

Daffodil Polytechnic Institute, Institute Code: 50238

Lesson Plan – Academic session: Aug 2025 to Jan 2026



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

Subject Teacher : Rubel Hossen

Instructor, Electrical Technology.

Subject Name : Basic Electricity

Subject Code : 26711

Technology : Graphic Design

Semester : 2nd

BTEB Text Book Name :Publisher: HAQUE PUBLICATION)

**Reference Book : A text book of electrical technology B. L. Th
a raja**

Subject Overview: Diploma in Engineering Level students are required to acquire the knowledge and skill on concept of nature of electricity, electrical house wiring, Earthing and Electrical wiring tests. By the completion of this course student will be able to perform different types of joints and splices, Fittings of electrical installation works such as lamp circuit, Tube light circuit and Calling bell circuit. As such the knowledge of basic electricity the pre-requisite for these fields for effective discharge of their duties. These necessities the introduction of Electrical Engineering subject in the curriculum of Diploma in engineering level. The subject covers only such topics which will enable the diploma engineers to identify and classify the different types of Hand tools used in electrical house wiring, Different types of switches, Lamps, Electrical Fittings and fixtures Conductor, Insulator, Semiconductor, Wires and cables, Joint and splices. They will be able to verify and apply Ohms law, Joules law, Series and Parallel circuit. Have been given more emphasis on practical aspect rather than theory in teaching learning approach.

Learning Outcome (Theoretical):

After Completing the subject, students will be able to:

- Classify various types Materials used in electrical works
- Describe Capacitance, Inductance and the Laws of resistance
- State the Ohms law and Joules law
- Describe Series, parallel and combined circuit
- Acquire the knowledge of joints and splices
- Achieve knowledge of Controlling and protective devices
- Acquaint the knowledge of House wiring

Learning Outcome (Practical)

After undergoing the subject, students will be able to:

- Identify various types hand tools and Materials used in electrical works
- Verify the Ohms law and Joules law
- Verify the characteristic of Series and parallel circuit
- Identify the types of wires and cables
- Perform different types of joints and splices
- Operate Controlling and protective devices
- Perform House wiring (Channel wiring)

Date	Lecture	Chapter/ Exam / Industrial Visit	Learning Area	Learning Outcome	Class/Lab Supporting Equipment's
	01	Understand Electricity and its nature.	1.1 state the meaning of electricity. 1.2 describe the structure of atom. 1.3 define current, voltage and resistance. 1.4 state the units of current, voltage and resistance	After the Class, Students will be able to know about the ABC of current, voltage and resistance.	Basic Class Materials & Projector YouTube Link: https://www.youtube.com/watch?v=08YugQce9OA

	02	Understand Conductor and Insulator.	2.1 Define conductor and insulator. 2.2 Explain the conductor and insulator according to electron theory. 2.3 List at least 5 conductors and 5 insulators. 2.4 Describe the factors upon which the resistance of a conductor depends. 2.5 State laws of resistance. 2.6 Prove the relation $R = \rho L/A$ 2.7 Explain the meaning of resistivity and name the unit of resistivity. 2.8 Solve problems relating to laws of resistance	After the Class, Students will be able to know about the laws of resistance	Basic Class Materials & Projector YouTube Link: https://www.youtube.com/watch?v=FoTWEuOSxSg
	03	Understand ohm's law	3.1 state ohm's law. 3.2 deduce the relation between current, voltage and resistance. 3.3 solve problems relating to ohm's law	After the Class, Students will be able relation to know about the between current, voltage and resistance.	Basic Class Materials & Projector YouTube Link: https://www.youtube.com/watch?v=rSHqvjDksg
Date	Lecture	Chapter/ Exam / Industrial Visit	Learning Area	Learning Outcome	Class/Lab Supporting Equipment's
	04	Understand electric circuit.	4.1 define electric circuit. 4.2 name the different types of electric circuits. 4.3 define series circuit, parallel circuit and mixed ckt. 4.4 describe the characteristic of series circuit and parallel circuit.	After the Class, Students will be able to know about the Series & Parallel Circuit	Basic Class Materials & Projector YouTube Link: https://www.youtube.com/watch?v=azK-vVuLwCc https://www.youtube.com/watch?v=xNKBP9u9_8M

