

GANPAT UNIVERSITY									
FACULTY OF ENGINEERING AND TECHNOLOGY (DIPLOMA PROGRAMMES)									
Programme		Diploma Engineering			Branch/Spec.		Electrical Engineering		
Semester		VI			Version		1.0.0.0		
Effective from Academic Year			2020-21		Effective for the batch Admitted in			July2018	
Subject code		1EE2605	Subject Name		ELECTRIFICATION OF BUILDING & COMPLEXES				
Teaching scheme					Examination scheme (Marks)				
(Per week)	Lecture(DT)		Practical(Lab.)		Total	CE	SEE	Total	
	L	TU	P	TW					
Credit	4	0	1	0	5	Theory	40	60	100
Hours	4	0	2	0	6	Practical	30	20	50

Course Learning Outcomes:						
<ul style="list-style-type: none"> <li>• Interpret plan and wiring diagrams of electrification of buildings and complexes.</li> <li>• Calculate the average and peak power requirement of building complexes.</li> <li>• Test a given wiring installation of a building and prepare test report.</li> <li>• Test wiring installation of a multistoried building and commercial complexes.</li> <li>• Estimate the materials and cost of electrification for different buildings.</li> <li>• Test the safety devices in a multistoried building and commercial complexes.</li> </ul>						
Theory syllabus						
UNIT	Unit Content			Unit Learning Outcomes	Marks	Hrs
Unit – I Elements of Electrification	1a. Interpret different electrical engineering drawings of an electrical installation. 1b. Measure and verify current, earthing resistance , insulation resistance and continuity of a wiring installation as per IS. 1c. Describe the safety tests as per IS. 1d. Calculate illumination requirements.			1.1 of Electrical installation 1.2 Reading and Interpretation of Electrical Engineering Drawings, diagrams, plans and layout 1.3 Testing of wiring Installation for verification of current, earthing resistance, insulation resistance and continuity as per IS 1.4 Preparation of testing /supervisory report 1.5 Selection of electrical accessories such as main cable, main switches circuit breakers etc. 1.6 Illumination requirements in high rise, Commercial and public Building 1.7 Economical illumination design	12	12
Unit – II Electrification of Multistoried Buildings	2a. Prepare wiring layout of Electrical installation. 2b. Calculate total load on electrical distribution work. 2c. Prepare specification of wiring material and accessories required for an electrical installation.			2.1 Wiring layout of an electrical installation 2.2 Type of wiring- Concealed /Surface conduit etc 2.3 Calculate number of sub circuits from the total circuit requirement 2.4 Calculation total electrical load on	12	12

	2d. Estimate floor wise electrical material requirements.	distribution work 2.5 Floor wise estimation of material requirements i. Specification of wiring material and accessories. ii. Estimation of total cost of electrification using schedule of rates (SOR). iii. Case Studies 2.6 Requirements of approval from electrical inspection for high rise multistoried building		
Unit - III Electrification of Commercial Complexes and Public Buildings	3a. Interpret Installation drawing and layout of electrical wiring of a commercial complex. 3b. Differentiate between electrification of Residential and commercial Installation. 3c. Calculate Load specification for service connection and nature of supply. 3d. Calculate the correct size of cables, bus bar and bus bar chambers. 3e. Select appropriate mounting arrangements and positioning of switchboards, distribution boards, main switch, type of wire and wiring system. 3f. Estimate the cost of electrification of commercial installation.	3.1 Concept of commercial Installation 3.2 Comparison of Residential and commercial Installation 3.3 Fundamental considerations for planning of an electrical installation system for commercial/Public building 3.4 Special requirements of hotels, theaters, library and cultural halls etc. from electrification points of view 3.5 Estimating and Costing of material and total cost of electrification of commercial complexes and Public buildings	12	12
Unit - IV Distribution System for Multistoried Building	4a. Prepare drawing and layout for an underground service connection. 4b. Calculate Load specifications for an underground service connection of multistoried buildings. 4c. Calculate the size of bus bar, cables, panels, wiring system, type of wire 4d. Decide Mounting arrangements and positioning of switchboards, distribution boards main switch etc. 4e. Estimate the cost of multistoried buildings	4.1 Different Methods of service connection 4.2 Incoming supply to substation for multistoried high rise buildings (building height more than 15m.) 4.3 Distribution panels and bus bar system 4.4 Meter connection-bifurcation of metering-meters as per consumers demand, use of digital – meters for prevention of theft of power 4.5 Cable laying in building, special precautions 4.6 Estimating and costing of electrification of underground service connection of multi-storeyed building.	12	12

<p style="text-align: center;">Unit – V Electrical Safety and IE Rules</p>	<p>5a. Highlight the significance of safety rules to be followed in a Multistoried building. 5b. Conduct safety tests as per IE. 5c. Maintain various safety devices in multistoried buildings. 5d. Maintain Diesel Generator set as a stand by unit</p>	<p>5.1 Importance of safety rules. 5.2 Safety precaution in electrical installation of multistoried buildings i. Fire alarm system ii. Smoke detection system iii. Safety for lifts and escalators iv. Earthing system (IE rules regarding safety) v. Lightning arrestors arrangements vi. Use of ELCB and MCB in an installation vii. Electronic safety locks at the entrance 5.3 Use of National Building Code</p>	12	12
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<b>List of Practical</b>	
1	Draw a complete wiring diagram, of any one of the commercial complexes. (Cinema, hotel, library, cultural hall, hospital etc. A group of 5 students, having one different complex –per group.
2	Interpret and prepare electrical test report of a large building or complex.
3	Calculate load, draw wiring diagram and estimate cost of any given high rise building.
4	Design Economical illumination system for any complex, building
5	Testing of safety Devices in electrical installation in a high rise building.
6	Calculate Load for lift, escalators, air conditioning in high rise building. (A group of 5 students, having one different complex per group.)
7	Prepare field visit report (Important observations) of any high-rise building or Complex for electrical installation and wiring.
8	Perform electrical tests for commercial and high rise buildings as per IS.
9	To study about MCB and ELCB as a protection devices.
10	Testing of safety devices in electrical installation in a high rise building.

<b>List of Instruments/Equipments/ Trainer Board</b>			
1	Digital Multimeter		
2	Clip-on meter		
3	MEGGAR		
4	EARTH TESTER		
5	MULTIMETER		
6	Basic wiring tools-Pliers, Screw drivers and nut drivers ,Wire strippers , Utility Knife, Fishing tools, Measuring devices, Labeling machines, Power drills and drivers, hammer/drills, Power saws		
<b>List of Text Books</b>			
1	Electrical Design Estimation and Costing	Raina K.B. Bhattacharya S.K	Willet Estern Ltd., Latest edition
2	A Course in Electrical Installation, Estimating and Costing	Gupta J.B.	S.K. Kataria and Sons, Latest edition

**List of Reference Books**

1	Electrical Installation in Building	Er. Hari Mohan Johari	Rai Publication
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**Link of Learning Resources**

1	<a href="http://www.edumedia-sciences.com">http://www.edumedia-sciences.com</a>
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