GANPAT UNIVERSITY

FACULTY OF ENGINEERING AND TECHNOLOGY (DIPLOMA PROGRAMMES)

Programme	Diploma Engineering		Branch/Spec.	Civil Engineering	
Semester	I		Version	1.0.0.0	
Effective from Academic Year	2018-19		Effective for the batch Admitted in		June 2018
Subject code	1ES103	Subject Name	Civil Engineering Workshop		

Teaching scheme						Examination scheme (Marks)			
(Per week)	Lecture(DT)		Practical(Lab.)		Total		CE	SEE	Total
	L	TU	P	TW					
Credit	0	0	2	0	2	Theory	0	0	0
Hours	0	0	4	0	4	Practical	60	40	100

Pre-requisites:

Learning Outcome:

The practical should be carried out in such a manner that students are able to acquire different learning out comes in cognitive, psychomotor and affective domain to demonstrate following course outcomes.

I. Develop basic technical know-how of construction activities
II. Apply basic techniques for masonry and concreting works
III. Identify appropriate materials required for each activity
IV. Observe the technical aspects involved in workmanship of various plumbing tasks
V. Provide and fix the false ceiling , aluminium –glass works

DETAILED COURSE CONTENTS

Unit	Content	Hrs
1	**Civil Engineering Activities At Construction Site** • Construction activities like excavation, brick masonry, plastering, concreting, welding, carpentry, plumbing, etc. • Technical aspects involved in workmanship and Safety precautions	
2	**Masonry work and Concreting work** • Types of masonry work (Brick and stone), Type of bonds, Concept of line, plumb, right angle and water level. • Plastering, Pointing, • Flooring, Skirting and Dado • Proper Mixing of concrete, Use of tools like concrete mixtures and vibrators, different types of vibrators. • Types of Formwork and Scaffolding • Centering / Shuttering	
3	**Carpentry, Welding and Drilling work & importance of various Equipments** • Types of woods/timber, Types of tools, machines and accessories for wood works. • Major Equipments: Fitting, Carpentry and Plumbing vice, various types of files for fitting shop, machine and hand hacksaw, monkey spanner, die, chisels, jack plane, furnace, anvil, different types of hammers for various shops, tongs, scissors, hand shear machine, sheet cutter, arc welding machine, welding goggles, welding gloves, gas welding machine.	

	• Types of welding, ARC welding, Gas welding and cutting, welding of dissimilar materials, Selection of welding rod material, welding processes. • Fitting operation like chipping, filing, right angle, marking, drilling, tapping etc. • Drilling machine. • Safety precautions during carpentry, welding, fittings .safety equipments and its use	
4	**Plumbing** • Different types of pipes, joints, taps, fixtures and accessories used in plumbing. • Components (pipes, bends, chambers etc.) used in sanitary/sewerage lines • Planning of water supply and sanitary system for a simple residential building.	
5	**Finishing Works** • False ceiling, POP work, aluminium –glass works • Whitewashing and painting: brush, roller and spray painting, types of finishing, preparation of surface, need of primer for timber, steel and plastered surface.	
Practical content		
1	Join two wooden blocks with the help of dovetail joint. (Using sawing and chiselling operations)(Individual)	08
2	Observe demonstration of Arc welding and Gas Cutting of metal plates. (Group of 20 Students)	04
3	Assemble a pipe line as per given drawing using pipes of one inch diameter, pipes of half inch diameter, nipple, reducer, union, T, elbow, tap etc. (This may involve basic tasks such as marking, cutting, threading, etc and use of appropriate techniques so that water leakage does not occur) and then dissemble this pipe line. (Group of 10 students)	10
4	List out different material use for construction of residential building and conduct local market survey with respect to applications cost & Quality.	06
5	Visit a nearby site where construction is at initial stage and observe for following (if necessary visit two/three times with a gap of a week). If drawings are available relate/match activities with the drawings. (a) Digging and filling (b) Foundation preparations (c) Brick/stone masonry (d) Concrete laying and Curing (e) Laying of sewerage/sanitary lines (f) Bar bending and bar laying for columns, beams and ceiling. (g) Onsite testing for quality (h) Onsite preparation for construction work (i) Erection and removal of form work, scaffolding, centering/shuttering Prepare a brief report on construction activities observed and methods, tools, equipment and materials being used.	08
6	Visit a nearby site where construction is at advance stage and observe for following (if necessary visit two/three times with a gap of a week) : (a) Plumbing (b) Welding , fittings, (c) Plastering (d) Flooring (e) POP work Prepare a brief report on construction activities observed and material, tools, equipment and methods being used.	08

7	Visit a nearby site where construction work is at finishing stage and observe for following (if necessary visit two/three times with a gap of a week): (a) Carpentry work (b) False ceiling and aluminium –glass works (c) White washing/painting work (surface preparation being carried out for timber/steel/plastered surface.) Prepare a brief report on construction activities observed and material, tools, equipment and methods being used. Visit a sensor based equipments and models.	08
8	Open Ended Problems: Apart from above practice jobs a group of students has to undertake one open ended problem/design problem. Few examples of the same are given below. 1. Prepare a model of Building components.	08
Reference Books		
1	B.S. Raghuwanshi Workshop Technology- Dhanpat Rai and sons,New Delhi	
2	PWD- Standard Data Book for Building Work	
3	CPWD work manual CPWD, new Delhi	
4	Workshop Practices, H S Bawa, Tata McGraw-Hill, 2009.	
5	Workshop Practices and Materials, B J Black, CRC Press.	
Open Source Software		
	List of Open Source Software/learning website: http://nptel.iitm.ac.in/courses.php	