Construction Equipment and Materials
AET 2253

Units…………………… 3.0 credit hours
Prerequisites…………….. None specified
Classroom……………… KLEHM 3104 & Construction Lab

Course Description: This course will provide students with a broad overview and vital introduction to the construction industry, and its major processes, techniques, equipment and materials. In addition, students will be familiarized with standard industry practices for conducting a variety of useful skills applicable to solving a broad array of technical problems. Use and care of leveling instruments employed in laying out buildings, establishing grade elevations and staking out buildings and other selected works will be covered. The use of framing squares, simple lasers, protractors, compasses, hand levels and various marking tools will be incorporated into elements of this course. Quality Assurance, Safety & relevant Building Code practices will be introduced, with applications worked where practicable. Lab fee: $50.00 (subject to change)

Course Objectives: Upon successful completion of this course, the student will be able to:
• Identify essential construction equipment and their appropriate uses
• Demonstrate knowledge of construction materials commonly used in residential and commercial construction projects
• Evaluate the quality of a constructed work
• Determine construction requirements as they relate to governing codes and standards
• Demonstrate a basic knowledge of the use and care of layout instruments,
• Establish building lines on a lot using batter boards and string
• Discuss soil excavation for a building site in regards to cut and fill volumes required
• Demonstrate an understanding of logistics planning relative to typical construction activities

Textbooks:

Grading: Grades are based on several factors:  
Grading Criteria*
90-100% = A Excellent
80 - 89% = B Above
70 - 79% = C Average

200 points Labs & Reports
Average
10 points Quizzes
Class Format: The course will include lectures, guest speakers, field trips and research activities designed to familiarize students with the “construction business.” To compliment lectures, “hands-on” lab sessions are integrated into the course, where practical problems will be worked to familiarize students with material testing, layout methodology and tool applications. Students shall be assigned to teams, which will work as a group on assigned activities.

Attendance: Regular and conscientious attendance is considered essential for successful completion of this course, given the pace and volume of material to be covered. Students earn % points toward course grade for each full lab period attended. If a seating chart is used, students will be required to occupy their assigned seats at the start of each class period.

Homework: This course requires considerable independent study. Students can expect to put in 2 - 4 hours (or more) of reading and/or problem solving for every hour of class time. Homework consists of chapter reading (from text), verbal assignments and handout worksheets provided by instructor. Verbal and handout worksheet assignments are due as announced in class; typically the next class period following distribution. Note: In general, late homework will not be accepted.

Successful mastery of this course requires students keep pace in with instructor lectures. As such, students are strongly encouraged to read in advance of corresponding lectures. Further reading will expand on information provided in class and help clarify technical aspects. Some homework activities may require students to conduct Internet or library searches, make off-site visits or conduct phone interviews. Pop quizzes may be given at any time during the semester and cannot be made up if missed. (See Note 4 below)

Quizzes: Students can expect to start each class period of the week with a brief closed book/closed note quiz. Quizzes shall cover key concepts of previously presented material and those topics considered essential for students to have at their fingertips.

Lab Work: A series of interactive labs have been scheduled to provide practical exposure to standard construction industry field measurements, layout procedures, quality assurance metrics, and selected fabrication techniques. As indicated above, students will be assigned to work in teams to complete most, if not all lab activities. This practice is believed to promote greater understanding of fundamental concepts and more correctly reflects how work is accomplished within the industry. Following each laboratory session, each student will submit a properly formatted report in hardcopy form. Your instructor will provide a handout detailing report content and required format. All reports are due the Monday following the lab session (holidays by exception). Credit will not be given for reports submitted late, unless prior arrangements have been made.
Tests: Two (2) interim exams will be given during the semester to test the student’s grasp of the subject matter and may require demonstration of some aspect of practical skills covered in the class. Exams may include a variety of different formats including: essay, process description, matching, T/F, illustrations, graphing, numerical problem solving and multiple choice. As a rule, open notes/open book references will be permitted for practical exercise portions of exams. Other portions will be closed book/closed note. Calculators will normally be required. Cell phones (including those with calculators), laptops and other non-approved electronic equipment must be turned off during exams. Make up tests, when approved, are the students responsibility to schedule and complete. (See Note 4 below).

