Good / Reciprocate arrangement	Remarks by HOD
1.	Introduction to the subject	<p>Objectives: To discuss the fundamentals of P-N Junction diode of various characteristics.</p> <p>Applications: Used in Electronics, communication systems function generators, and many other communication systems.</p> <p>Outcomes: The student will be able to know the fundamentals of electronics.</p> <p>To know how to represent various electronic component works.</p> <p>Objectives: To discuss the complete</p>		06-02-17				
2.	Module -1 Semiconductor Diodes and Applications		T1:David A. Bell (1)	07-02-17	0602-17	Nil		
3.	p-n junction diode,		T1: David A. Bell (3)	07-02-17	07-02-17	Nil		
4.	Characteristics and Parameters		T1: David A. Bell (1-3)	08-02-17	08-02-17	Nil		
5.	Diode approximations		T1: David A. Bell (1-5)	09-02-17	09-02-17	Nil		
6.	DC load line analysis,		T1: David A. Bell (1-5)	10-02-17	10-02-17	Nil		
7.	Half-wave rectifier, Two-diode Full-wave rectifier		T1: David A. Bell (15)	13-02-17	13-02-17	Nil		
8.	Bridge rectifier, Capacitor filter circuit		T1: David Bell (1-21)	14-02-17	14-02-17	Nil		
9.	Zener diode voltage regulators: Regulator circuit with no load		T1: David Bell (1-24)	15-02-17	15-02-17	Nil		
10.	Loaded Regulator. Numerical examples as applicable		T1: David Bell (1-25)	16-02-17				
11.	Bipolar Junction Transistors: BJT operation.		T1: David Bell (1-27)	17-02-17				
12.	BJT Voltages and Currents,		T1: David Bell (1-31)	20-02-17				
13.	BJT amplification, Common Base, Common Emitter		T1: David Bell (1-34)	21-02-17				
14.	Module -3 : Digital Electronics Introduction, Switching and		T1: David Bell (3-36)	22-02-17				

	Logic Levels.	representation of number system and study its representations in various forms.						
15.	Digital Waveform		T1: David Bell (3-367)	23-02-17				
16.	Number Systems: Decimal Number System, Binary Number System.		T1: David Bell (3-21)	25-02-17				
17.	Binary Number System. (Conti)		T1: David Bell (3-24)	27-02-17				
18.	Converting Decimal to Binary, Hexadecimal Number System		T1: David Bell (3-29)	28-02-17				
19.	Converting Binary to Hexadecimal, Hexadecimal to Binary,		T1: David Bell (3-40)	01-03-17				
20.	Converting Hexadecimal to Decimal,		T1: David Bell (3-43)	02-03-17				
21.	Converting Decimal to Hexadecimal, Octal Numbers:		T1: David Bell (3-47)	03-03-17				
22.	Binary to Octal Conversion. Complement of Binary Numbers.		T1: David Bell (3-49)	04-03-17				
23.	Boolean Algebra Theorems, De Morgan's theorem. Digital Circuits:		T1: David Bell (3-53)	06-03-17				
24.	Logic gates, NOT Gate, AND Gate, OR Gate, XOR Gate, NAND Gate, NOR Gate, X-NOR Gate	T1: David Bell (3-57)	07-03-17					
25.	Algebraic Simplification, NAND and NOR Implementation	T1: David Bell (3-59)	08-03-17					
ii)	NAND Implementation, NOR Implementation.	T1: David Bell (3-62)	13-03-17					
26.	Half adder,	T1: David Bell (3-65)	14-03-17					

Outcomes:
The student will be able to understand the Digital representation of Binary numbers in various representing formats. Know how to convert numbers from one form to another form of Binary bits.

Applications:
Used signal processing at Base stations in Telephony, mobile applications.

