



Course Outline

2026-2027 Catalog

AET 35 - Heavy Equipment Methods

Catalog Description

Transfer Status: CSU

Corequisite: AET 36

Unit(s): 3.00

Lecture: 51.00 Contact hours/102.00 Out of class hours/153.00 Total hours/3.00 Unit(s)

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Course Description: This course will examine construction regulations, erosion control, drainage, environmental mitigations, soils and aggregates, technical report writing, interpreting blueprints and site plans, applied mathematical calculations, management skills, fleet management practices, project organization, and entrepreneurship.

Objectives

Upon successful completion of this course, the student should be able to:

1. Explain regulations and rules concerning construction and excavation work sites.
2. Write clear and concise reports, estimates, and plans.
3. Identify skills required for management of work teams.
4. Evaluate soils for excavation.
5. Develop an erosion control strategy.
6. Assess the fundamentals of fleet management.
7. Communicate and work cooperatively with others.

Course Content

Topic Titles / Suggested Time Topic	
<u>Topics</u>	<u>Lecture</u>
	<u>Lec Hrs</u>
Introduction to Heavy Equipment Systems	3.00
World of Opportunities	3.00
Construction Site Safety	3.00
Construction Regulations	3.00
Construction Mathematics	6.00
Excavation Techniques	3.00
Fleet Management	3.00
Technical Report Writing	3.00
Blueprints and Plans	3.00
Management Skills	3.00
Project Organization	3.00
Soils and Aggregates	3.00
Erosion Control and Drainage	3.00
Environmental Mitigation	3.00
Pathways of Program Graduates	3.00
Entrepreneurship	3.00
Total Hours: 51.00	

Methods of Instruction

- A. Collaborative Group Work
- B. Demonstrations
- C. Discussion
- D. Guest Speakers
- E. Homework: Students are required to complete two hours of outside-of-class homework for each hour of lecture
- F. Multimedia Presentations
- G. Lecture/Discussion

Methods of Evaluation

- A. Homework
- B. Class participation
- C. Final Examination
- D. Written Assignments
- E. Short papers

Examples of Assignments

Reading Assignments

1. Go to website for California Department of Water Resources - follow links to find how to get a job with DWR. Prepare a list of questions for discussion in class.
2. Go to website for Operating Engineers Local 3. Read the history, purpose, benefits and structure of OpEng. Read how to become a member of the Operating Engineers. Prepare a list of questions for class discussion.

Writing Assignments

1. Build in outline form a 1 page guide to gaining employment with DWR, listing the steps in order that you would take. Include timelines and due dates.
2. In a 2 page report state the benefits and drawbacks of working with an Operating Engineers union contractor versus non-union employers.

Out-of-Class Assignments

1. Visit Valley Contractors Exchange at 951 E. 8th Street in Chico (M/F 8-5). Find out what the Exchange is, what they do, and the resources they provide members. Prepare a 2 page report summarizing what you have found.
2. Build a maintenance guide using our Heavy Equipment listing of machines. This should include maintenance intervals, fluid and filter types and location, and periodic adjustments required. The operator's manual will be your primary reference; you may also find useful information on the internet. Think about how this would be a useful tool in managing a fleet of equipment.

Recommended Materials of Instruction

Other Learning Materials

Equipment Manufacturers' Operator Manuals
Handouts
Industry Specific Materials
Industry websites

Minimum Qualifications

Agricultural Engineering

Created/Revised by: Enyeart, Bruce

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