

Discipline: **ELECTRICAL** Semester: **6** Name of the Teaching Faculty: **En. Kishore Ku Sasmal**

Subject: **ELECTRICAL INSTALLATION & ESTIMATING** No of Days/Week Class Allotted: **4** Semester From date: **10.3.2022** To date: **18.6.2022** No. of Weeks:

WEEK **Class Day** **Theory Topics**

1st **INDIAN ELECTRICITY RULES: Accessible, Bare, Cable, Circuit Definitions, Ampere, Apparatus, Conductor Voltage (Low, medium, high, EH) live, dead circuit breaker, Conductor system, danger installation, earthing system, span, volt etc. conduit, Conduit system, danger installation, earthing system, span, volt etc.**

2nd **General safety precautions rule. 29, 30, 31, 32, 33, 34, 35, 36, 40, 41, 44, 45, 46.**

3rd **General conditions relating to supply & use of energy: Rule 47, 48, 49, 50, 51, 54, 55, 56, 57 & 58.**

4th **General conditions relating to supply & use of energy. Rule. 59, 60, 61, 62, 63, 64, 65, 66, 67, 68 & 70.**

5th **OH lines Rule - 74, 75, 76, 77, 78, 79 & 80**

1st **OH lines Rule 86, 87, 88, 89, 90, & 91**

2nd **ELECTRICAL INSTALLATIONS: Electrical installations, domestic, industrial, wiring system**

3rd **External distribution of Electrical energy. Methods of wiring, systems of wiring, wire & cable.**

4th **Conductor materials used in cables, insulating materials, mechanical Protection**

5th **Types of cables used in external wiring, multi-stranded cables, voltage grading of cables, general specifications of cables.**

1st **ACCESSORIES: Main switch & distribution boards, conduits, conduit accessories & fittings.**

2nd **Fuses, important definitions, determination of size of fuse wire, phase units.**

3rd

4th

5th

Theory Topics

WEEK	Class Day	Theory Topics
	1st	Earthing Conductor, Earthing, IS Specifications regarding Earthing of electrical installations points to be followed
	2nd	Determination of size of earthwire & earth plate for domestic & industrial installations. Materials required for CII pipe earthing.
	3rd	LIGHTING SCHEME: Aspects of good lighting services. Types of lighting schemes.
	4th	Design of Lighting schemes, Factory Lighting, public Lighting installations, Street Lighting.
	5th	
	1st	General rules for wiring. Determination of number of Points (Light, Fan, Socket, outlets)
	2nd	Determination of total load, Determination of number of sub-circuits.
	3rd	INTERNAL WIRING: Types of internal wiring, cleat wiring, CTS wiring
	4th	Modern Casing Capping, metal sheathed wiring, conduit wiring.
	5th	
	1st	Advantages & disadvantages comparison and applications of different types of wiring.
	2nd	Preparation of estimate of materials required for CTS wiring of small domestic installation of one room & one verandah within $25m^2$ area for light fan & Plug points
	3rd	Estimate of materials required for CTS wiring of small domestic installation of room & verandah within $25m^2$ with light, fan, & Plug points.
	4th	Prepare an estimate of materials for conduit wiring of a small domestic installation having one room, one verandah within $25m^2$ with given light, fan and plug points.
	5th	

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WEEK **Class Day** **Theory Topics**

1st Estimate of materials required for conduct wiring for small domestic installation of a room and verandah within 25m² with given light, fan, & plug points.

2nd Prepare an estimate of materials required for concealed wiring for domestic installation of 2 rooms, one latrine hall, kitchen & verandah within 80m² with given light, fan & plug points.

3rd Estimation of materials required for concealed wiring for domestic installation of 2 rooms & one latrine, hall, kitchen & verandah within 80m² with given light, fan and plug points.

4th Prepare an estimate of materials required for erection of conduct wiring for a small workshop installation about 30m² & load within 10KW.

5th

1st Preparation of estimate for erection of conduct wiring for a small workshop installation about 30m² & load within 10 KW.

2nd Estimation for erection of conduct wiring of a workshop installation about 40 m².

3rd **OVERHEAD INSTALLATION:** Main components of overhead lines, line supports, factors governing height of pole.

4th Conductor materials, determination of size of conductor for overhead transmission line, cross arms, pole brackets and clamps, guys and stays.

