

GANPAT UNIVERSITY									
FACULTY OF ENGINEERING & TECHNOLOGY									
Programme		Bachelor of Technology				Branch/Spec.		Civil Engineering	
Semester		III				Version		2.0.0.0	
Effective from Academic Year			2026-27			Effective for the Batch admitted in			July 2025
Course Code		2CI3103		Course Name		Construction Materials and Engineering Geology			
Teaching Scheme						Examination Scheme (Marks)			
(Per week)	Lecture (DT)		Practical (Lab.)		Total		CE	SEE	Total
	L	TU	P	TW					
Credit	02	00	01	00	03	Theory	40	60	100
Hours	02	00	02	00	04	Practical	30	20	50
Pre-requisites									

Course Outcomes									
On successful completion of the course, the students will be able to:									
CO1	Understand the usage, types and properties of traditional and modern construction materials								
CO2	Understand the manufacturing processes and quality considerations of construction materials								
CO3	Explain the importance of geology and relate geological features to their engineering significance.								
CO4	Apply knowledge of rock formation processes and classify igneous, sedimentary, and metamorphic rocks.								
CO5	Analyse structural features like faults, folds, joints, and unconformities, and apply geological knowledge to engineering structures such as dams, tunnels, bridges, and reservoirs.								
Theory Syllabus									
Unit	Content								Hrs.
CONSTRUCTION MATERIALS									
1	Stones and Bricks Types of building stones and bricks, I.S. specification for bricks, bricks manufacturing process, tiles, stone ware pipes and terra cotta production.								3
2	Limes, and Cements Types of limes, and cements, and their usages, mortars, plaster of Paris, geotextile, betonies, and introduction to advanced Material.								5
3	Timber Timber usages in buildings, main varieties of timber, main defects, preservation of timber, allied products, ply-wood, veneers, particle boards.								3
4	Miscellaneous Miscellaneous building materials, iron and structural steel, aluminium, glass, plastics, asphalts, varnishes, distempers, paints and cement paints.								4
ENGINEERING GEOLOGY									
5	Scope of Geology Development of Engineering Geology, geological formation in India, geological processes.								3
6	Minerals and Rocks Physical properties, types and identification.								4
7	Different Geological Structures Folds, faults, joints, dip and strike relation, geological investigation approaches.								4
8	Geological Considerations Tunnels , dams, reservoirs, roads, buildings and bridges, earthquake zone and seismic hazards.								4
Practical Content									

The practical work shall be based on analytical work on the topics mentioned above and will be defended by the candidates.

Text Books

1	Rangwala S. C., “Engineering Materials “, Charotar Book Stall, Anand.
2	Parbinsingh “ Engineering and General Geology ”, Katson Publishing House

Reference Books

1	Technical Teachers Training Institute, “ Civil Engineering Materials “, Chandigarh
2	Gosh D. N., “ Materials Of Construction “, Tata Mcgraw Hill Publication, New Delhi.
3	P. K. Mukerjee , Text Book of Geology , World Press Publisher.
4	V Reddy, Engineering Geology For Civil Engineers.; Oxford & Ibh, 1997, New Delhi
5	F.G.H Blyth, and M.H de Freitas, Geology for Engineers., ELBS, 1974 London
6	C Kesavulu, Textbook of Engineering Geology , Macmillan, India Ltd., 1993, New Delhi
7	Gupta R. B.,” Text book of Engineering Geology “, Vidhyarthi Gruh Prakashan, Pune.
8	Arora D. S., “ Geology for Engineers “, Mohindra Capital Publishers, Chandigarh
9	Maclean A. C. & O. D. Gribble, “Geology for Civil Engineers “, George Allen & Onwin Publication.

ICT/MOOCs Reference

1	http://www.youtube.com/watch?v=aTVDiRtRook
2	https://lecturenotes.in/notes/17159-note-for-engineering-geology-eg-by-nagi-reddy
3	http://www.youtube.com/watch?v=EBiLLJAxBuU
4	http://www.youtube.com/watch?v=R2dNp5tLni0
5	https://lecturenotes.in/subject/145/building-materials-and-building-construction-bmhc
6	http://www.vssut.ac.in/lecture_notes/lecture1424085991.pdf

Mapping of CO with PO and PSO:

COs	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO1 0	PO1 1	PO1 2	PS O1	PS O2	PS O3
CO1	3	2	0	0	2	0	0	0	0	0	0	2	3	2	1
CO2	3	2	0	0	2	0	0	0	0	0	0	2	3	2	1
CO3	3	2	0	0	0	2	2	0	0	0	0	2	2	1	2
CO4	3	2	2	0	0	0	0	0	0	0	0	2	3	2	1
CO5	3	3	2	2	0	2	2	0	2	2	2	3	3	3	3