

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

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	-	50
Time Distribution (90min)			
	Particular	Time	
Greeting with students		5 Min	
Previous class review		10 Min	
Present class lecture		60 Min	
Feedback		10 Min	
Attendance		5 Min	

Lesson Plan – Academic session: February – June 2023

Subject Teacher : Gulshan Ara Akhi (Junior Instructor)

Subject Name : Basic Electronics

Subject Code : 26811

Technology : DPI(ET+CT) & DIET (CST,ET,CT)

Semester :2nd

Reference Book : Basic Electronics (Publisher: Hoque & R.S)

eLearning Course Link : <https://dpi.df.daffodil.family/slides/basic-electronics-26811-362>

Subject Aims: Electronic devices have become an important part of our day-by-day life. Nowadays it is difficult for us to live without electronic devices. We live in a generation that uses electronics and smart technologies. Robots and artificial intelligence are capable of doing human works in all technological equipment with more ease and efficiency. Operation of all machines, devices and equipment are controlled by electronic devices and circuits. This subject covers only such topics which will enable the diploma engineers to identify and maintain the electronics parts and be able to properly fault finding.

Subject Outcome:

1.

1. Describe soldering
2. Determine the value of Capacitor & Resistor using numeric and color code.
3. Describe Semiconductor and Semiconductor Diode
4. Describe Rectifier circuits
5. Explain the construction and operation of Single and Multistage amplifier

Lecture	Chapter/ Exam / Industrial Visit	Learning Area	Learning Outcome	Class/Lab Supporting Equipment's
01	Chapter-1 SOLDERING AND COLOR CODE	1.1 Define soldering. 1.2 List the materials of soldering. 1.3. Describe the steps of soldering. 1.4 Mention the properties of a good soldering joint. 1.5 Describe the active and passive components used in electronic circuits. 1.6 Mention the function of resistor, capacitor and inductor in electronic circuits.	After the Class, Students will be able to know about Soldering & Color Code.	Basic Class Materials & Projector YouTube Link: https://www.youtube.com/watch?v=6D5nylyWTK0

02	Chapter-02 SEMICONDUCTOR	SEMICONDUCTOR 2.1 Define conductor, semiconductor and insulator. 2.2 Describe semiconductor with atomic structure. 2.3 Describe the effect of temperature on conductivity of Semiconductor. 2.4 Classify Semiconductor. 2.5 List the commonly used semiconductor 2.6 Describe the formation of P-type and N-type semiconductor. 2.7 Describe the charges on N-type and P-type Semiconductor 2.8 Explain the majority & minority charge carriers of P-type & N-Type Semiconductor.	After the Class, Students will be able to know about Soldering & Color Code.	Basic Class Materials & Projector YouTube Link: https://www.youtube.com/watch?v=UVIYqLYgM6k
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03	Chapter-03 SEMICONDUCTOR DIODE	SEMICONDUCTOR DIODE 3.1 Define PN junction diode 3.2 Describe the formation of PN junction. 3.3 Explain forward and reverse bias in PN junction. 3.4 Explain the forward and reverse Voltage-Current (VI) characteristics curve of PN junction diode. 3.5 Define load line, static resistance, (iii) dynamic resistance, 3.6 Define forward breakdown voltage, (v) Peak inverse voltage (PIV) and (vi) Reverse break down voltage. 3.7 Describe the specification of PN Junction diode.	After the Class, Students will be able to know about Soldering & Color Code.	Basic Class Materials & Projector YouTube Link: https://www.youtube.com/watch?v=UVIYqLYgM6k
Assignment-01		Assignment on lecture 01 - 03	Soldering & Colour Code & Semiconductor Diode	Must be submitted within the next two lecture.

