CIM 101 - Introduction to the Concrete Industry

Course Number	CIM 101
Course Name	Introduction to the Concrete Industry
Course Structure	(2-2-3) (lecture hr/wk - lab hr/wk – course credits)
Instructor	Dr. Mohab A. Hussein
Course Description	This course is designed to provide the student with an in depth understanding of the concrete industry. We will explore all aspects of the industry and students will gain a basic understanding of concrete, historical aspects, the chemistry, properties and uses of concrete, production and delivery, and management of production facilities. Emphasis will be placed on the history, present status, and future vision of the CIM program including the role of the National Steering Committee, Patrons group, and relationships between the five Universities across the nation currently offering the program. Students will also be introduced to concrete construction and contracting, environmental concerns, professionalism, and career opportunities in the concrete industry.
Prerequisite(s)	None
Corequisite(s)	CIM 205
Required, Elective or Selected Elective	Required
Required Materials	Various handouts and other supplemental materials.
Computer Usage	Word, Excel, PowerPoint, OnShape
Student Learning Outcomes (SLO)	By the end of the course students should be able to: 1. Define and recognize various concrete applications and their use. 2. Understand the properties and performance of concrete and the environmental impacts of cement and concrete. 3. Be aware of the issues associated with the production, transport and placing of concrete. Health and safety issues with handling construction materials. 4. Choose between different types of concrete depending on intended application and requirement to strength and environment.

5. Define safety practices.

Class Topics

Topics will include:

- CIM Program
- Professionalism & Resume Writing
- Concrete
- Concrete Reinforcement
- Cement
- Supplementary Cementitious Materials (SCM's)
- Aggregates
- Admixtures
- Mix Design
- Self Consolidating Concrete (SCC)
- Dry Cast Concrete
- Ready Mix Concrete
- Shotcrete

Program Learning Outcomes

The Student Learning Outcomes support the achievement of the following CIM Program Learning Outcomes

OUTCOME 1: an ability to apply knowledge, techniques, skills and modern tools of mathematics, science, engineering, and technology to solve broadly-defined engineering problems appropriate to the discipline; (Relates to SLO 4)

OUTCOME 2 an ability to apply built environment knowledge, project management skills and business acumen to meet specified needs for broadly-defined Concrete Industry problems. (Relates to SLO 1-5)

Academic Integrity

NJIT has a zero-tolerance policy regarding cheating of any kind and student behavior that is disruptive to a learning environment. Any incidents will be immediately reported to the Dean of Students. In the cases the Honor Code violations are detected, the punishments range from a minimum of failure in the course plus disciplinary probation up to expulsion from NJIT with notations on students' permanent record. Avoid situations where honorable behavior could be misinterpreted. For more information on the honor code, go to http://www.njit.edu/academics/honorcode.php

Student Behavior

- No eating is allowed at the lectures, recitations, workshops, and laboratories.
- Cellular phones must be turned off during the class hours – if you are expecting an emergency call, leave it on vibrate.
- No headphones can be worn in class.
- Unless the professor allows the use during lecture, laptops should be closed during lecture.

- Class time should be participatory. You should try to be part of a discussion.

Important Note about Using artificial intelligence (AI)

Student use of artificial intelligence (AI) is permitted in this course for certain assignments and activities. It is not permitted to be used in the assignments noted by the instructor, as doing so would undermine student learning and achievement of course learning outcomes. Additionally, if and when students use AI in this course, the AI must be cited as is shown within the *NJIT Library AI citation page* for AI. If you have any questions or concerns about AI technology use in this class, please reach out to your instructor prior to submitting any assignments.

Grading Policy

Note: Grading Policy is subject to change by Instructor

Assignments	12%
Term Project	20%
Quizzes	25%
Exams	24%
Class Activities	15%
Class Attendance	4%

Letter grades will be assigned based on the following scale:

A	90 to 100
B+	85 to 89
B	80 to 84
C+	75 to 79
C	70 to 74
D	60 to 69
F	0 to 59

Note: Cannot pass course if you have failing grades on exams.

Class Hours

M 10:00 AM - 12:05 PM FMH 319

W 10:00 AM - 12:05 PM MALL PC37

Office Hours

by appointment: mohab.hussein@njit.edu

Fenster Hall 444

Course Outline

WK	TOPIC	LAB
1	Course Introduction & Overview	Final Project Introduction Make 101 Canvas Training in class
2	Concrete	Professionalism & Resume Writing
3	Concrete and Testing	CMU CAD Design
4	Concrete Reinforcement	CMU CAD Design
5	Cement and Supplementary Cementitious Materials	Wood Cutting
6	Aggregates	Exam 1
7	Admixtures	Class Trip (Garden State)
8	Mix Design A	Wood Assembly
9	Mix Design B, ACI 211	Exam 2
10	Self-Consolidating Concrete	Concrete Mix Design A
11	Dry Cast Concrete (Block, Pavers, & Pipe)	Concrete Mix Design B
12	Ready Mix Concrete	CMU Mixing and Pouring
13	Shotcrete	Exam 3
14	ASTM C90 Review	Concrete Break
15	Class Project Presentations	Class Project Presentations
16	**FINAL EXAM WEEK**	