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Previous Report

Course Outline

~~Engineering and Applied Science~~

Faculty of Science

SENG 4640 - **3.00** - Academic

Software Engineering for Web Applications

Rationale

~~This is one of the four SENG technical electives that students need to complete in order to fullfill BEng Software Engineering program requirements.~~

Calendar Description

Students learn to apply software engineering principles to building effective web-based systems and applications. ~~Students learn the functional and interaction modeling and analysis techniques of web applications~~. Students explore information, interaction and functional designs of web applications and evaluate deployment options. ~~Students explore various tools, techniques and design patterns used in the industry~~. Students are introduced to the concepts of how to test the web applications.

Credits/Hours

Course Has Variable Hours: No
Credits: 3.00
Lecture Hours: 3.00
Seminar Hours: 0
Lab Hours: 2.00
Other Hours: 0
Clarify:
Total Hours: 5.00
Delivery Methods: (Face to Face)

Current Report

Course Outline

Engineering

Faculty of Science

SENG 4640 - **3.00** - Academic

Software Engineering for Web Applications

Rationale

The course has undergone a revision to reflect the evolving demands of the modern web app development landscape. It is to ensure that students receive an education that equips them with the skills and knowledge necessary to design, build, and deploy a full-stack web application with recent industry-standards and tools.

Calendar Description

Students learn to apply software engineering principles to building effective web-based systems and applications. Students learn the skills and knowledge to build modern and dynamic full-stack web applications. Students explore information, interaction and functional designs of web applications and evaluate deployment options. Students explore various tools, techniques and design patterns used in the industry to design, develop, and deploy robust and scalable web applications. Students are introduced to the concepts of how to test the web applications.

Credits/Hours

Course Has Variable Hours: No
Credits: 3.00
Lecture Hours: 3.00
Seminar Hours: 0
Lab Hours: 2.00
Other Hours: 0
Clarify:
Total Hours: 5.00
Delivery Methods: (Face to Face)
Impact on Courses/Programs/Departments: .

Impact on Courses/Programs/Departments: .
Repeat Types: A - Once for credit (default)
Grading Methods: (S - Academic, Career Tech, UPrep)

Educational Objectives/Outcomes

1. ~~Apply software engineering principles to building effective web-based systems and applications.~~
2. ~~Develop functional and interaction models of web applications.~~
3. ~~Develop information, interaction and functional designs of web applications.~~
4. Use tools and techniques to develop web applications.
5. Test web applications using various testing techniques.

Prerequisites

SENG 3130-Software Requirements & Specifications
A minimum of grade "C" in SENG 3130.

Co-Requisites

Recommended Requisites

Exclusion Requisites

Texts/Materials

~~**Textbooks**~~

~~1. **Required** Roger Pressman, David Lowe, . *Web Engineering: A Practitioner's Approach* McGraw-Hill, ISBN: 978-007352329.~~

Student Evaluation

~~The Course grade is based on the following course evaluations.~~

Course Topics

Repeat Types: A - Once for credit (default)
Grading Methods: (S - Academic, Career Tech, UPrep)

Educational Objectives/Outcomes

1. Apply software engineering principles to build well-structured, maintainable, and efficient web-based systems and applications.
2. Design and implement a fully functional full-stack web application.
3. Develop server-side logic using a modern framework to handle data processing, business rules, and API interactions.
4. Use tools and techniques to develop web applications.
5. Test web applications using various testing techniques.

Prerequisites

SENG 3130-Software Requirements & Specifications
A minimum of grade "C" in SENG 3130.

Co-Requisites

Recommended Requisites

Exclusion Requisites

Texts/Materials

Other

1. **Required** The course material and additional material to complete the course design project will be available online on Moodle.

Student Evaluation

The Course grade is based on the following course evaluations. Labs (15.00%) Two Practical MidTerm Exams (20.00%) Design Project (30.00%) Final Exam (35.00%)

Course Topics

Course Topics

Course Topics

Topics	~~Textbook Mapping~~	
	~~Chapter #~~	~~Book~~
~~Web Systems~~	~~1~~	~~B1~~
~~Web Engineering~~	~~2~~	~~B1~~
~~Web Engineering Process~~	~~3~~	~~B1~~
~~Communication~~	~~4~~	~~B1~~
~~Planning~~	~~5~~	~~B2~~
~~The Modeling Activity~~	~~6~~	~~B2~~
~~Analysis Modeling for WebApps~~	~~7~~	~~B3~~
~~WebApp Design~~	~~8~~	~~B3~~
~~Interaction Design~~	~~9~~	~~B3~~
~~Information Design~~	~~10~~	~~B3~~
~~Functional Design~~	~~11~~	~~B3~~
~~Construction and Deployment~~	~~12~~	~~B3~~
~~Design Patterns~~	~~13~~	~~B1~~
~~Tools and Techniques~~	~~14~~	~~B1~~
~~Testing WebApps~~	~~15~~	~~B1~~

Methods for Prior Learning Assessment and Recognition

As per TRU Policy

Last Action Taken

~~Implement by Education Programs Committee Chairperson Shelley Church~~

Topics
Introduction to the Internet and the World Wide Web, URLs, and Links
Front-End Development with HTML and CSS
Client-Side Scripting and Interactive Web Development
Dynamic Web Pages with the Document Object Model (DOM)
Event-Driven Programming and User Interactions
Building Single-Page Applications (SPAs)
Responsive Web Design for Cross-Device Compatibility
Server-Side Programming and Web Server Fundamentals
Data Management: Databases, Cookies, and Sessions
Database Management for Web Applications
User Input Handling and Validation
Full-Stack Integration and API Development
Testing and Debugging Web Applications
Web Application Security
Web Design Principles and User Experience

Methods for Prior Learning Assessment and Recognition

As per TRU Policy

Last Action Taken

Default by HOLD TRU Conversion

Awaiting Action

Awaiting Action by Dean(s)

Current Date: 16-May-25

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