Department of Engineering Technology
Concrete Industry Management Technology Program
Course Syllabus 2022

Course Number and Title: CIMT 205
COURSE NAME: Concrete Properties and Testing

Course Location and Hours:
Thursday Lecture & Lab 6:00 PM – 10:00 PM
Lecture @ FMH 404
Lab @ Colton Hall 121

Course Description:
This course consists of classroom lecture followed by concrete laboratory. Time will be split as required. By the end of the semester the student will demonstrate understanding and command of the following topics:

Know how to assemble, write, and present laboratory reports.
Know how to read, use, and report ASTM standards
ACI Field Level 1 Certification
Concrete components, properties, and testing
ACI 211 Absolute Volume Mix Design
Fresh and hardened concrete testing
Other concrete applications

Textbooks and Course Materials:
(1) ACI Certification, Aggregate Testing Technician, Level 1
(2) ACI Certification, Concrete Field Testing Technician, Grade 1

Field Trip(s): To be announced. Attendance is Mandatory.

COURSE COODINATED BY: Prof. Mina Saleeb

Office:
The Instructor shall be available in his office (GITC 2512) for consultation, at the times for office hours. Should these times be inconvenient for the student, additional hours are available upon appointment. The instructor may be reached by telephone at 973-596-6505 or by e-mail at mina.saleeb@njit.edu E-mail is generally preferred.

Office Hours:
Thursday 4:00 PM – 6:00 PM
Or by appointment

Attendance Policy and Student Conduct:
It is the student's responsibility to attend class. If a class is missed, the student is responsible for all material and announcements provided during his/her absence.

During the conduct of the class, professional courtesy is expected. This includes ***arriving on time*** as well as leaving during class. Similarly, "private" conversations with fellow students during a class are discourteous and inconsiderate to both your Instructor as well as your fellow students. You are encouraged to ask any questions that you feel further clarifies the material being presented or that will be to the benefit of class in general. Please feel free to ask any question at any time.

Grading Criteria:

Fifteen-minute quiz each class, two tests and a Final Examination shall be administered throughout the course. Quizzes shall cover all the material taught in the class up to the time of the quiz. The tests shall cover only the material designated by the Instructor. The Final Examination shall be a comprehensive examination of all material covered during this course. It is mandatory that the tests and the final examination be taken to successfully complete course. It is strongly encouraged that all students make every effort to attend the tests and the examination as make-up tests are strongly discouraged. In the event that a student fails to take the tests or the Final Examination, a grade of "F" shall be entered for the student for this course. Unless otherwise announced by the Instructor, the quizzes, the tests and the examination will be of the "closed notes-closed book" variety.

Homework assignments will be used to assess the student's progress during the course as well as to be employed to assess the quality of student's effort and understanding of the material presented. All homework shall be graded for accuracy. Homework may be covered in class as a review for the student. It is the intent to assign 13 homework assignments during the course of the semester and the grade on the lowest homework assignment will be dropped. In the completion of homework assignments, the assignment should be logically presented with citation to reference materials properly presented. It is suggested that, whenever possible, final answers be underlined or "boxed". All assignments are due at the beginning of the class session as designated on the assignment or as assigned by the Instructor. ***Late homework will not be accepted – no exceptions.***

The student's name should appear on the upper right hand corner, followed by the date, the assignment number and description as shown below. No cover or cover sheet is required.

*********Sample Assignment Heading *********

CIMT XXXX John Smith
Assignment No. XXXX September 1, 2020

In determining the final grade for this course, all grades shall be weighted as follows if the class is back to face to face:

20% Reports & Homework
20% Midterm
5% Midterm Performance examination
20% Quizzes
20% Final Performance Examination
10% Final
5% Class Participation and Laboratory Demeanor

If class is Virtual this grading will be as follows:

20% Reports & Homework
20% Midterm
15% Quizzes
30% Final
15% Class Participation and Laboratory Demeanor

Grading Scale:
The grade of Incomplete will only be granted in the case of an extreme emergency on the part of the student, demonstrated by appropriate documentation. Your Instructor reserves the right to vary the above as necessary based on the results of the course.

Professional Communications:
All communications between the student and Instructor (homework, reports, papers, emails, etc.) are professional communications and should be treated as same. Use of slang and computer short-hand are improper and should be avoided.

Introduction to Laboratory work

Scope of Laboratory Work:

To give the student an understanding of the physical properties of concrete its components, and to teach methods of testing these properties

To provide practice in the art of making concrete by handling of the materials

To provide familiarity with Concrete Testing equipment and procedures

To provide a platform for improving communication skills through report writing and presentation

To provide experience in leadership and teamwork

Procedures Used In Laboratory Tests

The test methods and procedures used during lab sessions are adapted from, and are in accordance with, the standards devised by the American Society for Testing and Materials.

