CIM 310 – Concrete Products and Delivery

COURSE NUMBER	CIM 310
COURSE NAME	Concrete Products and Delivery
COURSE STRUCTURE	(2-2-3) (lecture hr/wk - lab hr/wk – course credits)
COURSE DESCRIPTION	This course will provide the student with a basic understanding of managing the order and delivery process common to all concrete products. An emphasis will be given to planning, organizing and controlling at both the management level as well as the supervisory level.
PREREQUISITE(S)	CIM 210
COREQUISITE(S)	N/A
REQUIRED ELECTIVE OR SELECTED ELECTIVE	Required
REQUIRED MATERIALS	1. Main Text: NRMCA Pub. #159- Concrete Plant Operator's Manual 2. Supplementary References: Handouts and other supplemental materials. 3. Access to the CALMS - Command Alkon Learning Management System
COMPUTER USAGE	Word, Excel, PowerPoint, Various Concrete Products and Delivery Software
STUDENT LEARNING OUTCOMES (SLO)	By the end of the course students should be able to: 1. Define various concrete transportation methods. 2. Describe the relationship between transport of concrete and its performance. 3. Explain the issues associated with the production, transport and placing of a perishable product. 4. Apply health and safety principles to the handling of concrete materials. 5. Develop the best handling and transportation routes for concrete loads. 6. Apply technology towards the management of concrete batching, delivery and inspection. 7. Communicate construction concepts effectively through written, oral, and graphical formats.
CLASS TOPICS	An introduction to concrete products and delivery systems, materials and mix design, batching processes, plant operations for both ready-mix and precast concrete, formwork and casting methods for precast elements, curing and storage procedures, transportation methods and equipment, delivery scheduling, handling and placement procedures, inspection practices, quality control and quality assurance processes, safety and health considerations in concrete operations, and best practices for managing concrete delivery and installation on construction projects.
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/science problems appropriate to the discipline; (Relates to SLO 4-6) 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 1-6)

OUTCOME 3 an ability to apply written, oral, and graphical communication in broadly-defined technical and non-technical environments; and an ability to identify and use appropriate technical literature; (Relates to SLO 7)

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 case of Honor Code violations detected, the punishments range from a minimum of failure in the course plus disciplinary probation up to expulsion from NJIT with notations on the student's permanent record. Avoid situations where honorable behavior could be misinterpreted. For more information on academic integrity, go to NJIT University Policy on Academic Integrity.pdf

GENERATIVE AI POLICY

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.

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, please leave it on vibrate.
- No headphones can be worn in class.
- Unless the professor allows the use during lecture, laptops should be closed during class time.

Class time should be participative. You should try to be part of the discussion.

MODIFICATION TO COURSE

The course outline may be modified at the discretion of the instructor or in the event of extenuating circumstances. Students will be notified in class of any changes to the course outline.

GRADING POLICY

Note: Grading policy may be modified by Instructor for each section in the course.

Attendance	10%
Assignments/ Labs	25%
Projects/Presentation	35%
Mid-Term/Final Exam	30%

Grading Legend

GRADE	NUMERIC RANGE
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 having failing grades on final exam

COURSE COORDINATED BY Ricardo Arocha **E-MAIL: AROCHA@NJIT.EDU**

OFFICE HOURS By appointment only

CLASS HOURS

Thursday -Lecture	6:00 PM – 7:55 PM	FMH 314
Thursday - Lab	8:05 PM – 10:00 PM	GITC 2315C

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COURSE OUTLINE: CIM 310 – CONCRETE PRODUCTS AND DELIVERY

Wk	Thurs	LECTURE THURSDAY 6 pm-7:55 pm FMH 314	LAB THURSDAY 8:05 pm-10 pm GITC 2315C
1	4-Sep	Course Introduction Overview Concrete as a Perishable Material CALMS Sign up	CALMS: Concrete Plants Introduction (CIM) (480)
2	11-Sep	Concrete Products Ready-mix vs precast -SCC, high-strength, lightweight, etc.	CALMS: Concrete Plants Introduction (CIM) (480)
3	18-Sep	Design of Concrete Mixes for Delivery Efficiency -Workability, slump, mix design logistics	CALMS: Concrete Plants Introduction (CIM) (480)
4	25-Sep	Ready-Mix Concrete Production -Mixing plants, batching process, admixtures Precast Concrete Production -Forms, curing, lifting anchors, rigging, connections	CALMS: COMMANDbatch Basic Tasks (60)
5	2-Oct	**WELLNESS DAY – NO CLASS**	
6	9-Oct	**COMMAND ALKON GUEST SPEAKER**	
7	16-Oct	Quality Control in Production - ASTM, ACI, NPCA standards, batch records	CALMS: Intro to Concrete Quality Control (30) Ready-Mix Visio Lab: Part 1
8	23-Oct	Catch-up/Midterm Review	Ready-Mix Visio Lab: Part 2
9	30-Oct	**MID-TERM EXAM**	
10	6-Nov	Transportation/Placement Methods for Concrete -Trucks, agitators, pumping, crane placement, rigging	CALMS: History of Dispatching (10) Rigging and Lifting Lab
11	13-Nov	Delivery Route Planning & Scheduling -Traffic, site access, multiple site deliveries Impact of Transportation on Quality -Segregation, setting, temperature effects	CALMS: User Learning Overview: TrackIt (20) Precast Visio Lab: Part 1
12	20-Nov	Inspection of Delivered Concrete Products - Pre/post-placement inspection protocols Quality Assurance in Delivery & Placement - Acceptance testing, inspections, NDT	Precast Visio Lab: Part 2
13	**25-Nov**	Safety in Concrete Handling - Hazards, PPE, OSHA requirements Health & Environmental Considerations - Washouts, dust control, water recycling	**CLASS MEETS TUESDAY NOV. 25TH HOLIDAY – NO CLASS THURSDAY**
14	4-Dec	**PROJECT PRESENTATIONS**	CALMS: Understanding AI and the Basics of Using AI Chatbots (30) Concrete Planning NotebookLM Lab
15	11-Dec	**PROJECT PRESENTATIONS/ FINAL EXAM REVIEW**	
16	18-Dec	**CHECK FINAL EXAM SCHEDULES! DECEMBER 14-20**	