04	Chapter-04 SPECIAL DIODES	SPECIAL DIODES 4.1 Define Zener Diode. 4.2 Describe the operation of Zener diode. 4.3 Explain Volt-Ampere (VI) characteristics of Zener diode. 4.4 Describe the application of Zener diode in, voltage stabilization, meter protection and peak clipper circuits. 4.5 Describe the construction, operation and application of Tunnel diode, Varactor diode,	After the Class, Students will be able to know about Soldering & Color Code.	Basic Class Materials & Projector YouTube Link: https://www.youtube.com/watch?v=UVIYqLYgM6k
Lab Report-01		Solder & desolder of electronic components and wires to the other components and circuit boards. 1.1. Select electronic components, wires and PCB. 1.2. Select the rating of the soldering iron suitable for the work piece. 1.3. Clean and tin both iron & work piece. 1.4. Feed new soldering materials to the tinned and	1. To help students learn to address the challenges inherent in directly observing & manipulating the material world & to develop practical skills.	Must be submitted within the next two Lab classes.

05	Chapter-05 DC POWER SUPPLY	5.1 Define dc power supply 5.2 Describe the importance of dc power supply . 5.3 Compare regulated and unregulated power supply. 5.4 Describe the operation of a typical regulated dc power supply with block diagram. 5.5 Define rectifier and rectification. 5.6 Explain the operation of half wave, full wave and bridge rectifier circuit. 5.7 Determine the ripple factor, efficiency and TUF of half wave, full wave and bridge rectifier. 5.8 Explain the operation of capacitor; inductor-capacitor and pi (π) filter circuit. 5.9 Solve problem related to ripple factor, efficiency and TUF.	After the Class, Students will be able to know about Soldering & Color Code.	Basic Class Materials & Projector YouTube Link: https://www.youtube.com/watch?v=yaUMBKjkOig
06	Chapter-06 BIPOLAR JUNCTION TRANSISTOR (BJT)	BIPOLAR JUNCTION TRANSISTOR (BJT) 6.1 Define Transistor. 6.2 Describe the construction of PNP and NPN Transistor. 6.3 Explain the mechanism of current flow of PNP and NPN Transistor. 6.4 State the biasing rules of BJT. 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 Soldering & Color Code.	Basic Class Materials & Projector YouTube Link: https://www.youtube.com/watch?v=kNValqmKUol https://www.youtube.com/watch?v=-VwPSDQmdjM

07	Quiz Test-01 & Class Test-1 (Result will be published within the next two classes)	Difference mathematical problem in text.	*To build up their confidence level in chapter-1,2,3,& 4	Projector, Internet.
08	Chapter-07 Transistor Characteristics	Transistor Characteristics 7.1 Describe three basic transistor configuration (CB, CC, CE) circuits. 7.2 Explain the characteristics curve of CB, CC and CE transistor configurations. 7.3 Describe current amplification factors α , β and . 7.4 Establish the relation among α , β and . 7.5 Solve problem related to I_E , I_C , I_B , α , β and	After the Class, Students will be able to know about Soldering & Color Code.	Basic Class Materials & Projector YouTube Link: https://www.youtube.com/watch?v=JuUMfjklpIE

