NILASAILA INSTITUTE OF SCIENCE & TECHNOLOGY
SERGARH-756060, BALASORE (ODISHA)
(Approved by AICTE& affiliated to SCTE&VT, Odisha)

LESSON PLAN

SUBJECT: Th-1 (ELECTRICAL INSTALLATION & ESTMATING)

CHAPTER WISE DISTRIBUTION OF PERIODS

Sl.No.	Name of the chapter as per the Syllabus	No. of Periods as per the Syllabus	No. of periods actually needed
1	Indian electricity rules	6	12
2	Electrical installations	12	9
3	Internal wiring	12	15
4	Over head installation	12	11
5	Over head service lines	12	10
6	Estimating for distribution substations	6	3
	Total Period:	60	60

Discipline: ELECTRICAL ENGINEERING	**Semester:** 6th	**Name of the Teaching Faculty:** Er.Niranjan Barik
Week	**Class Day**	**Theory / Practical Topics**
1st	**1st**	INDIAN ELECTRICITY RULES 1.1 Definitions, Ampere, Apparatus, Accessible, Bare, cable, circuit, circuit breaker, conductor voltage (low, medium, high, EH), live, dead, cut-out, conduit, system, danger, Installation, earthing system, span, volt, switch gear, etc.
	2nd	1.1 Definitions, Ampere, Apparatus, Accessible, Bare, cable, circuit, circuit breaker, conductor voltage (low, medium, high, EH), live, dead, cut-out, conduit, system, danger, Installation, earthing system, span, volt, switch gear, etc.
	3rd	1.1 Definitions, Ampere, Apparatus, Accessible, Bare, cable, circuit, circuit breaker, conductor voltage (low, medium, high, EH), live, dead, cut-out, conduit, system, danger, Installation, earthing system, span, volt, switch gear, etc.
	4th	1.2 General safety precautions, rule 29, 30, 31, 32, 33, 34, 35, 36, 40, 41, 43, 44, 45, 46.
	5th	1.2 General safety precautions, rule 29, 30, 31, 32, 33, 34, 35, 36, 40, 41, 43, 44, 45, 46.
2nd	**1st**	1.2 General safety precautions, rule 29, 30, 31, 32, 33, 34, 35, 36, 40, 41, 43, 44, 45, 46.
	2nd	1.3 General conditions relating to supply and use of energy : rule 47, 48, 49, 50, 51, 54, 55, 56, 57, 58, 59, 60, 61, 62, 63, 64, 65, 66, 67, 68, 70.
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	5th	1.4 OH lines : Rule 74, 75, 76, 77, 78, 79, 80, 86, 87, 88, 89, 90, 91
3rd	**1st**	1.4 OH lines : Rule 74, 75, 76, 77, 78, 79, 80, 86, 87, 88, 89, 90, 91
	2nd	1.4 OH lines : Rule 74, 75, 76, 77, 78, 79, 80, 86, 87, 88, 89, 90, 91
	3rd	2. 1 Electrical installations, domestics, industrial, Wiring System, Internal distribution of Electrical Energy. Methods of wiring, systems of wiring, wire and cable, conductor materials used in cables, insulating materials mechanical protection. Types of cables used in internal wiring, multi-stranded cables, voltage grinding of cables, general specifications of cables.
	4th	2. 1 Electrical installations, domestics, industrial, Wiring System, Internal distribution of Electrical Energy. Methods of wiring, systems of wiring, wire and cable, conductor materials used in cables, insulating materials mechanical protection. Types of cables used in internal wiring, multi-stranded cables, voltage grinding of cables, general specifications of cables.

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4th	**1st**	2. 2 ACCESSORIES: Main switch and distribution boards, conduits, conduit accessories and fittings, lighting accessories and fittings, fuses, important definitions, determination of size of fuse – wire, fuse units. Earthing conductor, earthing, IS specifications regarding earthing of electrical installations, points to be earthed. Determination of size of earth wire and earth plate for
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	4th	2. 3 LIGHTING SCHEME: Aspects of good lighting services. Types of lighting schemes, design of lighting schemes, factory lighting, public lighting installations, street lighting, general rules for wiring, determination of number of points (light, fan, socket, outlets), determination of total load, determination of Number of sub-circuits.
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	2nd	3 . 1 Type of internal wiring, cleat wiring, CTS wiring, wooden casing capping, metal sheathed wiring, conduit wiring, their advantage and disadvantages comparison and applications.
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	4th	3 . 1 Type of internal wiring, cleat wiring, CTS wiring, wooden casing capping, metal sheathed wiring, conduit wiring, their advantage and disadvantages comparison and applications.
	5th	3 . 2 Prepare one estimate of materials required for CTS wiring for small domestic installation of one room and one verandah within 25 m2 with given light, fan & plug points
6th	**1st**	3 . 2 Prepare one estimate of materials required for CTS wiring for small domestic installation of one room and one verandah within 25 m2 with given light, fan & plug points
	2nd	3 . 2 Prepare one estimate of materials required for CTS wiring for small domestic installation of one room and one verandah within 25 m2 with given light, fan & plug points
	3rd	3 . 3 Prepare one estimate of materials required for conduit wiring for small domestic installation of one room and one verandha within 25 m2 with given light, fan & plug points
	4th	3 . 3 Prepare one estimate of materials required for conduit wiring for small domestic installation of one room and one verandha within 25 m2 with given light, fan & plug points