Student Responsibilities

Attendance
Prompt and regular Classroom and Laboratory attendance is required. Much of the laboratory work is group oriented so the loss of one person affects the entire team.

Preliminary Preparation
Each laboratory exercise and appropriate class notes should be studied and reviewed prior to each session. Procedures should be reviewed so that work in the laboratory will progress smoothly.

Class Organization
The instructor will divide the class into groups of three or four students to maintain active participation by each member. These groups will remain the same for the entire semester.

Care of Facilities and Equipment
The laboratory facilities and equipment are provided to augment the learning of all the students. Facilities must be properly cared for to ensure their continued availability. Recycling is the rule, place bottles and cans in proper receptacle, place other trash, especially food waste, in proper trash can.

Cleanup Procedures

Concrete equipment must be kept clean and organized. After a laboratory session, cleanup is required and necessary to maintain the equipment in working order. If concrete is allowed to set up in the equipment, then the purchase of new equipment may become necessary.

Excess or waste concrete should be dumped into shallow containers to which hardened concrete will not stick for disposal. Wheelbarrows lined with plastic are ideal containers.

Items coated in concrete **should not be washed out in a conventional sink**. Concrete can cause severe pipe damage. **Use the wash down pit** to clean all fresh concrete off small and large equipment. Large equipment should be hosed down and brushed thoroughly after each use.

All equipment and apparatus should be left clean and organized before departure from the session. Waste materials should be placed into the appropriate receptacle.

Materials and Apparatus
Materials must not be moved until students are sure of their instructions. Machines must not be operated until students have been "checked-out", that is properly instructed Any breakage of equipment should be reported immediately.

Scales and Balances
Check scale for capacity and never overload. Use weighing devices with care and do not shock load. Check for balanced condition and recent calibration to ensure accuracy.

Testing Machines
Do not use testing machine until instructions have been given and permission obtained from instructor.
Know the machine's capacity and never overload. Be familiar with proper load range of the machine.
Apply loads at specified rates.
Observe all safety precautions.
Leave the machine clean and with all controls in the "off" position when session is completed.

Miscellaneous Equipment
Fine sieve trays are ruined with coarse bristle brushes.
Hot aggregate can damage fine sieve trays
Be careful when working with an oven. Be mindful of loose clothing, hair, etc.
Use thermometers with suitable temperature range.

Safety Precautions

1. Report all accidents to lab instructor immediately.
2. Know where the first aid kit is located.
3. Approved safety goggles are to be worn.

4. Heavy gloves are to be worn when working with material above 140 degrees F.
5. Filter masks are to be worn when working with fine particulates.
6. Lab coats are available in the lab for usage.
7. Wear appropriate clothing for the lab.
8. Work efficiently and do not rush. Many accidents are caused by carelessness.
9. Know how to work/operate the equipment before you use it.
10. Be careful in proximity to others.
11. Use of any personal equipment is forbidden without prior approval of the instructor.
12. Lift heavy objects properly and obtain help with objects greater than 50 lbs.
13. Never climb on anything except an approved ladder.
14. Know where the fire escapes and fire extinguisher is located.

Laboratory Exercises

Each laboratory session will start with an overview and description of the required assignment. All equipment and materials to be used will be specified so there is no confusion. When in doubt, ask the instructor!

Reports

Requirements. Each student is responsible for submitting a separate report for each test performed. The reports should be computer generated and bound with a staple, paper clip or folder. The instructor will indicate due dates for the reports.

Format.

Cover Page

- CIM logo
- Title of the test
- Laboratory session number
- Students / Professor name
- Group number and member names
- Date due

Body of report

Title

Objective of test (what property are you measuring?)

Scope of test (why are you measuring)

- A description of materials and equipment used (range of scale)

Procedure

- Procedural References ASTM standards
- Procedural summary (past tense, sequential order, ASTM reference).
- Enumerate deviations (there are some), the effect and significance of each.

Data

- The data should be tabulated in a systematic format.
- All equations and formulas used should match ASTM and be stated with clear definitions and symbol descriptions. Sample neat handwritten computations are acceptable and must be provided in proper ASTM form.

Results

- Test results should be clearly summarized in tabular and/or graphical form.

Discussion/Conclusion

- Clearly state all the required results. Give a brief discussion of the test results drawing conclusions based on lectures and reference reading.
- Respond in narrative form to questions posed in the handouts or by the instructor.
- Briefly explain any problems encountered and what the effect such a problem has on the test results.

References:

Lists the publication details of all sources cited in the text, allowing readers to locate sources quickly and easily. usually follows a specific referencing style)

Appendix