

GANPAT UNIVERSITY										
FACULTY OF ENGINEERING AND TECHNOLOGY (DIPLOMA PROGRAMMES)										
Programme		Diploma Engineering				Branch/Spec.		ELECTRICAL/MECHANICAL Engineering		
Semester		I/II				Version		1.0.0.0		
Effective from Academic Year			2018-19			Effective for the batch Admitted in			June 2018	
Subject code		1ES102		Subject Name		Elements of Civil Engineering				
Teaching scheme					Examination scheme (Marks)					
(Per week)	Lecture(DT)		Practical(Lab.)		Total		CE	SEE	Total	
	L	TU	P	TW						
Credit	2	0	1	0	3	Theory	40	60	100	
Hours	2	0	2	0	4	Practical	30	20	50	
Pre-requisites:										
Learning Outcome:										
The theory should be taught and 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. Use surveying tools and equipments for field survey, levelling and measurements.										
II. Calculate different levels and angles, Understand given contour map.										
III. Read and Interpret the building drawing Plan layout of a simple building.										
IV. Select different types of construction materials as per requirements.										
Theory syllabus										
Unit	Content								Hrs	
1	CHAIN AND TAPE SURVEY Principles of survey - Define: Plane surveying - Purpose of reconnaissance survey - List of instruments required - Explain various components of Instruments. - Use of survey instruments on the field - Ranging of survey lines * Base line * Tie line * Check line - Signs used in ranging - types of ranging - Explain ranging a line on field - Conventional signs- its importance, types etc. - Location sketches, key plan, offset, running measurements, selection of stations. Feild book, recording, plotting of details to the scale - Preparation of sheet-using survey details								5	
2	Compass Survey Use of Prismatic compass in surveying. - Procedure of using compass - Component parts of compass & functions - Explain : whole circle bearing (WCB), Fore bearing (F.B.), Back bearing (B.B.)								4	

	<ul style="list-style-type: none"> - Computation of included angles from WCB. - Computation of correct included angles - Effect of local attraction - Establish station from given bearing & length - Explain the procedure for conducting “Chain and Compass Survey” 	
3	<p>Levelling</p> <p>Purpose of levelling</p> <ul style="list-style-type: none"> - Define : Temp.bench mark, Back, Intermediate & fore sight, Collimation plane, Line of collimation, Height of instrument, Reduced level. - Procedure of taking out & placing in of levelling instrument in the box. - Types of levels e.g. Dumpy, Tilting, Wye. - Temp.adjustments of levels. - Taking staff readings & recording them in level book correctly - Computation of reduced levels (RLs) - Apply arithmetic checks. 	4
4	<p>Building Bye-Laws for Industrial building/Sheds</p> <p>Define : Bye-law</p> <ul style="list-style-type: none"> - Provisions of bye-laws related to industrial buildings in I.S. - Application of bye-laws as per IS-1256 explaining the purpose of each bye-law - Layout of industrial shed using relevant bye-laws. - Comment on application of bye-laws for industrial sheds & its design. 	4
5	<p>LAYOUT OF INDUSTRIAL – SHEDS</p> <p>Planning a layout</p> <ul style="list-style-type: none"> - Factors affecting planning - Various considerations like north light, orientation, margins, storages incoming & outgoing materials despatch etc. - Specific requirement for each - Comment on a given layout - Provisions to be made for preparing lay-out - Grouping of working spaces - Rules for parking spaces - Factors in designing industrial sheds like internal roads, light & ventilation, margins, set back, water and sanitary rooms, recreation & retiring rooms, tool room, tiffin room store room etc. - Rules for showing details in layout like margins, road width, compound walls and gates, 	4
6	<p>MACHINE FOUNDATIONS</p> <p>Procedure of designing machine foundations.</p> <ul style="list-style-type: none"> - its purpose - Factors to be considered while designing machine foundations like - Shear settlement - Vibrations, resonance - Operating frequency - Dead load etc. - Various types of failures of machine foundations - Design foundations for simple machine like lathe, compression press, universal testing machine (20 T capacity), electric power hammer etc. - Provision made by I.S. specifications for machine foundations 	5

	<ul style="list-style-type: none"> - Provisions made in I.S.- 2974 - Part - II - Prepare proper foundation plan for IS specifications for the given sample machine. * Precautions to be taken while selecting a design when vibrational forces are predominant. - Selection of appropriate types of machine foundation identifying governing factor causing failure - Types of dynamic loads & their effects on foundations - Selections of appropriate foundation design for withstanding dynamic loads referring IS-2974-Part I and II etc 	
7	<p>Construction Materials</p> <p>Various types of construction materials commonly used.</p> <ul style="list-style-type: none"> - Properties of each material & their acceptable standards - Where they are most suitably used - Estimated market cost of above referred construction materials - Select most suitable construction materials for industrial structures with respect to durability, appearance, economy etc. - Compare the following materials and construction works : <ul style="list-style-type: none"> * Brick work & stone work, on the basis of strength and economy * Lime & cement, on the basis of strength and economy * Wood & steel (as structural members) on the grounds of 	4
Practical content		
Practicals are based on above syllabus.		
Text Books		
1	Text book on Element of Civil Engineering (B H SHUKLA)	
Reference Books		
1	Text book on Surveying & levelling B.C.Punmia	
2	Civil Engg. Drawing Shah,Kale & Patki	
3	Engg. Material S.C.Rangwala	
4	IS.1256-1967, IS.-962 Indian standard	