CSCE 247 – Software Engineering

- **Credit Hours:** 3 hours
- **Contact Hours:** 3 lecture hours
- **Instructors:** Dr. Greg Gay
- **Required Textbooks:** None.
- **Bulletin Description:** Fundamentals of software design and development; software implementation strategies; object-oriented design techniques; functional design techniques; design patterns; design process; source control; testing.
- **Prerequisite:** C or better in CSCE 146
- **Required Course** in CIS and CS
- **Course Outcomes:** Students will be able to:
  1. Distinguish between software development processes and choose an appropriate process for a particular project, including the selection of appropriate source control and project management tools.
  2. Elicit requirements and create a requirements specification document.
  3. Develop software architectural models and analyze how control and data flow through a system.
  4. Apply the principles of object-oriented software design, including how to describe and model the structure of a system.
  5. Apply software design patterns.
  6. Apply the fundamentals of requirements-based and structure-based software testing and the accompanying test selection methods.
  7. Apply human computer interaction theory and design principles.

- **Student Outcomes addressed by course**

Program	**Student Outcomes Addressed**
Computer Engineering	N/A
Computer Information Systems	1, 2, 4, 5, 6
Computer Science	1, 2, 4, 5, 6

- **Topics covered**
  1. Introduction to SE/Principles (1 week)
  2. Requirements Specification (2 weeks)
  3. Human Computer Interaction (2 weeks)
  4. Project Management (1 week)
  5. Software Architecture (1 week)
  6. Design (OO) (3 weeks)
  7. Implementation (1 week)
  8. Testing (2 weeks)
  9. Source Control (1 week)