

# GUJARAT TECHNOLOGICAL UNIVERSITY

## B. E. SEMESTER: VI

### Civil Engineering

Subject Name: **Advanced Construction Technology**  
 Subject Code: **160601**

<b>Teaching Scheme</b>				<b>Evaluation Scheme</b>		
<b>Theory</b>	<b>Tutorial</b>	<b>Practical</b>	<b>Total</b>	<b>University Exam (Theory) (E)</b>	<b>Mid Sem Exam (Theory) (M)</b>	<b>Practical (I)</b>
3	1	0	4	70	30	50

#### Module I

<b>Sr. No</b>	<b>Course Content</b>	<b>Total Hrs.</b>
1.	<b>Pile Foundations :</b> 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.	9

#### Module II:

<b>Sr. No</b>	<b>Course Content</b>	<b>Total Hrs.</b>
1.	<b>Coffer Dams:</b> Definition, uses, selection of coffer dams, types of coffer dams, design features of coffer dams; leakage prevention, economic height.	9

#### Module III

<b>Sr. No</b>	<b>Course Content</b>	<b>Total Hrs.</b>
1.	<b>Caissons:</b> Definition, uses, construction material, types of caissons, loads on caisson, design features of caissons, floating of caissons, cutting edges, sinking of caisson, tilting of caisson, caisson diseases.	9

#### Module IV

Sr. No	Course Content	Total Hrs.
1.	<b>Control of Ground Water in Excavations:</b> Methods- pumping, well points, bored wells, electro-osmosis, injections with cement, clays and chemical, freezing process, vibro-flotation <b>Temporary Works:</b> Form work for R.C.C. wall, slab, beam and column, Centering for arches of large spans and dams, design features for temporary works, Slip formwork, False work for bridges, Specialty form work.	11

#### Module V

Sr. No	Course Content	Total Hrs.
1.	<b>Construction of Earthquake Resistant Buildings:</b> Planning of earthquake resistant building, Construction of walls –provision of corner reinforcement, Construction of beams and columns. Base isolation <b>Special Structures:</b> Tall structures, Spatial structures, Pre-stressed structures. <b>Demolition of structure:</b> Methods, safety.	11

#### Term work:

Shall be based on the above mentioned course content

#### Field Visit:

Field visits based on course content are suggested.

#### Text Books:

1. S.P. Arora & S.P. Bindra, A Text Book of Building Construction, Dhanpat Rai & Sons, New Delhi.
2. S.K. Sarkar and S. Saraswati, Construction Technology, Oxford University Press, New Delhi.
3. B.C. Punamia, Building Construction, Laxmi Publications, New Delhi
4. S.C. Rangwala, Building Construction, Charotar Publication Pvt Ltd. Anand

## **Reference Books:**

1. R. Chudley, Construction Technology Vol. I, II, III, IV, Longman Group Limited, London, 1st Edition, 1977.
2. R. Chudley (revised by R. Greeno), Building Construction Handbook, Addison Wesley, Longman Group, England, 3<sup>rd</sup> ed., 1999.
3. S.S. Ataev, Construction Technology, Mir Publishers, Moscow, 1985