		Lab-1	Identifies and uses electrical measuring instrument.	After the Class, Students will be able to know about the electrical measuring instrument.	Must be submitted within two classes
	05	Understand electric circuit.	4.5 calculate the equivalent resistance of series circuit, parallel circuit and mixed circuit. 4.6 solve problems relating to series circuit parallel circuit. Mixed ckt .	After the Class, Students will be able to know about the Problems of Series & Parallel Circuit	Basic Class Materials & Projector YouTube Link: https://www.youtube.com/watch?v=h_yPktKnHq4
		Assignment -01	Chapter: 01,02,03		Must be submitted within two classes
	06	Quiz Test 1	Examination Topic: Chapter 1,2,3 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
	07	Class Test 1	Examination Topic: Chapter 1,2&3 Examination mark: 10 Passing Mark:4	Through class tests students will learn to evaluate themselves on their own	1) Basic Class Materials 2) Examination Copy
		Lab-2	Verification of ohm's law.	After the practical class, student will be known about Sketch the circuit diagram for the verification of ohm's law.	Must be submitted within two classes
Date	Lecture	Chapter/ Exam / Industrial Visit	Learning Area	Learning Outcome	Class/Lab Supporting Equipment's

				List tools, equipment and material required for the experiment. Prepare the circuit according to the circuit diagram using proper equipment.	
	08	Apply the concept of electrical power and energy.	5.1 define electrical power and energy. 5.2 State the unit of electrical power and energy. 5.3 Show the relation between electrical power and energy. 5.4 List the name of instruments for measuring of electrical power and energy. 5.5 Draw the connection diagram of wattmeter and energy meter in an electrical circuit. 5.6 Solve problems relating to electrical power and energy calculation.	After the Class, Students will be able to know about to electrical power and energy calculation.	Basic Class Materials & Projector YouTube Link: https://www.youtube.com/watch?v=PEhkDrhWapI https://www.youtube.com/watch?v=r-SCyD7f_zI
	09	Understand the principles of joule's law.	6.1 Explain joule's law regarding the development of heat in electrical circuit. 6.2 Describe meaning of "j". 6.3 Solve problems relating to joule's law. 6.4 Solve problems relating to joule's law	After the Class, Students will be able to know about the joule's law.	Basic Class Materials & Projector YouTube Link: https://www.youtube.com/watch?v=ZKhS3Imp_OM

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	10	Understand the concept of cells.	7.1 describe the meaning of potential difference. 7.2 define the meaning of cell. 7.3 classify the cell 7.4 define primary cell 7.5 list the different types of primary cell 7.6 describe the construction and principle of action of a simple voltaic cell. 7.7 list the defects of a simple voltaic cell. 7.8 describe the causes of defects of a simple voltaic cell. 7.9 describe the methods of removing the defects of a simple voltaic cell.	After the Class, Students will be able to know about the primary cell.	Basic Class Materials & Projector YouTube Link: https://www.youtube.com/watch?v=dOBddKPmBpg https://www.youtube.com/watch?v=dVGuHgbvN-Y
	Lab-3	Verify the characteristics of series and parallel circuits	Prepare the circuit according to the circuit diagram using ammeter, voltmeter and characteristics of series and parallel circuits. Record the voltage, current, resistance, measured by the ammeter, voltmeter, AVO meter and verify t reading with that of calculated from ammeter and voltmeter	After the Class, Students will be able to know about the characteristics of series and parallel circuits.	Must be submitted within two classes
	11	Understand the construction and principle of action of secondary cell	8.1 define secondary cell. 8.2 describe the construction and principle of action of a lead acid cell. 8.3 list the uses of lead acid cell. 8.4 list the advantages of secondary cell. 8.5 distinguish between a cell	After the Class, Students will be able to know about the principle of action of a lead acid cell.	Basic Class Materials & Projector YouTube Link: https://www.youtube.com/watch?v=HHgPBMMZ26w https://www.youtube.com/watch?v=pXwnnlzhKSE

Date	Lecture	Chapter/ Exam / Industrial Visit	Learning Area	Learning Outcome	Class/Lab Supporting Equipment's
			and a battery. 8.6 describe the series and parallel grouping of cells. 8.7 distinguish between primary & secondary cell		
	12	Understand the concept of capacitors and capacitance.	9.1 define capacitor and capacitance. 9.2 name the unit of capacitance. 9.3 name the different types of capacitors. 9.4 write the uses of capacitor. 9.5 determine the equivalent capacitance of a number of capacitors connected in series. 9.6 determine the equivalent capacitance of a number of capacitors connected in parallel. 9.7 explain the energy stored in a capacitor. 9.8 solve problems relating to capacitor connected in series and in parallel.	After the Class, Students will be able to know about the equivalent capacitance of a number of capacitors connected in series.	Basic Class Materials & Projector YouTube Link: https://www.youtube.com/watch?v=PPhSmZ6w9WY
		Assignment -02	Chapter: 03,04,05,06		Must be submitted within two classes
	13	Understand electro - magnetism.	10.1 describe magnetic field, magnetic lines of force and its properties. 10.2 describe field intensity and magnetic flux density. 10.3 distinguish between absolute permeability and relative permeability.	After the Class, Students will be able to know about the effect of electrical current. magnetic field and current.	Basic Class Materials & Projector YouTube Link: https://www.youtube.com/watch?v=XagIAjE7kHM