iii)	Full adder		T1: David Bell (3-67)	15-03-17				
27.	UNIT TEST-1	Objectives: To discuss of various		16-03-17				
28.	Module -4: Flip-Flops Introduction to Flip-Flops	types of Flip-Flops, basic gates and Microcontroller fundamentals and its architecture.	T1: David Bell (4-1)	17-03-17				
29.	NAND Gate Latch		T1: David Bell (4-3)	20-03-17				
30.	NOR Gate Latch	Applications: Used in various communication systems, Robotics and Embedded systems etc.	T1: David Bell (4-5)	21-03-17				
31.	RS Flip-Flop			22-03-17				
32.	Gated Flip-Flops: Clocked RS Flip-Flop		T1: David Bell (4-7)	23-03-17				
33.	Microcontrollers: Introduction	Outcomes: Student will be able to understand Microcontroller architecture and Bus architecture and its controlling.	T1: David Bell (4-10)	27-03-17				
34.	8051 Microcontroller Architecture		T1: David Bell (4-11)	28-03-17				
35.	8051 Microcontroller architecture		T1: David Bell (4-15)	30-03-17				
36.	example of Microcontroller based stepper motor control system		T1: David Bell (4-17)	31-03-17				
37.	example of Microcontroller based stepper motor control system		T1: David Bell (4-19)	01-04-17				
38.	Module - 5: Communication Systems : Introduction	To know the basics Transducers, its operation and its characteristics and types of transducers.	T1: David Bell (4-20)	03-04-17				
39.	Elements of Communication Systems		T1: David Bell (4-21)	04-04-17				

40.	Modulation: Amplitude Modulation	Applications: Counters, converters etc. Outcomes: Student will be able to understand basics of Transducers, Thermistors & piezo electric effects.	T1: David Bell (4-27)	05-04-17				
41.	Spectrum Power, AM Detection (Demodulation),		T1: David Bell (4-29)	06-04-17				
42.	AM Detection (Demodulation),		T1: David Bell (4-30)	07-03-17				
43.	Frequency and Phase Modulation.		T1: David Bell (4-31)	10-04-17				
44.	Amplitude and Frequency Modulation: A comparison.		T1: David Bell (4-33)	11-04-17				
45.	Transducers: Introduction		T1: David Bell (4-37)	12-04-17				
46.	Passive Electrical Transducers, Resistive Transducers,		T1: David Bell (4-41)	13-04-17				
47.	Resistance Thermometers, Thermistor		T1: David Bell (4-44)	20-04-17				
48.	Linear Variable Differential Transformer (LVDT)		T1: David Bell (4-47)	21-04-17				
49.	Active Electrical Transducers,		T1: David Bell (4-49)	24-04-17				
50.	Piezoelectric Transducer, Photoelectric Transducer	T1: David Bell (4-50)	25-04-17					
51.	UNIT TEST - 2	Objectives: To study the fundamentals of BJT and Op-Amp its behavioral		26-04-17				
52.	Module – 2: BJT Biasing DC Load line and bias point		T1: David Bell (2-1)	27-04-17				

53.	Base Bias, Voltage divider Bias	characteristics.	T1: David Bell (2-3)	28-04-17				
54.	DC Loadline, bias point	Applications: Used in various communication systems, used in Modulation technics, Digital modulations etc.	T1: David Bell (2-6)	02-05-17				
55.	Numerical examples as applicable.		T1: David Bell (2-8)	03-05-17				
56.	Numerical examples as applicable		T1: David Bell (2-10)	04-05-17				
57.	Introduction to Operational Amplifiers		T1: David Bell (2-11)	06-05-17				
58.	Ideal OPAMP, Inverting and Non Inverting OPAMP circuits,		T1: David Bell (2-15)	08-05-17				
59.	OPAMP applications: voltage follower		T1: David Bell (2-17)	09-05-17				
60.	addition, subtraction,		T1: David Bell (2-18)	10-05-17				
61.	integration,		T1: David Bell (2-19)	11-05-17				
62.	differentiation; Numerical examples as applicable.		T1: David Bell (2-21)	12-05-17				
63.	Numerical Problems solving		T1: David Bell (2-23)	20-05-17				
64.	Numerical Problems solving	T1: David Bell (2-25)	21-05-17					
65.	UNIT TEST- 3		22-05-17					
66.	Revision and QP solving		23-05-17					
67.	Revision and QP solving		24-05-17					
68.	Revision and QP solving		25-05-17					

69.	Revision and QP solving			29-05-17				
70.	Revision and QP solving			30-05-17				
71.	Revision and QP solving			01-06-17				
72.	Revision and QP solving			02-06-17				

Prepared By: _____
 (Faculty)
 Date & Sign _____

Reviewed by: _____
 (Sub. expert)
 Date & Sign _____

Approved by: _____
 (HOD)
 Date & Sign _____

Approved by: _____
 (Principal/ Acad. Co)
 Date & Sign _____