

## Engineering Technology and Surveying Engineering

**Title and Course Number:** Advanced Construction Technology, ET 454

**Meeting Time and Place:** MWF 9:30-10:20, ECIII Room 242

**Credits and Contact Hours (Lecture/Laboratory):** Lecture–3 hrs, Lab–0 hrs.

**Course Description:** This is a Technical Specialty course that builds on topics presented in the construction sequence thus far: ET 154, ET 254, ET 354, and ET 355. The course introduces students to the different demands of the civil engineering approach to construction, highlighting the significance of temporary works and the inherent need for planning and safety. Detailed studies cover the methods and equipment employed in the execution of excavations, heavy foundations, formwork, concrete work, steel fabrication and erection, and more.

**Prerequisites:** ET 355, Site/Land Development

**Reference Textbook (purchasing not required):** *Construction Management Fundamentals* by Clifford J. Schexnayder and Richard E. Mayo

**References:** Library books on heavy construction, construction management, and construction methods. The Internet. Current events and contemporary issues.

**Course Coordinator:** Sonya Cooper, ECIII Rm 386, 646-3848 socooper@nmsu.edu.  
Office hours: 3-4 Tu,W,Th

**Goals/Objectives:** To familiarize the student with contractor concerns in heavy construction. The primary objective of this course is to advance knowledge of specific topics learned in earlier courses and highlight those areas that apply to management methods. These topics are presented in this semester's syllabus. This course is weighted heavily in written communication requirements and research components to fulfill ABET, Inc. requirements.

### Course topics and lecture hours devoted to each topic:

A. Excavations & Shoring	6 hours	Aug 23-Sept 3
B. Deep Foundations	5 hours	Sept 8-Sept 17
C. Masonry	3 hours	Sept 20-24
D. Structural Steel Frame	3 hours	Sept 27-Oct 1
E. Concrete work	3 hours	Oct 4-Oct 8
F. Reinforced Concrete Frame incl. Formwork	6 hours	Oct 11-22
G. Tilt-up/Precast Concrete/Post-Tensioned	3 hours	Oct 25-29
H. Bridges	3 hours	Nov 1-Nov 5
I. Floor Systems	3 hours	Nov 8-12
J. Roofing Systems	3 hours	Nov 15-19
K. Mobilization	3 hours	Nov 29-Dec 3

**Computer Usage:** Word processing, spread sheets, Primavera, Haestad Methods, STAAD/Pro Core.

**Laboratory Projects:** N/A

**Oral and Written Communication Requirements:** *Oral*--discussions and management plan presentation. *Written*--management plans.

**Calculus Usage:** Development of designs required for various management plans.

**Library Usage:** Expected usage--1-2 hours per week.

**Specifics:**

**COURSE REQUIREMENTS AND POLICY:**

The organization of this course will include a lecture concerning the new topic, assigned readings, discussions of the readings, assigned research topics, discussions of research topics and case studies, cost and scheduling aspects, sharing of ideas, questions and answers, and firming up criteria that will help you with your management plan.

- A. *Attendance, participation, and outside preparation*--Each absence will result in 5% off your final grade. Your participation is a critical component in this class due to the nature of the specialty topics. Most of your knowledge gained from this course will be from class lectures, discussions, library and Internet resources, and industry resources. You are expected to spend the required time preparing for discussions. Summarize your readings and research on a *Summary Sheet*. Make a copy of this sheet and turn it in before class on the due date for participation credit.
- B. *Homework*--Homework will be in the form of smaller assignments which will lead up to the submission of the management plan (a larger homework assignment). A memorandum will be submitted summarizing a detailed management plan incorporating methods, equipment, special designs, and cost, for the best solution of the assigned problem. Include all designs and research as attachments. Examples of Management Plans are available for you to review in my office. Your Plan will receive three grades: a top grade for format and grammar, a middle grade for content, and a bottom grade for technical correctness.
- C. *Presentation*--You will be randomly picked during the semester to present your management plan.

**COURSE GRADE:**

The final course letter grade will be based on performance in the following area with approximate weights as indicated:

Management Plans (5@10%)	=	50%
Presentations	=	5%
Midterm and Final Exam	=	25%
Participation	=	20%