5th Conductors configurations, Spacing & clearances, span lengths, overhead line insulators.

1st Lighting arresters, danger plates, anti climbing devices, bird guards, heads of ladders, ladders, ladders, ladders, guarding of overhead lines.

2nd Estimation of materials for LT distribution line with load of 100 KW maximum & standard spans involving calculation of size of conductor (form conductor chart), current carrying capacity & voltage regulation consideration using ACSSR.

3rd Preparation of estimate of materials required for LT distribution line within load of 100 KW maximum & standard spans involving calculation of size of conductor, current carrying capacity & voltage regulation consideration using ACSSR.

4th

5th

WEEK	CLASS DAY	THEORY TOPICS
4th	1st	Preparation of estimate of materials required for LT distribution line within load of 100 KW maximum & standard spans involving calculation of the size of conductor (from conductor chart) current carrying capacity & voltage regulation consideration using ACSR.
	2nd	An estimate of materials required for LT distribution line within 100KW load maximum & standard spans involving calculation of size of conductor current carrying capacity & voltage regulation consideration using ACSR.
	3rd	Estimation of materials required for H.T. distribution line (11KV) within 2 km & load of 2000 KVA maximum & standard spans involving calculation of size of conductor (from conductor chart) current carrying capacity & voltage regulation of size of conductor current carrying capacity & voltage regulation consideration using ACSR.
	4th	Estimate for H.T. distribution line (11 KV) within 2 km & load of 2000 KVA maximum & standard spans involving calculation of size of conductor, current carrying capacity & voltage regulation consideration using ACSR.
	5th	Estimate of materials for H.T. distribution line (11KV) within 2 km & load of 2000 KVA maximum & standard spans involving calculation of size of conductor, current carrying capacity & voltage regulation consideration using ACSR.
4th	1st	Estimate of materials for H.T. distribution line (11KV) within 2 km & load of 2000 KVA maximum & standard spans involving calculation of size of conductor (from conductor chart) current carrying capacity & voltage regulation consideration using ACSR.
	2nd	Materials required for H.T. distribution line (11KV) within 2 km & load 2000 KVA maximum & standard spans involving calculation of size of conductor (from conductor chart) current carrying capacity & voltage regulation consideration using ACSR.
	3rd	OVERHEAD SERVICE LINES: Component of service lines, service lines (Cables & Conductors)
	4th	Bearer wire, lacing rod, Aerial Fuse, service support, energy box & meters etc.
	5th	
4th	1st	Prepare & estimate for providing single phase supply of 5 KW load (light, fan, socket) to a single stored residential building.
	2nd	Estimate for providing single phase supply of 3 KW load to a single stored building.
	3rd	Preparation of estimate for providing single phase supply of 3 KW load to single stored residential building.
	4th	Preparation of estimate to provide single phase supply load of 3 KW to each floor of a double stored building having separate energy metre.
	5th	

ARYAN SCHOOL OF ENGINEERING & TECHNOLOGY

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ELEC TRICAL
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 INSTALLATION
 ESTIMATING

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Name of the Teaching Faculty: Faj
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WEEK	Class Day	Theory Topics
13 th	1st	Preparation of estimate to provide single phase supply load of 3KW to each floor of a double storied building having separate energy metre.
	2nd	Estimation for providing single phase supply load of 5KW to each floor of a double storied building having common entry metre.
	3rd	Prepare one estimate of materials required for service connection to a factory building with load within 15KW using insulated wire.
	4th	Estimate of materials required for service connection to a factory building with load within 15KW using insulated wire.
	5th	
14 th	1st	Estimate for service connection to a factory building with load within 15 KW using bare conductor & insulated wire combined.
	2nd	Estimate materials to be used for service connection to a factory building with load within 15 KW using bare conductor & factory building with load within 15 KW using bare conductor & insulated wire combined.
	3rd	ESTIMATING FOR DISTRIBUTION SUB STATIONS Preparation of estimate of materials required for Pole mounted Sub-Station Transformer.
	4th	Preparation of estimate for Pole mounted transformer Substation.
	5th	
15 th	1st	Estimate of materials for construction of Pole mounted transformer Substation.
	2nd	Estimate for Plinth mounted transformer Substation.
	3rd	Plinth mounted Substation.
	4th	Practice for preparation of estimates for both Pole mounted & Plinth mounted Substation.
	5th	