

GANPAT UNIVERSITY									
FACULTY OF ENGINEERING & TECHNOLOGY									
Programme		Bachelor of Technology			Branch/Spec.		ME/MC/Auto/MR/Civil/EE		
Semester		I / II			Version		2.0.0.0		
Effective from Academic Year			2018-19		Effective for the batch Admitted in			July 2018	
Subject code		2ES106	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	03	00	01	00	04	Theory	40	60	100
Hours	03	00	02	00	05	Practical	30	20	050
Pre-requisites:									

Learning Outcome:									
Upon completion of this course, students will acquire knowledge about the basic areas of civil engineering like water resources engineering, transportation engineering, surveying & levelling, materials used in construction and engineering aspects related to the construction of structures.									
Theory syllabus									
Unit	Content								Hrs
1.	Introduction: Branches & Scope of civil engineering, Various engineering structures, Role of Civil Engineers, Importance of Planning, Scheduling and Construction management.								03
2.	Construction Materials: Introduction, Stones, Bricks, Lime, Cement, Sand, Aggregates, Mortar, Concrete & Timber.								10
3.	Surveying & Levelling Introduction: Purpose, use and principles of surveying, Introduction of Plan, Scale & map, brief history of old surveying techniques, Plane & Geodetic surveying, Classification of survey. Linear Measurements: Instruments used in chaining, Ranging out of Survey lines, Chaining on sloping grounds, Obstacle in chaining. Angular Measurements: Introduction, Prismatic & Surveyors Compass, Types of Bearings and Meridians, Whole Circle Bearing and Reduced Bearings, Fore bearing & Back bearing, Calculation of Angles from bearings and bearings from angle, Included Angles, Magnetic Dip and Declination, Local Attraction, Closing error. Elevation Measurements: Introduction Dumpy Level, Levelling staff, Methods of leveling, Recording and Reducing of levels & numerical based on them, Contour Survey. Modern Tools of Surveying: Introduction to Theodolite, Electronic Distance Measurement Instruments, Total Station, Global Positioning System, Remote Sensing and Geographic Information System								17
4.	Building, Planning & Construction: Principles of planning, Requirements of building, Plan, Elevation & Section, Building Components (Superstructure & Substructure).								06
5.	Water Resources and Hydraulics: Hydrological Cycle, Importance of Hydrology, Classification of Water resources & Requirement of water for various uses, Water conservation management.								05
6.	Transportation Engineering: Role of Transportation in National development, Transportation Ways, Transportation Systems, Traffic control devices, Types of roads, Components of road pavement								05
Practical content									
This shall consist of field and laboratory work based on above content.									
Text Books									
1.	Surveying – I By B. C. Punmia: LaxmiPub.House								
2.	Elements of Civil Engineering Author: Dr. R.K. Jain and Dr. P.P. Lodha Publisher: McGraw Hill Education, India Pvt. Ltd.								

Reference Books	
1.	Building Construction – By B. C. Punmia: LaxmiPub.House
2.	Materials of Construction By D. N. Ghose Publisher: McGraw Hill Education, India Pvt. Ltd
3.	Highway Engineering - Khanna S.K and Justo C.E.G.,Khanna Publishers , Delhi
4.	Hydrology and Water Resources Engineering- By Santosh Kumar Garg, Publisher, Khanna Publishers
5.	Fundamentals of Surveying – By S.K.Roy, PHI Publication
Reference ICT/MOOCs	
1.	http://nptel.ac.in/syllabus/105104101/
2.	http://nptel.ac.in/syllabus/105102088/
3.	http://nptel.ac.in/syllabus/105101087/