

GUJARAT TECHNOLOGICAL UNIVERSITY

PDDC - CIVIL ENGINEERING

Semester: 2

Subject Name: Advanced Construction

Sr. No.	Course content
1.	Pile Foundations : Introduction, uses, selection of pile, types of piles, pile spacing, group of piles, efficiency of group of piles, pile cap and pile shoe, load tests on piles, pile driving, pulling of piles, loads on piles, causes of failures of piles, pile driving formulas.
2.	Coffer Dams: Definition, uses, selection of coffer dams, types of coffer dams, design features of coffer dams; leakage prevention, economic height.
3.	Caissons: Definition, uses, construction material, types of caissons, design features of caissons, loads on caisson, floating of caissons, cutting edges, sinking of caisson, tilting of caisson, caisson diseases.
4.	Control of Ground Water in Excavations: Methods, pumping, well points, bored wells, electro-osmosis, injections with cement; clays and chemical; freezing process; vibro-flotation.
5.	Temporary Works: False work for bridges, form work for R.C.C. Wall, slab, beam and column, design features for temporary works, centering for dams and arches of large spans. slip formwork, specialty form work.
6.	Construction of Earthquake Resistant Buildings: Planning of earthquake resistant building, construction of walls –provision of corner reinforcement, construction of beams, columns. Base isolation,
7.	Special Structures, Tall structures, spatial structures, pre-stressed structures.
8.	Demolition of structure, methods, safety.
9.	Construction Equipments and Plants: Mechanical Equipments: Factors affecting selection of construction equipments, economic life of equipments, factors considered for fixing it. - Earth excavating and transporting equipments: Tractors, bulldozers, power shovels, draglines, scrapers, rippers, hoes, wheel type trenching machines, clamshells. - Conveying equipments: Screw conveyors, bucket conveyors, belt conveyors, aerial tramways, cableways. - Hoisting equipments: Pulley and sheave blocks, fork lift trucks, whirler cranes, Derrick cranes, chain hoists, gantry cranes. - Drilling equipments: Drill bits, drifters, steam hammers, wagon drills, shot drills, diamond drills, rotary percussion drills, factors affecting types and methods of drilling.

References Books:

- I** Building Construction by S.C. Rangwala
- II** Building Construction by Gurcharan Singh
- III** Heavy Construction by Vazirani & Chandola
- IV** Construction, Planning, Equipment and Methods by R. L. Peurifoy
- V** Building Construction –Dr. Jha & S.K.Sinha