ARIZONA WESTERN COLLEGE
SYLLABUS

EGR 202 DIGITAL AND ANALOG FUNDAMENTALS
Credit Hours: 4 Lec 3 Lab 2

PREREQUISITES: PHY112

NOTE: PHY 112 preferred prerequisite; PHY 112 may be taken along with EGR 202

COURSE DESCRIPTION
Introduction to the fundamentals of digital and analog signals and the instruments used to measure the signals. A broad range of instruments and measurement hardware including high-speed data acquisition, RF switching, high precision instruments, motion control, digital I/O, counter operations, and virtual instrumentation will be covered.

1. COURSE GOAL
Provide students with an understanding of digital and analog fundamentals and a working understanding of a broad range of instruments, their specifications, operations, and limitations.

2. OUTCOMES
Upon satisfactory completion of this course, students will be able to:
2.1. compare and contrast digital and analog signals.
2.2. describe specifications of several instruments used to measure digital and analog signals.
2.3. demonstrate use of some digital and analog instruments to measure and automate various testing and control activities.
2.4. demonstrate the ability to meet and exceed customer-defined specifications in terms of setting up instrumentation, configuring the system to measure and automate desired activities.

3. METHODS OF INSTRUCTION
The course uses a number of active learning procedures, student teams, and continuous improvement of the learning process. Besides 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 be motivated to not only meet but to exceed expectations.
Students can expect:
3.1 to develop and/or improve skills in describing characteristics of digital and analog signals.
3.2 to articulate importance of various digital and analog instruments to measure and automate various testing and operational activities.
3.3 to develop and/or improve upon their skills in setting up instrumentation and configuring software for effective use of instruments.
3.4 to explain the requirements specified by engineers and helping them fulfill those requirements.
3.5 to actively discuss course material amongst small team members and with the entire class during each class meeting.
3.6 to be actively involved in learning activities during most class periods and online interactions outside the scheduled class sessions.

4. LEARNING ACTIVITIES
4.1 Individual assignments and team-based projects: identify variety of digital and analog instruments; document their specifications, operations, and resulting output; and diagnosing possible problems in operation

4.2 Individual assignments: use of a few specific instruments
4.3 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 notebook/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 and student-demonstrations will be used to evaluate comprehension of concepts covered, and their application in use of digital and analog instruments.

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