



NORTH CAROLINA AGRICULTURAL AND TECHNICAL STATE UNIVERSITY

Course Syllabus CIEN 460

Course Information

Course Number/Section CIEN 460 (CRN 11860)
Course Title Water Resource Engineering Design

Term Fall Semester 2015 (McNair 135)
Days & Times Tuesdays and Thursdays 3:00 PM - 4:15 PM

Professor Contact Information

Professor Dr. Manoj K. Jha, P.E.
Office Phone 336-285-3678
Email Address mkjha@ncat.edu
Office Location McNair Hall - Room 456
Office Hours Monday through Thursday 10 AM - 12 PM

Course Pre-requisites, Co-requisites, and/or Other Restrictions

CAEE 362 (Fluids Mechanics), CAEE 363 (Fluids Lab), and CAEE 364 (Eng. Hydrology)

Course Description

This course involves the application of hydrologic and hydraulic principles in the analysis and design of water resources systems. Topics include rainfall-runoff analysis (design storm, streamflow generation), design of urban landscapes (water efficiency), design of low impact developments (green infrastructures), design of open channel (efficient and natural channel), flood control structures (reservoir, spillway), water distribution systems (demand, pipe flow analysis, Hardy-Cross, pumps), and storm and sanitary sewer systems (design flow, culvert, gutter). Class project with report writing and class presentation is the integral part of the course.

Student Learning Objectives/Outcomes

1. Rainfall-runoff relationships
2. Design of open channels
3. Design of reservoir operation
4. Design of water distribution system
5. Design of storm and sanitary system
6. Enhance critical thinking skills; and
7. Enhance communication skills

Required Textbooks and Materials

Larry W. Mays, *Water Resources Engineering*, 2nd Edition, 2010. John Wiley & Sons, ISBN 978-0-470-46064-1

Suggested Course Materials

1. Any book related to water resources engineering
2. Lecture notes

Assignments & Academic Calendar

Topics, Reading Assignments, Due Dates, Exam Dates

Midterm exam (October 8)

Fall break (October 13)

Thanksgiving break (November 26)

Term Project presentation (December 1)

Final comprehensive exam (December 9 at 3:30 PM – 5:30 PM)

Grading Policy

Class Participation	5%
Homework	20%
Quiz	10%
Mid-term exam	20%
Final comp. exam	30%
Term project	15%

Grading Scheme

A (4.0)	92-100	B+ (3.3)	84-88	C+ (2.3)	72-76	D+ (1.3)	60-64
A- (3.7)	88-92	B (3.0)	80-84	C (2.0)	68-72	D (1.0)	56-60
		B- (2.7)	76-80	C- (1.7)	64-68	F (0.0)	< 56

All grades (quizzes, assignments, mid-term, final) will be posted in the BlackBoard within 2-business days of the event. Any problems with grading (missing and/or incorrect grades) must be rectified within 1 week of the posting. No considerations will be made for any matter brought after a week time.

Course Policies

Extra Credit

None

Late Work

No late submission accepted after 5pm of the due date. May submit in the class or drop in the mailbox or electronically (email). Email submission is accepted ‘only’ if it is formatted well enough for printing.

Special Assignments

None

Class Attendance

Class attendance is mandatory. Absences should be preceded by notification (email or otherwise). Attendance will be taken at random and class participation score will be partly based on these records. More than 3 unexcused absences will reduce the grade by one letter. It will be considered “late” after 5 min., and “absent” after 10 min. of the class start time.

Classroom Citizenship

Talking or carrying conversations with other students in class is not permitted; this behavior is disrespectful to the faculty and to other students that wish to listen to the lecture.

No food and beverages allowed in the classroom

No cell phone texting/calling/browsing allowed. Computers and tablets can only be used for note-taking purpose.

Make-up exams

Generally none! If you miss the quiz, make sure to find the instructor asap for the make-up quiz. It must be done before the next class when graded copies will be returned. No exceptions will be made after the graded copies are returned.

Exam policy

No bathroom breaks; Pen, pencil, calculator and formula sheets are the only items allowed to carry during the exam. All extra items including bag packs, cell phones and electronic items will be kept near the front of the classroom. If caught cheating (writing from hidden notes, exchanging papers with others, or communicating), student will be immediately removed from the exam and will receive “zero” for the exam grade.

ABET Outcomes Assessment

This course will document following ABET Outcomes:

c.) An ability to design a system, component, or process to meet desired needs. The assessment of this outcome will be based on the following five indicators: [Project Report]

- 1.) Identifies design objectives;
- 2.) Identifies realistic constraints;
- 3.) Identifies milestones;
- 4.) Performs feasibility analysis; and
- 5.) Performs design optimization.

f.) An understanding of professional and ethical responsibility. The assessment of this outcome will be based on the following four indicators: [Case Study & Essay]

- 1.) Aware of ethics code;
- 2.) Identifies ethical issues;
- 3.) Makes ethical judgments; and
- 4.) Demonstrates professional growth.

h.) The broad education necessary to understand the impact of engineering solutions in a global and societal context. The assessment of this outcome will be based on the following three indicators: [Essay]

- 1.) Knowledge of global events;
- 2.) Knowledge of societal concerns; and
- 3.) Knowledge of environmental issues.

Academic Support

For assistance with free tutoring, academic advising and counseling help, students should contact the Center for Academic Excellence in 322 Academic Classroom Building, 336.334.7855, website:

<http://www.ncat.edu/divisions/academic-affairs/cae/>.

Technical Support

For problems with your NCAT account, desktop computing, software programs, call AggieTech Support at 336.334.7195, website:

<http://www.ncat.edu/divisions/doit/dept/ats/>

Student Handbook

- Go to [A&T's Homepage](#)
- Go to Left Menu - click [CURRENT STUDENTS](#)
- Click [STUDENT HANDBOOK](#)
- CAEE Handbook can be found from the departmental website
(http://www.ncat.edu/academics/schools-colleges1/coe/caee/files/caee_handbook.pdf)

Student Resources

Information related to Aggie Access online, Blackboard, Library, Career Services, Counseling, Health Center, International Program, Bookstore, Travel Policy, etc., can be found at the Division of Student Affairs:

<http://www.ncat.edu/student-affairs/student-services/>

Student Conduct & Discipline

North Carolina A&T State University has rules and regulations that govern student conduct and discipline meant to ensure the orderly and efficient conduct of the educational enterprise. It is the responsibility of each student to be knowledgeable about these rules and regulations. Please consult the:

- undergraduate bulletin: <http://www.ncat.edu/divisions/academic-affairs/bulletin/>
- graduate catalogue: <http://www.ncat.edu/academics/schools-colleges1/grad/graduate-catalog/>

for detailed information about specific policies, such as academic dishonesty, cell phones, change of grade, disability services, disruptive behavior, general class attendance, grade appeal, incomplete grades, make up work, student grievance procedures, withdrawal, etc.

Compliance with the Americans with Disabilities Act

North Carolina A&T State University is committed to complying with the Americans with Disabilities Act of 1990 and Section 504 of the Rehabilitation Act of 1973 by providing equal access to the programs, services and benefits to qualified students with disabilities. All reasonable efforts will be made to accommodate the needs of students with documented disabilities. **If you have a disability that requires an accommodation during the semester, please REGISTER with the Office Veterans and Disability Support Services (OVDSS) located on campus in Murphy Hall (334-7765). Make sure that you notify OVDSS of any disability accommodation requests prior to the start of classes or within the first two weeks of classes. Please note that accommodations and modifications cannot be performed retroactively!**

These descriptions and timelines are subject to change at the discretion of the professor.

Revised 08.15.2015