Marks	Grade Point	Letter Grade	*Marks*	Grade Point	Letter Grade
80>	4.00	A+	55-59	2.75	B-
75-79	3.75	A	50-54	2.50	C+
70-74	3.50	A-	45-49	2.25	C
65-69	3.25	B+	40-44	2.00	D
60-64	3.00	B	0-39	0.00	F

Daffodil Polytechnic Institute, Institute Code: 50238

Lesson Plan – Academic session July 2023 to December 2024

Subject Teacher : RUBEL HOSSEN

Mark Distribution (for 150 Marks)			
Theory Marks		**Practical Marks**	
Midterm	20	PC	25
Class test	10	PF	25
Quiz test	10	-	-
Final	60	-	-
Total	**100**	**Total**	**50**

Instructor, Electrical Technology.
Subject Name : Basic Electronics
Subject Code : 26811
Technology : Civil +Telecommunication
Semester : 2nd
Google Class Code:

Class Timing Distribution	
Particulars	Time
Greeting with students	10 Minutes
Previous Class Review	10 Minutes
Present Class Topic Discussion and Lecture Delivery	60 Minutes
Present Class Topics Review	10 Minutes

BTEB Text Book Name : (Publisher: HAQUE PUBLICATION)
Reference Book : Principles of Electronics - V.K.Mehta

AIMS

Ensure an opportunity to acquire knowledge, skills and attitude in the area of Electronics with special emphasis on: Basic Electronics are the fundamental building blocks of an industry. It ranges from Nano-sized computer chips to very large transformers and electrical outputs. Electronics come in different types of shapes and sizes. The electronics industry is rapidly evolving with trends such as miniaturization, IoT, AI, AR, VR, and advanced wireless technologies, leading to the development of smaller, more portable, interconnected, and intelligent devices

- *Soldering technique and color code.*
- *Semiconductor*
- *Special Diodes and devices.*
- *Rectifier circuits.*
- *Principle of Transistor*
- *Basic concept of ICs*

SHORT DESCRIPTION

Electronic components; measuring and test equipment; color code and soldering; semiconductor; P-N junction diode; special diodes and devices; power supply; transistor; transistor amplifier; logic gates.

Date	Lecture	Chapter/ Exam / Industrial Visit	Learning Area	Learning Outcome	Class/Lab Supporting Equipment's
	01	**Understand the Electronics, its components and measuring and testing equipment.**	1.1 Define electronics. 1.2 Describe the scope of electronics. 1.3 Describe the active and passive components used in electronic circuits. 1.4 Define resistor, inductor and capacitor and mention the function of those in electronic circuits. 1.5 Describe the procedure of determining the value of resistor, inductor and capacitor using numeric and color code. 1.6 Describe the function of (i) Ammeter, (ii) Voltmeter, (iii) AVO meter, (iv) Function Generator, (v) Logic Probe, (vi) Semiconductor Device Tester and (vii) Oscilloscope.	After the Class, Students will be able to know about the value of resistor, inductor and capacitor using numeric and color	Basic Class Materials & Projector YouTube Link: https://www.youtube.com/watch?v=G1mZutobxDU
	02	**Understand the Concept of Semiconductor used in Electronics.**	2.1 Define Semiconductor. 2.2 Describe covalent bond and the effect of temperature on Semiconductor. 2.3 Explain the energy band diagram of conductor, semiconductor and insulator. 2.4 Explain the characteristics of carbon, silicon, germanium and gallium arsenide.	After the Class, Students will be able to know about the energy band diagram of conductor, semiconductor and insulator.	Basic Class Materials & Projector YouTube Link: https://www.youtube.com/watch?v=AF4OYzVgxZg

Date	Lecture	Chapter/ Exam / Industrial Visit	Learning Area	Learning Outcome	Class/Lab Supporting Equipment's
	03		2.5 Describe the classification of Semiconductor. 2.6 Describe the generation & recombination of hole and electron during doping in extrinsic semiconductor. 2.7 Describe the formation of P-type & N-Type semiconductor material. 2.8 Explain the majority & minority charge carriers of P-type & N-Type Semiconductor.	After the Class, Students will be able to know about the of P-type & N-Type semiconductor material.	Basic Class Materials & Projector YouTube Link: https://www.youtube.com/watch?v=CjAVfW_6juw
Assignment-01			Assignment on lecture 01 - 03	To build up their confidence level & increase creativity on chapter- 01 & 02	Must be submitted within the next two lecture.
	04	**Review Class**	Review Class of Lecture 1-**3** (Regarding students' problem)	Through the review class, students can solve their problem	Basic Class Materials
	05	**Class Test-1** **Quiz Test 1**	Examination Topic: Chapter 1,2 Examination mark: 20 Passing Mark: 08	Through class tests students will learn to evaluate themselves on their own	1)Basic Class Materials 2)Note Copy
	06	**Quiz Test 1**	Examination Topic: **Chapter 1,2** Examination mark: 10 Passing Mark: 04	Through Quiz Test students will learn the intellectual intelligence on the topics discussed.	1)Basic Class Materials 2)Note Copy
Lab Report-01			Show skill in identifying the electronic components.	Students will know about different electronic components	Soldering iron, plyers, screw drivers, ammeter voltmeter

