

SYLLABUS

CE 48T: SP. TOP. IN CE: ADVANCED CONCRETE TECHNOLOGY

1. COURSE INSTRUCTOR

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2. COURSE DESCRIPTION

CE 48T Advanced Concrete Technology (3+0+0) 3

Concrete as a construction material; Materials and mix proportioning; Early age properties; Strength and durability; Advancements in concrete technology; High strength/performance concrete; Fiber reinforced concrete; Self compacting/Levelling concrete; Recycled aggregate concrete; Roller compacted concrete; Prolonging service life of RC; Future challenges in concrete technology; Sustainability

Prerequisite: CE 212 Engineering Materials

3. COURSE MATERIAL

Lecture Notes. T. Özturan

Concrete, Microstructure, Properties and Materials. P. Kumar Mehta, P. J. M. Monteiro.

Concrete Technology. A. M. Neville, J. J: Brooks.

4. TOPICS COVERED

1. Concrete as a Construction Material
 - 1.1 Materials & Mix Proportioning
 - 1.2 Early Age Properties
 - 1.3 Strength & Durability
2. Advancements in Concrete Technology
 - 2.1 High Strength Concrete
 - 2.2 High Performance Concrete
 - 2.3 Fiber Reinforced Concrete
 - 2.4 Self Compacting/Levelling Concrete
 - 2.5 Recycled Aggregate Concrete
 - 2.6 Mass Concrete
 - 2.7 Roller Compacted Concrete
3. Future Challenges in Concrete Technology
 - 3.1 Prolonging Service Life of RC
 - 3.2 Sustainability

5. GRADING POLICY

Class Attendance:10%

Class Participation:10%

Midterm Exam:30%

Assignment:20%

Final Exam:30%

6. GOALS FOR THE COURSE

Purpose of this course is to have the students a good understanding of the progress in concrete technology for the purpose of facing with the challenges of extending the uses of the innovative materials to new frontiers of human civilization.

COURSE CONTENT

Weeks	Topics
	Concrete as a Construction Material
1,2	Materials, Mix Proportioning, Early age properties
3	Strength, Durability
	Advancements in Concrete Technology
4	High strength concrete
5	High performance concrete
6	Fiber reinforced concrete
7	Self compacting/levelling concrete
8	Midterm Exam
9	Recycled aggregate concrete
10	Mass concrete
11	Roller compacted concrete
	Future Challenges in Concrete Technology
12	Prolonging Service Life of RC, Sustainability
13	Student Presentations