

Missouri University of Science & Technology
Department of Business and Information Technology

Course: ERP 5240 Enterprise App Dev and Software Security
Day and Time: Thursday 4:00 PM – 6:30 PM
Instructor’s Name: Claybaugh, Craig, Ph.D.
Office Phone: 573-341-4569
Web Locations: <http://canvas.mst.edu>
Office Hours: Tuesday, 11 AM to 1 PM, Thursday, 2:00 PM to 4:00 PM, and by appointment

Semester: Spring 2020
Room: 107 A Fulton Hall
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COURSE INFORMATION

Catalog Description: This course provides conceptual foundation and hands on experience in web based (HTML5) applications development deployed through an enterprise platform. SAP Enterprise development tools will be used to build these apps, using SAP HANA Cloud Platform. This course also covers cyber security from a software security perspective.

Extended Description: In today’s cutting edge business world, enterprise resource planning (ERP) software plays a critical role. Organizations often find the need to develop custom “front end” web based and mobile applications to add functionality to and make their ERP systems more user-friendly and accessible. This course will provide students with the conceptual foundation as well as hands on experience at developing web and mobile applications. Emphasis will be on developing and using enterprise infrastructure (web and mobile tools) to develop front-end applications which integrate data from multiple sources. Students will gain a better understanding of how an enterprise can use different tools to support their UI strategy. This course also covers cyber security from an enterprise development perspective.

Course Prerequisites: Programming knowledge and either ERP 2110 or preceded or accompanied by ERP 5110.

Required Materials: None, all materials will be distributed in class and through Canvas.

Instructional Methods: Multiple methods will be used to provide instruction during the course. A good way to appreciate the Enterprise development topic area is through intensive self-study and classroom discussion. This course should be viewed as a cooperative learning experience. You are expected to share insights gained from your work experience, your experience as a customer, and from the material provided by the instructor. You are encouraged to form small study groups to discuss the readings. Your participation (preparation, familiarity with the reading materials, relevance and insight reflected in classroom questions, and commentary) is important to contributing to the creation of a positive learning environment. If you come across an article, news story, or online resource relevant to the course, please share it with me so I can make the information available on the course web page.

Course Learning Objectives:

	Program Learning Objectives					
	Oral Communication	Written Communication	Technology Skills	Teamwork	Leadership	Critical Thinking
Course Objectives						
Students will be able to describe and explain the fundamental concepts of an enterprise development strategy including how it is used in a company.						X
Students will become familiar with the SAP HANA technology platform and be able to describe the products associated with this technology.	X			X	X	
Students will be able to build and deploy web based applications using SAP HANA.			X			
Students will be able to describe current cyber security terms and describe how threats from cyber-attacks impact UI application development.		X	X			X

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Students will be familiar with the top software security vulnerabilities and exploits and how to mitigate them.	X	X		X		X
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COURSE ASSIGNMENTS, POLICIES AND GRADING

Exams:

There will be one midterm examination. All exam materials may become property of the instructor after completion. Failure to take the exam on the assigned day/time results in automatic failure of the course. Cheating (including non-participation) on the exam will result in automatic failure of the course.

Lab Assignments and Homework

A total of 10 lab and homework assignments will be assigned in this course. The majority of the labs will mostly involve completion of SAP exercises related to SAP HANA Cloud Platform. Students will also complete homework assignments related to cyber security. Unless otherwise informed, labs are due on the following class period in which it was assigned.

Group Project:

One group project is required as part of the course work: OWASP Top 10 (Open Web Application Security Project). This will be a PowerPoint presentation submitted as a group at the end of the semester. Each group will consist of 3 to 7 students. The presentation should be 15-20 minutes long and should involve the use of power point. No late assignments will be accepted. Each member of the group must participate in the presentation.

Attendance and Participation:

Five times throughout the semester, attendance will be taken. Each attendance is worth ten points for a total of 50 points. Please note that attendance may be taken at the start, during the middle, or near the end of class on random dates throughout the semester. Attendance might be in the form of a quiz, instructions to perform an action, or for being in class. Participation is based on participation in the group project. Participation will be docked if feedback from peers is negative. Participation is worth 50 points.

Overall, student participation and discussion is essential to ensure that the course topics are understood and are made relevant to actual business situations encountered in the workplace. As such, attendance and participation are an essential factor in the learning process and a tool for assessing student learning.

Evaluation Methods:

The course grade will be determined by the following components:

Midterm Exam	100
Attendance/Participation	100
Assignments/Labs	250
OWASP Top Ten:	<u>100</u>
Total Points	550

Grading Scale:

A: ≥ 89.5% B: 79.5 – 89.4% C: 69.5 – 79.4% D: 59.5 – 69.4% F: < 59.4%

General Grading Policies:

1. ALL ASSIGNMENTS AND THE EXAM ARE INDIVIDUAL WORKS UNLESS OTHERWISE SPECIFIED.
2. All assignments should be handed in at the beginning of class on the date announced. NO LATE ASSIGNMENTS WILL BE ACCEPTED.
3. Please make every effort to make it to class on time. It is disruptive to the class to have members arriving late.
4. Attendance is encouraged and randomly graded. If you are unable to attend a class, you need to turn in assignments in advance (ask a friend to turn it in for you, use digital drop box provided by canvas, etc.). You are also responsible for finding out what was covered in class and what announcements were made as well as obtaining handouts.
5. The instructor will assign NO incompletes in lieu of a regular grade.

