

ITMT 430 Syllabus

ITMT 430 Systems Integration (Senior Capstone Course)

Hours: 3 credit hours / 60 contact hours; 30 hours
lecture, 30 hours lab

Instructor: Jeremy Hajek

3. Textbook, title, author, and year:

- a. *DevOps Handbook - How to Create World-Class Agility, Reliability, & Security in Technology Organizations*, Gene K., Patrick D., John W., Jez H., 2016.
- b. *Accelerate: The Science of Lean Software and DevOps: Building and Scaling High Performing Technology Organizations*, Nicole F., Jez H., Gene Kim, 2018.

Specific course information

- a. **Catalog description:** In this capstone course, students will identify, gather, analyze, and write requirements based on user needs and will then design, construct, integrate, and implement an information system as a solution to a business problem. Students will document integration architecture, methodologies, and technologies using industry best practices. User needs and user centered design will be applied in the selection, creation, evaluation, and administration of the resulting system. The system design process will take into account professional, ethical, legal, security, and social issues and responsibilities and stress the local and global impact of computing on individuals, organizations, and society. Discussion will also cover the need to engage in continuing professional development.
- b. **Prerequisites:** ITMD 321, ITMD 411, ITMD 362, ITM 100, ITMM 471, ITMO 340, and ITMO 356
- c. **Required**

Specific goals for the course

- a. **Program Educational Objectives:**
 1. Problem solve and create innovative answers to provide technology solutions for the problems of business, industry, government, non-profit organizations, and individuals.
 2. Perform requirements analysis, design and administration of computer and network-based systems conforming to policy and best practices, and monitor and support continuing development of relevant policy and best practices as appropriate.
 3. Apply current technical and mathematical concepts and practices in the core information technologies and recognize the need to engage in continuing professional development.
- b. **Course Outcomes:**
At the completion of this course you will have experienced software application development in a team setting. You will understand the roles of the project manager, a software developer, security analyst, IT operations, and UI/UX developer. You will have produced artifacts consistent with the

nature of each job and applied the techniques and concepts learned in all of your pre-requisite courses. The final measurable outcome will be a full deployment of a working application from scratch. You will be familiar with DevOps terminology and development practices. You will have integrated hardware and software into a complete information system to meet identified user needs as a solution to a defined business problem and demonstrated ethics, and an understanding of legal, security, and social issues and responsibilities of information systems. You will have integrated hardware and software into a complete information system to meet identified user needs as a solution to a defined business problem. You will have demonstrated building world class reliable, agile, and secure cloud native applications.

c. Course student outcomes:

At the conclusion of this course, each successful student will be able to:

- Identify, gather, analyze, and write information system requirements based on user needs.
- Document integration requirements using business process models.
- Design, construct, integrate, and implement an information system as a solution to a business problem.
- Apply key systems integration architecture, methodologies, and technologies in the construction of an information system using industry best practices.
- Based on identified user needs, demonstrate the use of user centered design in the selection, creation, evaluation, and administration of an information system.
- Recall and explain professional, ethical, legal, security, and social issues and responsibilities in information systems.
- Describe the local and global impact of computing on individuals, organizations, and society
- Describe the need to engage in continuing professional development and explain how this may be achieved.
- Analyze a complex computing problem and to apply principles of computing and other relevant disciplines to identify solutions **(ABET Computing Criterion 3.1)**
- Design, implement, and evaluate a computing-based solution to meet a given set of computing requirements in the context of the program's discipline **(ABET Computing Criterion 3.2)**
- Function effectively as a member or leader of a team engaged in activities appropriate to the program's discipline **(ABET Computing Criteria 3.5)**
- Identify and analyze user needs and take them into account in the selection, creation, evaluation, and administration of computer-based systems **(ABET IT Criterion 3.6)**
- Assist in the creation of an effective project plan

Topics to be covered

- a. Course Introduction
- b. Introduction to Tooling, Project Management,
& Communication
- c. The Three Ways and Where to Start
- d. Technical Practices of Flow
- e. Technical Practices of Feedback
- f. Technical Practices of Learning
- g. Technical Practices of Information Security
- h. Measuring Performance; Measuring &
Changing Culture
- i. Technical Practices of Architecture
- j. Information Security and Management Practices
- k. Product Development; Making Work Sustainable
- l. Leading & Managing; Data