09	Chapter-08 TRANSISTOR BIASING AND STABILIZATION	TRANSISTOR BIASING AND STABILIZATION 8.1 Define load line, Operating point, stability and stabilization. 8.2 State the biasing rule of transistor. 8.3 Describe faithful amplification. 8.4 Describe the methods of drawing DC load line. 8.5 Explain the leakage current in CB & CE r	after the Class, Students will be able to know about Soldering & Color Code.	Basic Class Materials & Projector
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Assignment-02	Assignment on lecture 04– 09	To build up their confidence level & increase creativity on chapter- 04- 09	Must be submitted within the next two lecture.
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10	Chapter-09 SINGLE STAGE TRANSISTOR AMPLIFIER	SINGLE STAGE TRANSISTOR AMPLIFIER 9.1 Define amplifier and single stage amplifier. 9.2 Mention the types of amplifiers. 9.3 Explain operation of transistor as amplifier with graphical demonstration. 9.4 Describe the operation of voltage divider biased CE amplifier circuit. 9.5 Explain the phase reversal of the CE amplifier. 9.6 Draw DC and AC equivalent circuit of voltage divider biased CE amplifier circuit. 9.7 Determine the AC equivalent load resistance of the CE amplifier circuit. 9.8 Determine voltage and power gain of the CE amplifier circuit. 9.9 Solve problem related to voltage and power gain where β and input resistance of the transistor are	After the Class, Students will be able to know about Soldering & Color Code.	Projector, Internet.
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11	Chapter10 MULTISTAGE TRANSISTOR AMPLIFIER	MULTISTAGE TRANSISTOR AMPLIFIER 10.1 Define Multi stage amplifier. 10.2 Describe role of capacitor in single stage amplifier. 10.3 Describe gain, decibel gain frequency response, half power point, 3db point and bandwidth. 10.4 Mention the advantages of dB gain. 10.5 Describe the operation of RC coupled, Transformer coupled and direct coupled multistage amplifier. 10.6 Explain the frequency response of RC coupled, Transformer coupled and direct coupled multistage amplifier. 10.7 Mention the advantages and disadvantages of RC coupled, Transformer coupled and direct coupled multistage amplifier. 10.8 Solve problem related to voltage and power gain where β and input resistance of the transistor are given. 4 10 Total 32 60 Detailed Syllabus	After the Class, Students will be able to know about Soldering & Color Code.	Basic Class Materials & Projector YouTube Link: https://www.youtube.com/watch?v=5clfiJtRhR8
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Lab Report-02	Determine the values of different resistors, capacitors and inductors. 2.1 Select resistors, capacitors and inductors of different values. 2.2 Identify the colors or numeric code 2.3 Determine the value of resistors, capacitor and inductor with tolerance. . 2.4 Maintain the record of performed job.	1. To help students learn to address the challenges inherent in directly observing & manipulating the material world & to develop practical skills.	Must be submitted within the next two Lab classes.
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12	Class Text-02 And Quiz Test-02 (Result will be published within the next two classes)	Difference mathematical problem in text.	*To build up their confidence level in chapter-5,6 & 7	Projector, Internet. And text book
Lab Report-03		Sketch forward and reverse characteristics curves of a semiconductor diode. 3.1 Select meter, power supply, components and materials. 3.2 Complete circuit	1. To help students learn to address the challenges inherent in directly observing & manipulating the material world & to develop practical skills.	Must be submitted within the next two Lab classes.

	according to circuit diagram for forward bias. 3.3Check all connections. 3.4Apply different forward voltage and measure corresponding forward current. 3.5 Record results in tabular form. 3.6Connect circuit according to circuit diagram of reverse bias. 3.7Apply different reverse voltage and measure corresponding forward current. 3.8Record results in tabular form. 3.9Sketch the VI curves from collected data. 3.10 Maintain the record of performed job.		
15	Model test	Our students will be ready for exam.	Pen, pencil, eraser, calculator

Mid Term Exam

Class Test-03 And Quiz Test-03 (Result will be published within the next two classes)	Difference mathematical problem in text.	*To build up their confidence level in Chapter- 8,9 & 10	Projector, Internet.
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Lab Report-04	Sketch waves of half-wave and full-Wave rectifier circuit 4.1Select meter, component, oscilloscope and materials. 4.2 Complete circuit of a half wave rectifier according to the circuit diagram. 4.3Check the circuit before operation. 4.4Measure the input and output voltage and observe wave shapes in the oscilloscope. 4.5Sketch the input and output voltage wave shapes. 4.6Maintain the record of performed job.	1. To help students learn to address the challenges inherent in directly observing & manipulating the material world & to develop practical skills.	Must be submitted within the next two Lab classes.
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Assignment-03	Assignment on lecture 08–10	To build up their confidence level & increase creativity on chapter- 08- 10	Must be submitted within the next two lecture.
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15.1 Explain Humidity, Absolute Humidity, Relative Humidity and Dew Point. 15.2 Derive relation between vapor pressure and air pressure. 15.3 Determine humidity by wet and dry Bulb Hygrometer. 15.4 Explain a few phenomena related to hygrometry. 15.5 Solve the problems related with humidity.	Can solve the problems related with humidity.	Projector, Internet. Slide Link: https://www.youtube.com/watch?v=WLFyRDVB1s
Model test	Our students will be ready for the exam.	Pen, pencil, eraser, calculator, scale.