



## **C.U.SHAH UNIVERSITY – Wadhwan City**

**FACULTY OF:** -Technology and Engineering (Diploma Engineering)

**DEPARTMENT OF:** -Civil Engineering

**SEMESTER:** - III **CODE:** -2TE03CNT1

**NAME – Construction Technology**

### **Teaching & Evaluation Scheme:-**

Subject Code	Subject Name	Teaching Scheme (Hours)				Credits	Evaluation Scheme							
		Th	Tu	Pr	ToTal		Theory				Practical (Marks)			Total
											Internal		University	
							Sessional Exam		University Exam		Pr	TW	Pr	
Marks	Hours	Marks	Hours											
2TE03CNT1	Construction Technology	04	00	02	06	05	30	1.5	70	03	30	20	---	150

**Objectives:** To equip the students with comprehensive knowledge of construction technology and their relevance.

**Prerequisites:-** Basic knowledge of construction technologies.

### **Course Outlines:-**

Sr. No.	Course Contents	Teaching Hours
1	<b>Excavation in Rock and Earth:</b> Definitions- Bits, Cuttings, Drifter, Drills (Abrasion, churn, core, diamond, percussion and shot), blast hole, explosive, safety fuse and blasting cap , Brief description of different types of bits (Carbide insert & button) and drills (Jack Hammers, drifters, churn drills, shot drills & diamond drill) , Selection of drilling method and equipment, Necessity of drilling holes in earth, introduction of tunneling and utility of micro tunneling ,Types of explosives (Dynamite, Slurry, ANFO and Primers), Handling and storing of explosives. Introduction of Equipments used for excavation (shovel, hoe, loader)	13
2	<b>Dewatering of foundations:</b> Necessity and Techniques used – Drains, sumps, pumps, well point system (Single & multiple), various methods of timbering to trenches.	08
3	<b>Scaffolding and Shoring:</b> Definition and utility, types of scaffolding according to use for masonry and finishing works, types of shoring (Raking, dead and flying)	07
4	<b>Concrete:</b> Concreting in different weather conditions (hot and cold weather), underwater concreting, polymer concreting. 4.2Formwork- Definition, requirements of good formwork, types according to material used (timber, plywood, steel, etc.), formwork for various structural members (columns, beam and slab), Causes of failure. Equipments used for concreting- batcher, mixer, batching plant, generator, compressor, concrete pump, builder's hoist, vibrator, etc.	12

5	<b>Structural steel:</b> Member connections (column- beams, beam- beam, gusseted base), welding methods (electric arc welding and oxy-acetylene welding), advantages of welding over riveting, joint detailing, fabrication and erection. Cranes: 5.2Classification and utility of cranes, features of major types of mobile and tower cranes, selection criteria for type of crane.	09
6	<b>Equipment cost:</b> Definitions- salvage value and depreciation , Cost of owning and operating cost, numerical for the calculation of depreciation by straight line method and sinking fund method.	06
7	<b>Precast concrete construction:</b> Member fabrication, storage, transport and erection, equipments used for transport and erection, comparison of precast and cast- in-situ concrete.	06

#### **Learning Outcomes:**

- Knowledge of construction technology and their relevant application.
- Ability to opt for most appropriate technology.

#### **Books Recommended:-**

- Building Construction, Planning Techniques and Method of Construction by **Arora S.P. and Bindra S.P.** publisher Dhanpat Rai and Sons, edition 1997
- Construction Planning, Equipment and Methods by **Peurifoy, R.L., Ledbetter, W.B. and Schexnayder, C.** publisher McGraw Hill, Singapore, 5th edition 1995
- Construction Equipment and its Planning and Application by **Dr. Mahesh Verma** publisher Metropolitan Book Company, New Delhi, 1983
- Construction Equipment and Management by **Sharma S.C.** publisher **Khanna Publishers** New Delhi, 1988.