Final Exam: The Final exam will be comprehensive in scope and may include information covered in lectures, laboratories, field trips, guest speaker presentations and relevant reading or research assignments occurring throughout the semester.

Tools/Equipment: For lab classes, students may find it convenient to provide some tools and supplies to supplement course-provided materials. Items may include pencils, permanent marker, 3-ring binder, graph paper, calculator, 25-30ft measuring tape, tool belt, framing hammer.

Lab Safety: Some activities will require students to learn, observe and adhere to various safety standards or procedures. At a minimum, all students will be required to utilize individual personal protective equipment (PPE) for labs, selected field trips and demonstrations, and where specifically directed by the instructor. Where feasible, these materials will be provided. Minimum PPE shall include:

(1 pr.) Safety glasses (wrap-around type or with integral side shields only),
(1 pr.) Ear plugs (re-useable or disposable),

Depending on the planned activity, additional PPE may include: leather gloves (work-type), dust masks, face shields, aprons and/or hard hats, which shall be provided if required. Further, students are cautioned that certain activities may be detrimental to personal clothing; so appropriate “work clothes” should be considered. Note: All lab activities require students to wear closed-toed shoes. No flip-flops or sandals will be permitted.

Failure to comply with these or related safety requirements, may result in the student being denied the opportunity to participate in certain scheduled activities, where risk of potential injury is considered significant.

Important warning:

1. General Disclaimer: Please be aware that some aspects of the course outline and/or syllabus may be subject to change or adjustment during the semester. Elements of course content, sequence of activities and/or specific assignments may be revised to accommodate weather, availability of guest speakers, course continuity, funding issues, class field trips or equipment issues.
2. **Student with Disabilities**: If you have a documented disability and wish to discuss options for suitable academic accommodations, please notify the instructor. It is EIU policy that students wishing special accommodations contact the Office of Disability (581-6583), who shall confirm specific requirements and authorize any relevant accommodations.

3. **Instructor’s Lecture Notes**: As a general courtesy, the instructor may provide or make available to students, copies of course lecture notes and other materials to assist students with their study efforts for the course. However, students are reminded of their exclusive responsibility for taking notes covering lectures, video presentations, guest speakers, field trips and other instructional experiences. Failure to receive materials from the instructor shall in no way relieve students of their obligation to exercise appropriate personal initiative to seek out sources of information necessary to complete the course.

4. **Missed Tests & Key Assignments**: Every semester, some students miss scheduled class activities and subsequently request make-up opportunities. Predictably, these occurrences tend to coincide with dates of major exams or assignment due dates.

Under exceptional circumstances, students may be afforded an opportunity to make up tests or turn in late assignments, where the instructor feels such an accommodation is warranted. Not knowing which cases are valid and which are not, students will be asked to provide documentary evidence to support their request. In general, consideration shall be restricted to: **hospitalization, serious illness, personal life crisis, military commitments, and EIU-sanctioned sports or special program participation**. Inappropriate justification includes: merely not feeling well, conflicts with other class activities (including field trips), family reunions, work conflicts, vacation trips, and assorted “personal issues.”

For medical issues, students have the option to visit the campus Health Office to provide relevant paperwork that pertains. To protect your confidentiality, I don't need (or want) to know the details, just that the situation is confirmed. While this process runs its course, you may be permitted to participate in a rescheduled exam or turn in a late assignment, as applicable. However, no grade will be recorded until some sort of documentation confirming the situation has been tendered. For those involved in EIU officially sanctioned activities, you will need to provide advance notification of the event, followed by official correspondence from your EIU organization. Similarly, military personnel shall be required to submit a copy of their official orders for the period under consideration.

**Note**: Quizzes, group labs and most individual labs, shall not be subject to make up.
5. **Extra Credit:** Occasionally, students may be offered “extra credit” for undertaking work, research/presentation, or participating in an event or activity the instructor considers beneficial. **Requests for extra credit after a specific date set by the instructor will not be entertained.**