			10.4 describe the concept of magnetic effect of electrical current. magnetic field and current.		
Date	Lecture	Chapter/ Exam / Industrial Visit	Learning Area	Learning Outcome	Class/Lab Supporting Equipment's
	14	Understand electro - magnetism	10.5 explain the force experienced in a current carrying conductor placed in a magnetic field. 10.6 State Fleming's left-hand rule. 10.7 Explain the work done by a moving conductor in a magnetic field. 10.8 Explain the force between two parallel current carrying conductor.	After the Class, Students will be able to know about the wires and cables.	Basic Class Materials & Projector YouTube Link: https://www.youtube.com/watch?v=8li1Vp8vLal
	15	Review Class	Review Class of Lecture 10-16 (Regarding students' problem)	Through the review class, students can solve their problem.	Basic Class Materials
	16	Quiz Test 2	Examination Topic: Chapter 5,6,7,8 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
	17	Class Test 2	Examination Topic: Chapter 5,6,7,8 Examination mark: 10 Passing Mark: 04	Through class tests students will learn to evaluate themselves on their own	3) Basic Class Materials 4) Examination Copy
		Exam Syllabus Review			

Mid Exam

Date	Lecture	Chapter/ Exam / Industrial Visit	Learning Area	Learning Outcome	Class/Lab Supporting Equipment's
	18	Understand magnetic circuit	11.1 Define a magnetic circuit. 11.2 Define the terms magnetizing force, magnetomotive force, ampere – turns, reluctance, permeance, permeability, magnetic linkage and leakage. 11.3 Show the relation between magnetomotive force, reluctance and magnetic field intensity or magnetizing force. 11.4 Compare a magnetic circuit with an electrical circuit	After the Class, Students will be able to know about the magnetizing force, magnetomotive force, ampere –turns, reluctance, permeance, permeability, magnetic linkage and leakage.	Basic Class Materials & Projector YouTube Link https://www.youtube.com/watch?v=VDoCC-JDOEA

	19	Understand electro-magnetic induction.	12.1 Define faraday's laws of electromagnetic induction. 12.2 Describe the magnitude of dynamically induced emf and statically induced emf 12.3 Solve problems relating to emf generation. 12.4 Define lens's law and Fleming's righthand rule for determining the direction of induced emf and current. 12.5 Define selfinduced emf and selfinductance. 12.6 Explain inductance of a iron cored inductor. 12.7 Define mutual inductance and coefficient of coupling.	After the Class, Students will be able to know about the lens's law and Fleming's right-hand rule for determining the direction of induced emf and current	Basic Class Materials & Projector YouTube Link https://www.youtube.com/watch?v=OdMUPjDjkdY https://www.youtube.com/watch?v=LDOa7UdfcMQ
Date	Lecture	Chapter/ Exam / Industrial Visit	Learning Area	Learning Outcome	Class/Lab Supporting Equipment's
	20	Understand the uses of wires and cables.	13.1 Define electrical wires and cables. 13.2 Distinguish between wires and cables. 13.3 Describe the construction and uses of pvc, Vir, tars or cuts and flexible wires 13.4 Describe the procedure of measuring the size of wires and cables by wire gauge. 13.5 Describe the current carrying capacity of a wire.	After the Class, Students will be able wires to know about the and cables.	Basic Class Materials & Projector YouTube Link: https://www.youtube.com/watch?v=O83NQsqDvtk

		Understand the usefulness of joints and splices.	14.1 Define the meaning of joints and splices. 14.2 State the five steps of making a joint. 14.3 Describe the procedure to make a pig tail joint, western union joint, Britannia joint, duplex joint, tap joint, simple splice. 14.4 Give example of uses of above-mentioned joints.	After the Class, Students will be able to know about the joints and splices.	Basic Class Materials & Projector YouTube Link: https://www.youtube.com/watch?v=yScMj9gBWG4
	Lab-4	Show skill in measuring the power of an electric circuit.	Prepare the circuit according to the circuit diagram using ammeter, voltmeter and wattmeter. Record the power, measured by the wattmeter and verify it reading with that of calculated from ammeter and voltmeter	After the practical student will be known about Energy Meter & Basic Lab equipment's	Must be submitted within two classes

