



**School of Applied Engineering and Technology
Department of Engineering Technology
Construction Engineering Technology Program
Course Syllabi**

Course Number and Name: CET 431, Construction Testing Environmental Science

Credits and Contact Hours: Credits - 3; Contact Hours – 2.0 Hours Lecture, 2 Hours Lab

Course Coordinator's Name: John A. Wiggins, P.E., Senior University Lecturer & Program Coordinator

Text Book and Supplemental Materials:

Specific Course Information

a. Brief Description of the content of the course

Exposure to a variety of construction-related field tests and field testing equipment. Includes concrete mix design, concrete testing, soil density and compaction, asphalt tests, load testing of wood, mortar analysis and testing, brick and CMU testing, and quality control methods and procedures for finishes.

b. Prerequisites or Co-requisites: Prerequisite: MET 237, Strength of Materials for Technology

c. Course Status: Required Course

Specific Goals for the Course

Specific Outcomes of Instruction

Upon completing this course, students will be able to:

- 1) Understand and utilize physical testing lab in order to determine physical properties of various materials.
- 2) Select the best and most economical material for the required function
- 3) Design calculations for concrete mix design, and Hot mix asphalt
- 4) Identify the best material or the best mix design for hot mix asphalt and concrete. Identify problems with soil and aggregates.
- 5) Presentation of calculations in a professional manner, and ability to work in teams in a lab setting
- 6) Students will be required to research various technical topics utilizing appropriate technical literature, and develop solutions to real world problems
- 7) Students will complete on time and present materials in a professional manner
- 8) Students will properly design concrete, and hot mix asphalt, review all types of materials to ensure compliance based on construction documents.
- 9) Selection of proper materials based on construction specifications

Relation to Student Outcomes

(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;

(2) an ability to design systems, components, or processes meeting specified needs for broadly defined engineering problems appropriate to the discipline;

(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;

(4) an ability to conduct standard tests, measurements, and experiments and to analyze and interpret the results to improve processes; and

c. utilization of measuring methods, hardware, and software that are appropriate for field, laboratory, and office processes related to construction;

d. application of fundamental computational methods and elementary analytical techniques in sub-disciplines related to construction engineering;

g. production and utilization of documents related to design, construction, and operations;

Brief list of topics covered

Sieve analysis, aggregate testing, concrete mix design and testing.