

ARIZONA WESTERN COLLEGE
SYLLABUS

SIE 277 OBJECT-ORIENTED MODELING AND DESIGN

Credit Hours: 3 Lecture 3

PREREQUISITES : EGR 123 and EGR 188 and MAT 230 and PHY 121

COURSE DESCRIPTION

Modeling and design of complex systems using the Unified Modeling Language (UML) and object oriented techniques. Applications come from systems, hardware and algorithm design, not software. The Unified Systems Engineering Process is developed with emphasis on architecture, requirements, testing and risk taking analysis.

1. COURSE GOALS

- 1.1 Demonstrate how to develop models of systems containing software and non-software components and how to represent these models using the Unified Modeling Language (UML).
- 1.2 Develop the capability to design systems (software) starting from the business and requirements model (via use cases), to the analysis model, to the design model, to the implementation model and finally to the operational model.

2. OUTCOMES

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

- 2.1. exhibit the behaviors associated with taking personal responsibility for life-long learning and time management.
- 2.2. formulate a problem in technical terms.
- 2.3. determine and implement the appropriate modeling approach for problem solution.
- 2.4. analyze engineering problems using high-level modeling and computing tools such as spreadsheet programs, equation solvers, UML, simulation software, etc.

3. METHODS OF INSTRUCTION

The course uses a number of Active Learning procedures, student teams, and continuous improvement of the learning process. Traditional lectures, demonstrations and computer applications explained by instructor, students will participate in discovery-based active learning assignments and projects. Specific expectations for these assignments and projects will be discussed and students will attempt to not only meet but exceed expectations.

Student will develop skills in modeling and designing complex systems using various diagrams of the Unified Modeling language (UML).

4. LEARNING ACTIVITIES

- 4.1 Lectures, demonstrations, and computer applications
- 4.2 Homework assignments
- 4.3 Individual assignments and Team-based Projects
- 4.4 Notebook / Portfolio: Document course activities for periodic review and evaluation by self, peers, and instructor

5. EVALUATION

- 5.1 Behaviors associated with managing time, applying new material, setting goals, and working towards their accomplishment will be evaluated by (a) monitoring and evaluating the students' classroom participation, and (b) by periodically reviewing the documentation of course activities as compiled and organized in the form of a note book/portfolio.

- 5.2 Success in individual and team-based projects will be evaluated based on defined specifications and expectations, both in regard to the contents and the presentation of these contents.
- 5.3 Several quizzes, exams and student-demonstrations will be used to evaluate comprehension of concepts covered, and their application in modeling and designing complex systems.

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.
- 6.6 Arizona Western College students are expected to attend every class session in which they are enrolled. To comply with Federal Financial Aid regulations (34 CFR 668.21), Arizona Western College (AWC) has established an Attendance Verification process for “No Show” reporting during the first 10 days of each semester.
Students who have enrolled but have never attended class may be issued a “No Show” (NS) grade by the professor or instructor and receive a final grade of “NS” on their official academic record. An NS grade may result in a student losing their federal financial aid.
For online classes, *student attendance in an online class is defined as the following* (FSA Handbook, 2012, 5-90):
- Submitting an academic assignment
 - Taking an exam, an interactive tutorial or computer-assisted instruction
 - Attending a study group that is assigned by the school
 - Participating in an online discussion about academic matters
 - Initiating contact with a faculty member to ask a question about the academic subject studied in the course