



## **Introduction to Civil Engineering Materials CIV K101**

### **Fall 2011 Syllabus**

### **Friday, Room B107, 5:45 – 8:30 pm**

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**Instructor:** Prof. Wanda Short  
**Office:** C 128  
**Email:** wshort@trcc.comnet.edu  
**Telephone:** (860) 885-2349 office  
**Office Hours:** Tues/Thur 1:00 – 2:00 PM; Wed 3:00 – 4:00 PM; Other Dates/Times by Appointment

#### **Course Descriptions:**

#### **CIV\* K101 (3 Credit Hours) Introduction to Civil Engineering Materials**

*Corequisite: MAT\* K137 or permission of the program coordinator.*

This course will familiarize students to the field of civil engineering and engineering materials. The discussions will include engineering materials past and present as well as the function of the civil engineer and how their role influenced history. Engineering materials such as aggregates, concrete, asphalt, steel, wood and other traditional as well as newer materials will be studied. Students will examine the physical properties, the composition, and the many uses of engineering materials in our daily lives. Students will be introduced to the “greening” of civil engineering techniques and methodologies. Sustainable infrastructures as well as our landscapes will be explored. Students will learn about the important role that civil engineers play in our everyday lives and how civil engineers developed our infrastructure from the beginning of time to the present and beyond to meet the challenges of the future. Students will visit several sites throughout the semester and have guest speakers from agencies, private firms and industry.

#### **Learning Outcomes:**

- Students will gain a fundamental understanding of basic engineering materials.
- Students will gain an understanding of the role(s) of the civil engineer in society.
- Students will gain an insight to the changing technologies for more sustainable design.

#### **Textbook:**

**Basic Construction Materials**, 8<sup>th</sup> edition, Theodore W. Marotta; ISBN: 9780135129692

#### **Instructor Assistance:**

Seeking help from the instructor outside of class is encouraged if you are having difficulty understanding course material. Feel free to Email/call for an appointment during office hours.

#### **Academic Integrity:**

Academic integrity is essential to a useful education. Failure to act with academic integrity severely limits a person's ability to succeed in the classroom and beyond. Furthermore, academic dishonesty erodes the legitimacy of every degree awarded by the College. In this class and in the course of your academic career, present only your own best work; clearly document the sources of the material you use from others; and act at all times with honor. A grade of “0” may be assigned upon infraction of this policy.

#### **Attendance:**

This course is designed in such a way that a student should get more from the in-class activities than from the textbook alone. Therefore, students are expected to attend class regularly. Though students will not be penalized for non-attendance, they will be responsible for material covered in their absence. It will be the student's responsibility to determine what assignments have been missed and to ensure that they are made up in a timely manner.

### **Class Room Policies:**

Cell phones brought to class shall be off and out of site (no texting). Language and behavior that is disrespectful, or disruptive, to others is unacceptable; Students should refer to their Student Handbook for examples of such behavior as well additional school policies.

### **Assignments:**

Quizzes or homework missed for any reason cannot be made up unless **prior** arrangements have been made with the instructor.

**Final Grade** – The student’s final grade will be based on the weighted average of quizzes and papers which will account for 80% of your grade. Assigned homework and a portfolio will make up the remaining 15% and 5%, respectively. Attendance will be noted for each class and may be used for extra-credit of 1 to 3 points in determining final grades.

**Home Work** – Assigned on Tuesday and will be due on the following Tuesday unless otherwise noted. Homework will be turned in at the beginning of class. Students must **SHOW ALL WORK FOR MATH RELATED PROBLEMS**. Homework will be graded and returned by the following Tuesday.

Home work will receive a grade of 0, 1, 2, 3, or 4

- Not Attempted = 0
- Minimal Attempt = 1
- Moderate Attempt and Poor Results = 2
- Moderate Attempt and Fair results = 3
- Good Attempt and Largely Correct results = 4

Late home works, unless otherwise excused, will be marked at 25% off.

**“Lab” Grades:** As there is no formal lab associated with this course we will engage in a number of “mini” labs associated with various materials. Write ups for these mini labs will be part of your homework grade. Missed labs generally cannot be made up, and will receive a “0” grade, unless arrangements have been made with the instructor.

**Quizzes** – Students will be allowed one 8 1/2 x 11 sheet of paper, doubled-sided, for formulas and conversion factors only (no definitions or other written notes).

Students must have their **calculators, cell phones will not be allowed** as a substitute; failure to bring a calculator will result in lost points as many questions will be impossible to answer without one. Quizzes will be based on lecture material and all assigned sections of the text, and homework.

Quizzes will be assigned a value by the instructor; quiz grades will be the number of points earned on the quiz divided by the total value of the quiz. Points earned for each problem will be awarded in a similar manner as noted in the homework section.

**Portfolio Course Requirements** – Students will assemble a **notebook**, to be made up of lecture notes, assignments, reports, papers and quizzes.

### **Withdrawal:**

A student who finds it necessary to discontinue a course must complete a "Withdrawal Request Form" available in the Registrar's office within the time limits of the semester calendar. Students who do not withdraw, but stop attending will be assigned an "F" signifying a failing grade.

### **Disabilities Statement:**

If you are a student with a disability and believe you will need accommodations for this class, you must contact the Disabilities Counseling Services at 860/823-2830. To avoid any delay in the receipt of accommodations, you should contact the counselor as soon as possible. The instructor cannot provide accommodations until an accommodation letter from the Disabilities Counselor is received.

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**LECTURE SCHEDULE**

**Chapter 1 – Introduction**

- **Additional Lecture material:** The Crumbling of America – The loss and demise of our infrastructure.
- **Homework #1:** 3, 7, 8, 9, 12, 15, 18
- **Quiz 1:** Chapter 1 and Lecture Material

**Chapter 2 – Aggregates**

- In class exercises with soils related to size, texture, etc. with a sieve test being performed.
- Additional Lecture material: Roots of Engineering – the roles of “Civil Engineering” in the transformation of humans from “hunter-gathers” to an agrarian society.
- **Homework #2:** 1, 2, 3, 5, 7a & 7b, 8, 9  
15, 17, 21, 23
- **Quiz 2:** Chapter 1 and Lecture Material

**Chap. 3 – Asphalt**

- Additional Lecture material: Roots of Engineering (continued) – the roles of “Civil Engineering” in the growth of societies, particularly the introduction of water transportation, drainage, sanitation, and constructed roads.
- **Homework #3:** 1, 3, 7, 9, 14, 17, 20, 23
- **Paper 1:** Trace and discuss the role of water and engineering. Hand out to be supplied, due date to be assigned
- **Quiz 3:** Chapter 3 and Lecture Material

**Chap. 4 – Portland Cement Concrete**

- Students will develop and make a concrete mix
- Additional Lecture material; Roots of Engineering (continued) – The roles of “Civil Engineering” with an introduction of “structural” design in the middle ages. Development of steel, steam, portland cement, railroads and the “industrial” revolution.
- **Homework #4:** 1–4, 6, 7, 13, 16  
18, 24, 25, 27, 28
- **Quiz 4:** Chapter 4 and Lecture Material

**Chap. 5 – Iron and Steel**

- Additional Lecture material – Continuation of lecture material begun with Chapter 4.
- **Homework #5:** 1–9  
10–17
- **Paper 2:** Subject and due date to be assigned
- **Quiz 5:** Chapter 5 and Lecture Material

**Chap. 6 – Wood**

- In class exercise to determine density and species of various wood samples.
- Additional Lecture material – Emerging technologies and sustainable design.
- **Homework #6:** 1–10  
11–22
- **Quiz 6:** Chapter 6 and Lecture Material