Spring 1-1-2020

# CIMT 315-102: Concrete Construction Methods

Ricardo Arocha

# CIMT 315 – Concrete Construction Methods

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| **COURSE NUMBER** | CIMT 315 |
| **COURSE NAME** | Concrete Construction Methods |
| **COURSE STRUCTURE** | (3-0-3) (lecture hr/wk - lab hr/wk – course credits) |
| **COURSE DESCRIPTION** | This course is designed to provide a detailed study of the many construction methods and applications of concrete. This course is a continuation of CIM 210 and teaches students how to order, batch, transport, handle, finish, and cure concrete mixtures to be used in construction projects. Students will also learn how to prepare structures at the jobsite to receive the concrete, how to minimize risks and common problems, and environmental conditions that could affect the performance of the concrete mixture. |
| **PREREQUISITE(S)** | CIMT 210 |
| **COREQUISITE(S)** | |
| **REQUIRED, ELECTIVE OR SELECTED ELECTIVE** | Required |
| **REQUIRED MATERIALS** | Main Text: **Design and Control of Concrete Mixtures. PCA, 14th or 15th Edition.**<br>**ACI and PCA Publications. ASTM Standards. B**esides, **v**arious resources and handouts will be disseminated in class. |
| **COMPUTER USAGE** | Word, Excel, PowerPoint |
| **COURSE LEARNING OUTCOMES (CLO)** | By the end of the course students should be able to:<br>1. Become familiar with the process of ordering, batching, mixing, transporting, and handling concrete according to the Standards<br>2. Learn how to place, finish, and cure concrete mixtures using tools and techniques that enhance the properties of the material.<br>3. Understand the effects of working with concrete in hot and cold weather.<br>4. Use the proper technique and methods to handle volume changes in the concrete mixture after placement. |
| **CLASS TOPICS** | Batching, Mixing, Transporting, Handling, Placing, and curing concrete. Building and finishing Flat Floors. Jointing concrete for Volume Changes. Hot and Cold Weather Concreting. Pumping Concrete. Pre-Cast and Tilt-Up Concrete. Fibers in Concrete |
| **STUDENT OUTCOMES** | The Course Learning Outcomes support the achievement of the following CIM Program Outcomes and TAC of ABET Criterion 9 requirements<br><br>OUTCOME 1 Understand how each ingredient of concrete affect its properties and performance (Relates to CLO 2)<br><br>OUTCOME 2 Define the concrete problem in the field and understand how to help solving it. (Relates to CLO 3 and 4)<br><br>OUTCOME 3 Develop models appropriate to study of a wide-range of different problems relevant to concrete technology. (Relates to CLO 4) |

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| **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 |
| **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. |
| **COURSE COORDINATED BY** | Ricardo Arocha<br>arocha@njit.edu<br>(732) 489-4634 |

## CLASS HOURS

Thursday -Lecture 6 pm – 8:50pm CKB 341

Contact Information: **arocha@njit.edu or (732) 489-4634**

## COURSE OUTLINE

| Week | Dates | Topic |
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| 1 | 1/23 | Class Introduction, Course Outline. |
| 2 | 1/30 | Lecture: Batching, Mixing, Transporting, and Handling Ready Mixed Concrete |
| 3 | 2/06 | QUIZ # 1. Lecture: Placing, Finishing, and Curing Concrete. |
| 4 | 2/13 | QUIZ # 2. Lecture: Finishing Tools & Tecniques. Jointing Concrete |
| 5 | 2/20 | 1st. TERM EXAM |
| 6 | 2/27 | Lecture: Hot & Cold Weather Concreting. |
| 7 | 3/05 | QUIZ # 3. Pumping Concrete |
| 8 | 3/12 | 2nd. TERM EXAM **Reading Assignment Chapter 9 14th Edition** |
| 9 | 3/19 | SPRING BREAK |
| 10 | 3/26 | QUIZ # 4 Concrete Mix Design Proportioning Exercise.<br>Homework Assignment. (Proportioning Exercise) |
| 11 | 4/2 | GUEST SPEAKER. TBD. |
| 12 | 4/09 | GUEST SPEAKER. TBD. **3rd. TERM Project Assignment** |
| 13 | 4/16 | Review of Mix Design Proportioning. |
| 14 | 4/23 | GUEST SPEAKER. TBD. |
| 15 | 5/2 | **3rd. TERM EXAM (Project Presentation, 2nd. Group)** |
| 16 | 5/7 | **3rd. TERM EXAM (Project Presentation, 2nd. Group)** |
| 17 | 5/14 | FINAL EXAM |

## GRADING POLICY

Note: Grading Policy may be modified by Instructor for each Section in the Course)

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| Attendance & Class Participation | 20% | |
| Quizzes | 10% | |
| Homeworks | 10% | |
| Term Exams (average 3 exams) | 30% | |
| Final Exam | 30% | |
| Social Events, CIM Activities | 5% | Based on Min. 4 events, and Proof of Attendance. EXTRA POINTS. |

Letter grades will be assigned based on the following scale

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| A | 90 - 100 |
| B | 80 – 89 |
| C | 70 – 79 |
| D | 60 – 69 |
| F | 0 - 59 |

**Note**: **Cannot pass course if you having failing grades on final exam**

## 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 head phones can be worn in class.
- Unless the professor allows the use during lecture, laptops should be closed during lecture.
- **Class time should be participative. You should try to be part of a discussion**