Use of Canvas

Course materials, homework, schedule, and grades can be found on Canvas. **Discussion Board** of Canvas can be used as a virtual problem solving channel. (See **Supporting of SAP Lab** section for detail information.)

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Supporting of SAP Lab

There are several options to assist you in solving SAP technical problem. **Office hours** should be the first choice. To better assist you in solving SAP technical problem, in addition to the office hours, additional **SAP Help session** can be arranged by the instructor. Please note that while e-mail is an option of answering SAP system related questions, be aware your question may not be answered promptly outside of the instructor's working hours; these are 8:00 AM to 5:00 PM, Monday to Friday.

Late Work

All assignments are due at the beginning of the class on its due date. Grades on late work will be reduced by 25% and can only be turned in with prior approval. Exception will only be given to student with a legitimate reason and he/she notifies the instructor 5 school days before the due date.

Virtual Desktop (VDI) Access

Virtual Desktop (VDI) is used to access SAP systems for this course. Please be aware the time for applying Windows updates to these servers is Thursday nights from 11:00 PM to 2:00 AM. Service might not be available during this time.

Academic Integrity Statement (<http://registrar.mst.edu/academicregs/>):

Violations of the University's academic code include, but are not limited to, possession of or use of unauthorized materials during quizzes or tests; providing unauthorized information to another student; or copying the work of another person. Violations may result in academic penalties in addition to receiving an "F" on the assignment in question. (See page 30 of MST's "Student Academic Regulations" handbook for further details about student standards of conduct relative to the system's Collected Rules and Regulations section 200.010 on line at <http://ugs.mst.edu>.)

S&Tconnect Early Alert System (<http://academicalert.mst.edu/>):

MST is committed to the success of its students by providing an environment conducive to teaching and learning. To ensure that every student takes full advantage of the educational opportunities and support programs on campus, the University has implemented an Early Alert System, a web-based application. The purpose of the System is to improve the overall academic success of students by:

- Improving communication between students, instructors, and advisors;
- Reducing the time required for students to be informed of their academic status;
- Informing students of actions they need to perform in order to meet the academic requirements in the courses they are taking.

To assist you, I will initiate an academic alert for students who are not meeting academic course requirements through poor performance on assignments or poor attendance. When an alert is initiated, an email is immediately sent to the instructor, student, and advisor. You are encouraged to respond quickly to all academic alerts. If you fail to open the alert within one week, email notification is sent to your advisor.

Disability Support Services (<http://dss.mst.edu/>):

If you have a documented disability and anticipate needing accommodations in this course, you are strongly encouraged to meet with me early in the semester. You will need to request that the Disability Services staff send a letter to me verifying your disability and specifying the accommodation you will need before I can arrange your accommodation. If you have a disability that might require academic accommodations, please visit Disability Support Services in 204 Norwood Hall (341-4211; dss@mst.edu) very early in the semester.

Classroom Egress Maps (<http://registrar.mst.edu/links/egres.html>):

Please familiarize yourself with the classroom egress maps posted on line so you will know where emergency exits are located.

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COURSE OUTLINE

Week date	Topic	Due
1 1/23	Course introduction; Overview of SAP, SAP HANA, and SAP HANA development	
2 1/30	Overview SAPUI5, MVC app development, SAP Hana Cloud Platform: Introduction, Lab 1 HANA Cloud Platform Introduction – Hello World	
3 2/6	Debugging XML views, SAPUI5 Data Binding and Routing, Lab 2 Data Binding and Routing in SAPUI5 Applications	Lab 1
4 2/13	Other concepts in SAP HANA UI development, Buttons and toolbars in HTML5, Lab3 Buttons and Toolbars in SAPUI5	Lab 2
5 2/20	Cross-domain resource sharing (CORS), Lab4 Weather Service Using SAPUI5	Lab 3
6 2/27	Overview HANA OData and HANA Core Data Services (CDS), SAP HANA and Data Analysis, Lab5 Creating the Persistence Model	Lab 4
7 3/5	Mobile Industry, Overview SAP Fiori, Lab6 OData For a Customers Application	Lab 5
8 3/12	No Class Spring Recess, 3/14-3/15	Lab 6
9 3/19	Cyber security overview and terms, Homework1 Data Breaches and Intrusions	HW 1
10 3/26	Spring Break	
11 4/2	Midterm Exam: Paper	
12 4/9	Mobile security, Mobile Device Management (MDM), Homework2 Mobile Device and Mobile App Security	
13 4/16	Enterprise Commercial Off The Shelf (COTS) vulnerabilities, Image Vulnerabilities, Homework3 Enterprise COTS Threats	HW 2
14 4/23	Application dev software security coding, Physical Security, Homework4 Threat Modeling	HW 3
15 4/30	Enterprise cyber security mitigation strategies,	HW 4
16 5/7	OWASP Top Ten Presentations	
17 5/14	Final Exam Week (none for this class)	

Note: * it is possible, due to extenuating circumstances that exact coverage and sequencing of course content, grading criteria and weights may change. Students will be notified as far in advance of such changes.