Date	Lecture	Chapter/ Exam / Industrial Visit	Learning Area	Learning Outcome	Class/Lab Supporting Equipment's
	08	**Understand the Concept of P-N Junction Diode**	3.1 Define PN junction diode 3.2 Describe the formation of depletion layer in PN junction. 3.3 Discuss potential barrier, drift & diffusion current and their physical significance.	After the Class, Students will be able to know about the formation of depletion layer in PN junction.	Basic Class Materials & Projector YouTube Link: https://www.youtube.com/results?search_query=the+formation+of+depletion+layer+in+PN+junction.
	09		3.4 Explain forward and reverse bias in PN junction with barrier voltage. 3.5 Mention the behavior of PN junction under forward and reverse bias. 3.6 Explain the forward and reverse Voltage-Current (VI) characteristics curve of PN junction diode.	After the Class, Students will be able to know about the PN junction under forward and reverse bias.	Basic Class Materials & Projector YouTube Link: https://www.youtube.com/watch?v=hKGJoW_u6wo
	10		3.7 Define (i) static resistance, (ii) dynamic resistance, (iii) forward breakdown voltage, (iv) peak inverse voltage (PIV) and (v) reverse break down voltage. 3.8 Describe the specification of PN Junction diode..	After the Class, Students will be able to know about the specification of PN Junction diode..	Basic Class Materials & Projector YouTube Link: https://www.youtube.com/watch?v=qvm_yV-NUIY
Assignment-02			**Assignment on lecture 09– 10**	**To build up their confidence level & increase creativity on chapter 09– 10**	**Must be submitted within the next two lecture.**
Lab Report-02			Show skill for determining the values of different resistors and capacitors with the help of color code.	Select color code resistors & capacitors of different values. Identify the colors and their numerical numbers.	Different Vales of Resistance & Capacitor.

Date	Lecture	Chapter/ Exam / Industrial Visit	Learning Area	Learning Outcome	Class/Lab Supporting Equipment's
	12	**Understand the DC power supply.**	4.1 Define dc power supply and describe its importance in electronics. 4.2 Define regulated and unregulated power supply. 4.3 Describe the operation of a typical regulated dc power supply with block diagram. 4.4 Define rectifier and rectification.	After the Class, Students will be able to know about the operation of a typical regulated dc power supply with block diagram.	Basic Class Materials & Projector YouTube Link: https://www.youtube.com/watch?v=KE5QJtU6ZA8
	13		4.5 Explain the operation of half wave, full wave and bridge rectifier circuit. 4.6 Determine the ripple factor, efficiency and TUF of half wave, full wave and bridge rectifier. 4.7 Define filter circuit and explain the operation of capacitor, inductor-capacitor and pi (π) filter circuit.	After the Class, Students will be able to know about the half wave, full wave and bridge rectifier circuit.	Basic Class Materials & Projector YouTube Link: https://www.youtube.com/watch?v=0qwuRF6SaVY
Lab Report-03			Show skill in soldering & de-soldering of electronic components and wires to the other components and circuit boards.	After the Class, Students will be able to do Soldering & De soldering.	Soldering Sucker, PCB Board
	15	**Review Class**	Review Class of Lecture 08-13 **(**Regarding students' problem)	Through the review class, students can solve their problem	Basic Class Materials
	16	**Quiz Test 2**	Examination Topic: **Chapter 3,4** Examination mark: 10 Passing Mark: 04	Through Quiz Test students will learn the intellectual intelligence on the topics discussed.	1) Basic Class Materials 2) Examination Copy
	17	**Class Test 2**	Examination Topic: **Chapter 3,4** Examination mark: 20 Passing Mark: 08	Through class tests students will learn to evaluate themselves on their own	1) Basic Class Materials 2) Examination Copy
	18	Exam Syllabus Review			
	19	Exam Syllabus Review			

Date	Lecture	Chapter/ Exam / Industrial Visit	Learning Area	Learning Outcome	Class/Lab Supporting Equipment's
	20	Problem Solving			
	21	Problem Solving			
MID EXAM					
	22	**Understand the Concepts of Special diode.**	5.1 Define Zener Diode. 5.2 Describe the operation of Zener diode. 5.3 Explain VI characteristics of Zener diode. 5.4 Explain Zener diode as a auto-variable resistor	After the Class, Students will be able to know about the Zener Diode.	Basic Class Materials & Projector YouTube Link: https://www.youtube.com/watch?v=MZPeRlst8rQ
Assignment-03			**Assignment on lecture 22**	**To build up their confidence level & increase creativity on chapter- 22**	**Must be submitted within the next two lecture.**
	23	Understand the Concepts of Special diode.	5.5 Describe the application of Zener diode in (i) voltage stabilization, (ii) meter protection and (iii) peck clipper circuits. 5.6 Describe the construction, operation and application of (i) Tunnel diode, (ii) Varactor diode, (iii) Schottky diode, (iv) Step-Recovery diode, (v) PIN diode, (vi) LED, (vii) LCD, (viii) photo diode and (ix) Solar cell.	After the Class, Students will be able to know about application of Zener diode	Basic Class Materials & Projector YouTube Link: https://www.youtube.com/watch?v=6wEn7DaCfC0

