

IE 481/581 e-Commerce Systems Engineering

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Prerequisites: IE 148, Engr 160 or 161

Texts:

1. Learning Python, 5th Edition, M. Lutz
2. Web Scraping with Python: Collecting Data from the Modern Web, R. Mitchell

Course Description:

Web-based applications have proven to be cost effective in addressing the needs of transaction-oriented scenarios such as electronic commerce, learning management systems, or social networking. Some of the advantages of these applications include scalability, accessibility, and usability. However, this approach also poses some unique challenges in order to provide these advantages. These applications must have acceptable response times and provide secure transactions. This course explores the principles and technology used to create effective web-based applications for e-commerce businesses.

Topics in this course include web-based application architectures, client side processes, server side processes, database connectivity and transactions, security, and web services. Given the focus of this course, programming is involved through a set of assignments and a class project.

Learning Outcomes

1. Students will be able to apply the core concepts and principles used to engineer web-based applications.
2. Students will be able to design, implement, and test web-based applications.
3. Students will be able to integrate web-based applications with databases.
4. Students will be able to assess the security of a web-based application.

Contribution of Course to Meeting the ABET Professional Component

You will learn how to integrate information technology components to develop web-based applications to address enterprise-wide problems. You will be able to design these systems, implement the necessary information technology, and test the system.

Relationship of Course to Program Outcomes

c) An ability to design a system, component, or process to meet desired needs within realistic constraints such as economic, environmental, social, political., ethical, health and safety, manufacturability, and sustainability

- (m) be able to integrate the engineering and business processes of an organization
- (n) be able to integrate processes involving people, material, equipment, information, and energy

Grading

Component	Weight
Assignments	25
Project	25
Midterm Exam	25
Final Exam	25

Important Dates

- Midterm Exam (75 minutes) 10/6/2016
- Final Exam (120 minutes) See ISU Final Exam Schedule
- Project Presentations 12/6/2016 and 12/8/2016
- Project Submission 12/9/2016

Grading Scale

- 90-100 A
- 80-99 B
- 70-79 C
- 60-69 D
- <60 F

Note: A passing grade (≥ 60) must be obtained for the average of the two exams to pass the course.

Other Policies

1. Late assignments are not accepted.
2. 1% of the total points will be taken off for every spelling or grammatical error.
3. If you submit a test, quiz, project, assignment, etc. for re-grading, the entire work will be re-graded.

Academic Honesty Statement

The IMSE Department has an expectation that all students will be honest in their actions and communications. Individuals suspected of committing academic dishonesty will be directed to the Dean of Students Office as per University policy. For more information regarding Academic Misconduct see the following web site.

<http://www.dso.iastate.edu/ja/academic/misconduct.html>

Professionalism Statement

The IMSE Department has an expectation that all students will behave in a professional manner during all interactions with fellow students, faculty, and staff. Treating others with respect and having constructive communications are examples of being professional.

Topics

1. Introduction
2. Communication
3. Enterprise Model
 - a. Data Models
 - b. Relational Model(SQL)
 - c. Transaction Processing
 - d. Data Definition Language
 - e. Data Manipulation Language
 - f. Database Connectivity
4. Server Side Processes
 - a. Server Pages
 - i. Python
5. Client side Processes – Highly interactive web-based systems
 - a. Document Object Model
 - b. Javascript
6. Web Services
7. Security