Course Syllabus Part I
CSD 380 DevOps

3 credit hours

Course Description

This course introduces students to a set of DevOps (Development Operations) tools and best practices that emphasizes the collaboration and automation of approaches to the development of software. Principles of release management, configuration management, orchestration, virtualization, containerization, and monitoring are examined to improve collaboration and communication. Students will gain experience with unit testing, writing test plans, functional testing, and code reviews. Students will gain an understanding of how continuous delivery improves software quality.

Course Prerequisites

CSD 320

Course Skills

- Evaluate software maturity and readiness for promotion through the various development environments.
- Use release management and configuration management techniques in software development
- Develop unit test plans and conduct functional testing on software.

Course Objectives

1. Interpret the principles underpinning DevOps.
2. Explain the ways in which deployment pipelines, fast and reliable automated testing, continuous integration, and low-risk releases improve operational time and costs.
3. Apply industry best practices for managing information security.
4. Develop a strategy for change management and compliance controls.

Grading Scale

93 – 100% = A	87 – 89% = B+	77 – 79% = C+	67 – 69% = D+
90 – 92% = A-	83 – 86% = B	73 – 76% = C	63 – 66% = D
	80 – 82% = B-	70 – 72% = C-	60 – 62% = D-
			0 – 59% = F

Topic Outline

I. The History of DevOps
   A. Principles of Flow
   B. Principles of Feedback
   C. Principles of Continual Learning and Experimentation
II. The Technical Practice of Flow
   A. Deployment Pipelines
   B. Fast and Reliable Automated Testing
   C. Continuous Integration
   D. Low-Risk Releases
III. The Technical Practice of Feedback
   A. Seeing and Solving Problems
   B. Anticipate Problems and Achieve Goals
   C. Hypothesis-Driven Development
   D. Review and Coordinate Processes
IV. The Technical Practice of Continual Learning and Experimentation
   A. Inject Learning into Daily Work
   B. Convert Local Discoveries into Global Improvements
V. DevOps Security
   A. Information Security
   B. Change Management
   C. Compliance Controls