Date	Lecture	Chapter/ Exam / Industrial Visit	Learning Area	Learning Outcome	Class/Lab Supporting Equipment's
	24	**Understand the construction and operation of Bipolar Junction Transistor (BJT)**	6.1 Define Transistor. 6.2 Describe the construction of PNP and NPN Transistor. 6.3 State the biasing rules of BJT. 6.4 Explain the mechanism of current flow of PNP and NPN Transistor. 6.5 Establish the relation among Base, Emitter and Collector current ($I_E = I_C + I_B$).	After the Class, Students will be able to know about Transistor.	Basic Class Materials & Projector YouTube Link: https://www.youtube.com/watch?v=P3hf2EXhQzI
	25		6.6 Draw the three basic transistor configuration (CB, CC, CE) circuits. 6.7 Describe current amplification factor α, β and ©. 6.8 Establish the relation among α, β and ©. 6.9 Solve problem related to I_E, I_C, I_B, α, β and ©	After the Class, Students will be able to know about basic transistor configuration (CB, CC, CE) circuits.	Basic Class Materials & Projector YouTube Link: https://www.youtube.com/watch?v=dW1TxcvfaYk
	26	**Review Class**	Review Class of Lecture 22-25 (Regarding students' problem)	Through the review class, students can solve their problem	Basic Class Materials
Lab Report-04			Show skill in sketching waves of half wave rectifier circuit	Gathering details knowledge about half wave rectifier.	Diodes, Dc Power Supply
	28	**Quiz Test 3**	Examination Topic: **Chapter 5,6** Examination mark: 10 Passing Mark: 04	Through Quiz Test students will learn the intellectual intelligence on the topics discussed.	3) Basic Class Materials 4) Examination Copy
	29	**Class Test 3**	Examination Topic: **Chapter 5,6** Examination mark: 20 Passing Mark: 08	Through class tests students will learn to evaluate themselves on their own	3) Basic Class Materials 4) Examination Copy
	30	**Understand the concept of BJT Amplifier**	7.1 Define (i) amplifier, (ii) amplification and (iii) gain. 7.2 Mention the classification of amplifier. 7.3 Describe the principle of operation of a common emitter (ce) amplifier.	After the Class, Students will be able to know about the amplifier	Basic Class Materials & Projector YouTube Link: https://www.youtube.com/watch?v=kiiA6WTCQn0

Date	Lecture	Chapter/ Exam / Industrial Visit	Learning Area	Learning Outcome	Class/Lab Supporting Equipment's
	31`		7.4 Draw DC & AC equivalent circuits of the CE amplifier circuit. 7.5 Mention the formula of (i) input resistance, (ii) output resistance, (iii) current gain, (iv) voltage gain and (v) power gain. 7.6 Solve problem related to different gain and resistance.	After the Class, Students will be able to know about the DC & AC equivalent circuits	Basic Class Materials
	32	**Understand the main feature of digital electronics**	8.1 Describe the difference between analog and digital system. 8.2 State the advantage of digital system over analog system. 8.3 Define logic gate. 8.4 Describe the basic logic gates and their functions (AND gate, OR gate and NOT circuit or INVERTER).	After the Class, Students will be able to know about the digital system.	Basic Class Materials & Projector YouTube Link: https://www.youtube.com/watch?v=d0QlfK_XF48
	33		8.5 Describe the NAND, NOR, XOR & XNOR logic gates and their functions. 8.6 Define Truth table and Prepare truth table to describe the functions of AND, OR, NOT, NAND, NOR, XOR and XNOR logic gates.	After the Class, Students will be able to know about logic gate.	Basic Class Materials & Projector
	34	**Review Class**	Review Class of Lecture 30-33 **(**Regarding students' problem)	Through the review class, students can solve their problem	Basic Class Materials
	35	**Quiz Test 4**	Examination Topic: **Chapter 7,8** Examination mark: 10 Passing Mark: 04	Through Quiz Test students will learn the intellectual intelligence on the topics discussed.	5) Basic Class Materials 6) Examination Copy
	36	**Class Test 4**	Examination Topic: **Chapter 7,8** Examination mark: 20 Passing Mark: 08	Through class tests students will learn to evaluate themselves on their own	5) Basic Class Materials 6) Examination Copy

Date	Lecture	Chapter/ Exam / Industrial Visit	Learning Area	Learning Outcome	Class/Lab Supporting Equipment's
	37	**Presentation**	Short presentation by individual student.	Be confident on practical life.	**Laptop, projector**
	38	MODEL TEST	All Syllabus	After the Class, Students will be highly confident for Final exam	Basic Class Materials
	39	Final Exam Syllabus Review			
	40	Final Exam Syllabus Review			
	41	Final Exam Syllabus Review			