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Date	Lecture	Chapter/ Exam / Industrial Visit	Learning Area	Learning Outcome	Class/Lab Supporting Equipment's
	21	Understand the different methods of house wiring.	15.1 State the meaning of wiring. 15.2 List the types of wiring. 15.3 State the procedure for channel wiring, surface conduit wiring and concealed wiring. 15.4 State the types of wiring used in: a) Residential building. b) Workshop c) Cinema Hall/auditorium d) Temporary shed 15.5 List the name fittings used in different types of electrical wiring.	After the Class, Students will be able to know about the concept of House Wiring	Basic Class Materials & Projector YouTube Link: https://www.youtube.com/watch?v=JmwL-3rhgwY&t=510s

		Assignment -03	Chapter: 07, 08,09,10		Must be submitted within two classes
	22	Review Class	Review Class of Lecture 21-24 (Regarding students' problem)	Through the review class students can , solve their problem.	Basic Class Materials
	23	Quiz Test 3	Examination Topic: Chapter 13,14,15 Examination mark: 10 Passing Mark: 04	Through Quiz Test students the will learn intellectual on intelligence the topics discussed.	5) Basic Class Materials 6) Examination Copy
	24	Class Test 3	Examination Topic: Chapter 13,14,15 Examination mark: 10 Passing Mark: 04	Through class tests students will learn to evaluate themselves on their own skill.	5) Basic Class Materials 6) Examination Copy

	25	Understand the construction and uses of controlling devices.	16.1 Define controlling device. 16.2 Name the different types of controlling devices. 16.3 Describe the constructional features and uses of tumbler switch, iron clad switch, push button switch and gang switch.	After the Class, Students will be able to know about the controlling devices.	Basic Class Materials
Date	Lecture	Chapter/ Exam / Industrial Visit	Learning Area	Learning Outcome	Class/Lab Supporting Equipment's
		Understand the construction and uses of protective devices	17.1 Define protective devices. 17.2 Name the different types of protective devices. 17.3 Name the different types of fuses used in house wiring. 17.4 Describe the construction and uses of renewable fuse. 17.5 Name the different types of circuit breaker used in house wiring.	After the Class, Students will be able to know about the protective devices.	Basic Class Materials
	26	Understand the necessity of ear thing.	18.1 Define ear thing 18.2 Explain necessity of ear thing 18.3 Name different types of ear thing	After the Class, Students will be able to know about necessity of ear thing.	Basic Class Materials & Projector YouTube Link: https://www.youtube.com/watch?v=05k-6six33U

	Lab-5	Study the operation of different kinds of joint	Make a pigtail joint, T-joint, duplex joint, tap and simple splice joint.	After the practical Class, How to prepare a pigtail joint, Tjoint, duplex joint, tap and simple splice joint.	Must be submitted within two classes
	27	Apply the principle of controlling electrical circuit by switch.	19.1 Sketch the wiring diagram of one lamp controlled by one spot switch and describe its uses. 19.2 Sketch the wiring diagram of one lamp controlled by two spot switch and describe its uses. 19.3 Draw the wiring diagram of one calling bell with a lamp controlled from one point. 19.4 Draw the wiring diagram of a fluorescent tube light circuit. 19.5 Describe the working principle of fluorescent tube light	After the Class, Students will be able to know about working principle of fluorescent tube light	Basic Class Materials & Projector YouTube Link: https://www.youtube.com/watch?v=z55566ep0Hg
Date	Lecture	Chapter/ Exam / Industrial Visit	Learning Area	Learning Outcome	Class/Lab Supporting Equipment's
	28	Understand electricity act/rule of Bangladesh and safety practices	20.1 State electricity act/rule of Bangladesh to be followed in electrical wiring. 20.2 Describe the importance of electricity act/rule. 20.3 Describe safety procedure against electrical hazards.	After the Class, Students will be able to know about electricity act/rule.	Basic Class Materials & Projector

			20.4 List the performance of safety practices for electrical equipment, machines and accessories.		
		Assignment -04	Chapter: 11,12,13,14		Must be submitted within two classes
	29	Quiz Test 4	Examination Topic: Chapter 12,13,14 Examination mark: 10 Passing Mark: 04	Through will learn	7) Basic Class Materials 8) Examination Copy
				intelligence Quiz Test students the discussed. intellectual on the topic s	
	30	Class Test 4	Examination Topic: Chapter 12,13,14 Examination mark: 10 Passing Mark: 08	Through class tests will students learn to evaluate themselves on their own	7) 8) Basic Class Materials Examination Copy

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