Discipline	Semester	Name of the Teaching Faculty
Electrical Engg.	6th	Mr. Hrudendu Garnaik
Subject Electrical Installation and Estimating.	No. of days per week:- 05/Week (4+1)	Semester from : 10.03.2022 To : 10.06.2022 No. of Weeks:- 15

Month	Weeks	class day	Topics Tobe Covered
March	1st	1st	INDIAN ELECTRICITY RULES 1.1. Definitions of Ampere, Apparatus, Accessible, Bare, cable, circuit cb, conductor voltage, Live, temp cut-out
		2nd	conduct; system, danger, installation, earthing System; Low volt, Switch gear.
		3rd	1.2 General Safety precautions Rule 29, 30, 31, 32, 33, 34, 35, 36, 40, 41, 43, 44, 45, 46
		4th	1.3 General conditions relating to supply and use of energy: Rule 47, 48, 49, 50, 51, 54
		5th	Rule 55, 56, 57, 58, 59, 60, 61, 62, 63, 64, 65, 66, 67, 68, 70

Month	week	class day	Topics to be covered
	2nd	1st	1. 14.0H Lines: Rule 74, 75, 76, 77, 78, 79, 80, 86, 87, 88, 89, 90, 91
		2nd	* Tutorial
		3rd	2. ELECTRICAL INSTALLATIONS 2.1 Electrical installation domestic industrial, wiring system, internal distribution of Electrical energy.
		4th	method of wiring, system of wiring, wire and cable, conductor materials used in cables
		5th	* Tutorial
	3rd	1st	insulating materials mechanical protection, types of cables used in wiring.
		2nd	multi stranded cables, voltage grading of cables, general specifications of cables
		3rd	2.2 main switch and distribution boards, conduits, conduit accessories and fittings
		4th	* Tutorial
		5th	Lighting accessories and fittings, fuses, important definitions, determination of size of fuse wire
APRIL	1st	1st	fuse units, Earthing conductor, earthing, IS specifications regarding earthing of electrical installations
		2nd	* Tutorial

Month	week	class day	Topics to be covered
		3rd	Determination of size of earth wire and earth plate for domestic and industrial installations, material required for G.I pipe earthing
		4th	2.3 Aspects of good lighting service, types of lighting schemes, design of lighting schemes
		5th	* Tutorial
	2nd	1st	factory lighting, public lighting, street lighting,
		2nd	General rules for wiring, determination of no. of points (light, fan, socket, outlets).
		3rd	Determination of total load, determination of No. of sub circuits
		4th	Tutorial
		5th	3. INTERNAL WIRING. 3.1 Type of internal wiring, cleat wiring, CTS wiring, wooden casing capping
	3rd	1st	metal sheathed wiring, conduit wiring, and advantages and disadvantages, Appl.
		2nd	* Tutorial

month	week	class day	Topic to be Covered
		3rd	3.2 Prepare one estimate of material required for CT. wiring for small domestic installation of one room and one verandah within 25m² with given Light, fan & plug points
		4th	Continue
		5th	* Tutorial
	4th	1st	3.3 prepare one estimate of materials required for conduit wiring for small domestic installation of one room and one varantha within 25 m² with given Light, fan and plug points
		2nd	continue
		3rd	* Tutorial
		4th	3.4 prepare one estimate of material required for concealed wiring for domestic installation of two rooms and one latrine, bath kitchen and varandah within 50m² with given Light, fan & plug points
		5th	Continue
may	1st	1st	Continue
		2nd	3.5 prepare one estimate of material required for erection of conduit wiring to a small workshop installation about 3hp energy

month	week	class day	Topic to be Covered
			within 10 kW
		3rd	Continue
		4th	Continue
		5th	* Tutorial
		2nd	1st 4 OVER HEAD INSTALLATION
			4.1 main components of OH lines, Line supports, Factors governing Height of pole, Conductor material determination of size of conductor for OH transmission line
		2nd	cross arms, pole brackets and clamps, guys and stays, conductor configuration, spacing and clearance span length, OH line insulators
		3rd	Type of insulators, Lightning arresters, danger plates, anti-climbing devices, bird guards, steps, objectives. Jumpers, tee-off, Jointing of OH lines
		4th	* Tutorial
		5th	4.2 prepare an estimate required for LT distribution line within Load of 10 kW main branches spans involving calculation of the size of conductor

month	week	class day	Topics To be Covered
	3rd	1st	Continue
		2nd	current carrying capacity and voltage regulation consideration using ACSR.
		3rd	4.3 prepare an estimate of materials for LT distribution line within 1 Km 100 KW maximum and standard span involving calculation of the size of conductor (from conductor chart) current carrying capacity and voltage regulation consideration using ACSR
		4th	Continue
		5th	Continue
	4th	1st	* Tutorial
		2nd	4.4 prepare an estimate of materials required for HT distribution line (11 KV) within 2 Km of 1 Km 200 KVA maximum and standard span involving calculation of the size of conductor (from conductor chart, current carrying capacity and voltage regulation of the size of the conductor (from conductor chart) current carrying capacity and voltage regulation consideration using ACSR.
		3rd	Continue
		4th	Continue.
		5th	* Tutorial

month	week	class day	Topics To be Covered
June	1st	1st	5. OVERHEAD SERVICE LINES. 5.1 components of service lines, cable, conductors, bearer wire.
		2nd	Lacing Rod, drill fuse, service support, energy box and meters.
		3rd	5.2 Prepare any estimate for providing single phase supply of 1 Kw of 5 KW (light fan socket) to a single storey residential building
		4th	Continue.
		5th	5.3 prepare any estimate for providing 1-ϕ supply 1 Kw of 3 KW each floor of double storey building having separate energy meter
	2nd	1st	Continue
		2nd	Continue.
		3rd	5.4 prepare one estimate of materials required for service connection to a factory building with 1 Kw 15 KW using insulated wire
		4th	Continue.
		5th	Tutorial

month	week	days	Topic to be Covered
	3rd	1st	5.5 prepare one estimate of material required for service connection to a factory building with load within 15 KW using bare conductor and insulated wire combined
		2nd	continue
		3rd	continue.
		4th	* Tutorial
		5th	6. ESTIMATING FOR DISTRIBUTION SUBSTATIONS. 6.1 prepare one material estimate for following types of transformer substation.
	4th	1st	6.1.1 pole mounted substation.
		2nd	continue
		3rd	continue
		4th	6.1.2 plinth mounted substation
		5th	continue
		1st	continue.
		2nd	Tutorial
		3rd	Tutorial