

ARIZONA WESTERN COLLEGE  
SYLLABUS

EGR 270 PLANE SURVEYING

Credit Hours: 3 Lec 2 Lab 2

PREREQUISITE: Either MAT 187 or both MAT 151 and MAT 183

COURSE DESCRIPTION

Surveying instruments and basic procedures including error analysis; note keeping; measurement of distance, elevation, and angles with appropriate precision; traversing; stadia; and topographic mapping.

1. COURSE GOALS

- 1.1 Develop an understanding of the technical and professional skills necessary to collect and work with survey data.
- 1.2 Apply modern surveying principles, methods of spatial data collection, reduction, evaluation, analysis, manipulation and presentation; software, and survey instruments.
- 1.3 Understand engineering line-of-sight surveying.
- 1.4 Develop logical and abstract thought processes.

2. OUTCOMES

Upon satisfactory completion of this course, students will be able to:

- 2.1 demonstrate understanding of plane coordinate geometry (COGO), geodesy, Global Positioning System (GPS), Land Information Systems & Geographic Information Systems (LIS/GIS), map projection, horizontal and vertical curves, regulation of surveying work.
- 2.2 set up and use auto-levels, total stations, and data collectors to acquire topographic survey, cross-sectional, slope, and distance.
- 2.3 utilize GIS and aerial topographic data sets.
- 2.4 read, interpret and apply surveying information related to construction and layout.
- 2.5 use trigonometry and geometry for surveying computation.
- 2.6 determine what kinds of surveys can be conducted by registered civil and environmental engineers in the States of Arizona and California.
- 2.7 demonstrate a thorough understanding of the terminology and fundamentals of civil and environmental engineering surveying and measurements.
- 2.8 demonstrate dexterity in the use of surveying equipment.
- 2.9 evaluate and analyze engineering measurement problems and solve them.
- 2.10 demonstrate good fieldwork, survey note-taking habits and data management technique.
- 2.11 demonstrate skills necessary to communicate technical information in a written form.

3. METHODS OF INSTRUCTION

- 3.1 Lecture
- 3.2 Discussions
- 3.3 Audiovisual materials
- 3.4 Printed materials
- 3.5 Field demonstrations
- 3.6 Lab projects
- 3.7 Computer assisted instruction

4. LEARNING ACTIVITIES

- 4.1 Lab Field book and set-up testing
- 4.2 Lab Projects
- 4.3 Home work
- 4.4 Exams
- 4.5 Role playing

5. EVALUATION

- 5.1 Exams
- 5.2 Homework assignments
- 5.3 Lab projects
- 5.4 Lab Field book
- 5.5 Class participation

6. STUDENT RESPONSIBILITIES

- 6.1 Under AWC Policy, students are expected to attend every session of class in which they are enrolled.
- 6.2 If a student is unable to attend the course or must drop the course for any reason, it will be the responsibility of the student to withdraw from the course. Students who are not attending as of the 45th day of the course may be withdrawn by the instructor. If the student does not withdraw from the course and fails to complete the requirements of the course, the student will receive a failing grade.
- 6.3 Americans with Disabilities Act Accommodations: Arizona Western College provides academic accommodations to students with disabilities through AccessABILITY Resource Services (ARS). ARS provides reasonable and appropriate accommodations to students who have documented disabilities. It is the responsibility of the student to make the ARS Coordinator aware of the need for accommodations in the classroom prior to the beginning of the semester. Students should follow up with their instructors once the semester begins. To make an appointment call the ARS front desk at (928) 344-7674 or ARS Coordinator at (928) 344-7629, in the College Community Center (3C) building, next to Advising.
- 6.4 Academic Integrity: Any student participating in acts of academic dishonesty—including, but not limited to, copying the work of other students, using unauthorized “crib notes”, plagiarism, stealing tests, or forging an instructor’s signature—will be subject to the procedures and consequences outlined in AWC’s Student Code of Conduct.
- 6.5 Texts and Notebooks: Students are required to obtain the class materials for the course.