

1. Course Name:	
Concrete Technology	
2. Course Code:	
CIV21203	
3. Semester / Year:	
1 st / second	
4. Description Preparation Date:	
9-12-2025	
5. Available Attendance Forms:	
Weekly (Theory: 3 hours, Lab: 2 hours)	
6. Number of Credit Hours (Total) / Number of Units (Total)	
Theory: 45 Hours Tutorial: 15 hours Total: 60 hours Total Units: 5	
7. Course administrator's name (mention all, if more than one name)	
Name: Dr. Maloof mahmood Email: maloof.mahmood@muc.edu.iq	
8. Course Objectives	
Course Objectives	1. Providing the student with the necessary skills and mechanisms to deal with the latest developments in scientific and technical progress in their field of specialization. 2. Special care for outstanding students and enabling them to put forward their ideas. 3. Providing the student with high skill and the ability to solve problems and teamwork. 4. Instilling the spirit of diligence and perseverance and encouraging them to create and innovate.
9. Teaching and Learning Strategies	
Strategy	1. Introduce students to definition of Concrete Technology. 2. Self-regulated learning (i.e., planning, monitoring and evaluating one's own learning process in the classwork / Class team work). 3. Practice testing (short question answers and exams). 4. Self-explanation (i.e., explaining to oneself how new information is related to old information or explain steps taken when solving a problem or a task).

1. Course Structure

Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
1	5	Understanding of the composition of Portland cement.	Portland cement; Definition, Raw materials, Manufacture of Portland cement, Chemical compositions of Portland cement, Prosperities and influence of compounds composition, Hydration of cement, Fineness of cement.	Theoretical	Homework
2	5	Understanding of the various types of cement.	Portland cement, Structure of hydrated cement, Volume of products of hydration, Types of cement, Standard Portland cements, Special Portland cement and other cements..	Theoretical	Quiz
3	5	Learning about the classification of aggregate and its properties.	Aggregate: General classification, Sampling, Properties of aggregates, Influence of external, characteristics of aggregates on concrete, bound between aggregate and cement paste, Strength of aggregates, Specific gravity, Bulk density, porosity and absorption of aggregates, Moisture content of aggregates, Bulking of sand.	Theoretical	Homework
4	5	Learning about the contents of aggregate and its grading.	Aggregate: Deleterious substances in aggregate, Alkali-Aggregate Reaction, Alkali-Aggregate carbonates Reaction, Sieve Analysis, Grading Curves, Fineness modulus, Grading Requirements, Practical grading, Oversize and undersize, Gap-Graded Aggregate	Theoretical	Home work
5	5	Introduction to the concept of fresh concrete.	Properties of Fresh Concrete: Workability, Factors affecting workability, Segregation and Bleeding, Compaction of concrete, mixing of concrete, Concrete mixers, Uniformity of mixing, Hand	Theoretical	Exam

			mixing		
6	5	understanding of the properties of fresh concrete.	Properties of Fresh Concrete: Ready-mixed concrete (or pre-mixed concrete), Pumped Concrete, Vibration of concrete, Types of vibrators, Hot weather concreting, Quality of Mixing Water.	Theoretical	Homework
7	5	Learning about the method of curing of concrete.	Strength of concrete: Curing of concrete and methods of curing, Methods of curing, Strength, Factors affecting strength,	Theoretical	Homework
8	5	Learning about the bond of concrete and factors affecting it.	The Bond between Concrete and Reinforcement, Factors Affecting the Bound, Strength of Hardened Cement Paste.	Theoretical	Quiz
9	5	Understanding the concept of elasticity of concrete and other properties.	Elasticity, Shrinkage, and Creep of Concrete: Elastic Modulus, Stiffness, Yield strength,	Theoretical	Homework
10	5	Learning about other properties of concrete..	Shrinkage, Creep, Durability, Permeability, and Frost Resistance of Concrete, Sulfate Attack	Theoretical	Exam
11	5	Learning thr method of mix design of concrete batch.	Concrete Mix design: Selection of materials, Basic data required for mix proportioning.	Theoretical	Homework
12	5	Learning about method of mix design.	British Method of Concrete Mix Design	Theoretical	Homework
13	5	Learning another method of mix design	American Concrete Institute Method of Mix Design (ACI– 211.1)	Theoretical	Report
14	5	More about mix design	Other examples of mix design	Theoretical	Quiz
15	5	Preparatory work	Preparatory week before the final exam	Theoretical	

2. Course Evaluation

The grade distribution is as follows:

Assessment: Formative 40 marks, Mid-term exam 10 marks

Final exam: Theory 50 marks.

3. Learning and Teaching Resources	
Required textbooks (curricular books, if any)	المواصفات العراقية
Main references (sources)	Properties of concrete by A.M. Neville
Recommended books and references (scientific journals, reports...)	
Electronic References, Websites	

Course Description Form
(Concrete Technology)