	5th	3 . 3 Prepare one estimate of materials required for conduit wiring for small domestic installation of one room and one verandha within 25 m2 with given light, fan & plug points
7th	**1st**	3 . 4 Prepare one estimate of materials required for concealed wiring for domestic installation of two rooms and one latrine, bath, kitchen & verandah within 80m2 with given light, fan & plug points.
	2nd	3 . 4 Prepare one estimate of materials required for concealed wiring for domestic installation of two rooms and one latrine, bath, kitchen & verandah within 80m2 with given light, fan & plug points.
	3rd	3 . 4 Prepare one estimate of materials required for concealed wiring for domestic installation of two rooms and one latrine, bath, kitchen & verandah within 80m2 with given light, fan & plug points.
	4th	3 . 5 Prepare one estimate of materials required for erection of conduct wiring to a small workshop installation about 30m2 and load within 10 KW.
	5th	3 . 5 Prepare one estimate of materials required for erection of conduct wiring to a small workshop installation about 30m2 and load within 10 KW.
8th	**1st**	3 . 5 Prepare one estimate of materials required for erection of conduct wiring to a small workshop installation about 30m2 and load within 10 KW.
	2nd	4.1. Main components of overhead lines, line supports, factors Governing Height of pole, conductor materials, determination of size of conductor for overhead transmission line, cross arms, pole brackets and clamps, guys and stays, conductors configurations, spacing and clearances, span lengths, overhead line insulators, types of insulators, lighting arresters, danger
	3rd	4.1. Main components of overhead lines, line supports, factors Governing Height of pole, conductor materials, determination of size of conductor for overhead transmission line, cross arms, pole brackets and clamps, guys and stays, conductors configurations, spacing and clearances, span lengths, overhead line insulators, types of insulators, lighting arresters, danger
	4th	4.1. Main components of overhead lines, line supports, factors Governing Height of pole, conductor materials, determination of size of conductor for overhead transmission line, cross arms, pole brackets and clamps, guys and stays, conductors configurations, spacing and clearances, span lengths, overhead line insulators, types of insulators, lighting arresters, danger
	5th	4.2. Prepare an estimate of materials required for LT distribution line within load of 100 KW maximum and standard spans involving calculation of the size of conductor (from conductor chart), current carrying capacity and voltage regulation
9th	**1st**	4.2. Prepare an estimate of materials required for LT distribution line within load of 100 KW maximum and standard spans involving calculation of the size of conductor (from conductor chart), current carrying capacity and voltage regulation
	2nd	4.2. Prepare an estimate of materials required for LT distribution line within load of 100 KW maximum and standard spans involving calculation of the size of conductor (from conductor chart), current carrying capacity and voltage regulation
	3rd	4.3. Prepare an estimate of materials required for LT distribution line within load of 100 KW maximum and standard spans involving calculation of the size of conductor (from conductor chart), current carrying capacity and voltage regulation consideration using ACSR.
	4th	4.3. Prepare an estimate of materials required for LT distribution line within load of 100 KW maximum and standard spans involving calculation of the size of conductor (from conductor chart), current carrying capacity and voltage regulation consideration using ACSR.

	5th	4.3. Prepare an estimate of materials required for LT distribution line within load of 100 KW maximum and standard spans involving calculation of the size of conductor (from conductor chart), current carrying capacity and voltage regulation consideration using ACSR.
10th	**1st**	4.4. Prepare an estimate of materials required for HT distribution line (11 KV) within 2 km and load of 2000 KVA maximum and standard spans involving calculation of the size of conductor (from conductor chart), current carrying capacity and voltage regulation of the size of conductor (from conductor chart), current carrying capacity and voltage regulation consider action using ACSR.
	2nd	4.4. Prepare an estimate of materials required for HT distribution line (11 KV) within 2 km and load of 2000 KVA maximum and standard spans involving calculation of the size of conductor (from conductor chart), current carrying capacity and voltage regulation of the size of conductor (from conductor chart), current carrying capacity and voltage regulation consider action using ACSR.
	3rd	5. 1 Components of service lines, service line (cables and conductors), bearer wire, lacing rod. Ariel fuse, service support, energy box and meters etc.
	4th	5. 1 Components of service lines, service line (cables and conductors), bearer wire, lacing rod. Ariel fuse, service support, energy box and meters etc.
	5th	5. 2 Prepare and estimate for providing single phase supply of load of 5 KW (light, fan, socket) to a single stored residential building.
11th	**1st**	5. 2 Prepare and estimate for providing single phase supply of load of 5 KW (light, fan, socket) to a single stored residential building.
	2nd	5. 3 Prepare and estimate for providing single phase supply load of 3KW to each floor of a double stored building having separate energy meter.
	3rd	5. 3 Prepare and estimate for providing single phase supply load of 3KW to each floor of a double stored building having separate energy meter.
	4th	5. 4 Prepare one estimate of materials required for service connection to a factory building with load within 15 KW using insulated wire.
	5th	5. 4 Prepare one estimate of materials required for service connection to a factory building with load within 15 KW using insulated wire.
12th	**1st**	5. 5 Prepare one estimate of materials required for service connection to a factory building with load within 15 KW using bare conductor and insulated wire combined.
	2nd	5. 5 Prepare one estimate of materials required for service connection to a factory building with load within 15 KW using bare conductor and insulated wire combined.
	3rd	6. 1 Prepare one materials estimate for following types of transformer substations. 6.1.1 Pole mounted substation
	4th	6.1.2 Plinth Mounted substation.

	5th	6.1.2 Plinth Mounted substation.