Software Engineering in Vienna

Summer 2024

Professor Contact

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Emergency Contact

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Course Overview

A 6-credit study abroad course hosted in Vienna, Austria, designed to provide students with practical experience in software engineering within an international context. Through hands-on projects and real-world scenarios, students will gain a comprehensive understanding of the software development life cycle (SDLC) and develop the necessary skills to work effectively in distributed team environments. Students will also have the opportunity to appreciate the rich history of technology and manufacturing in Austria, particularly as it relates to software engineering. The term project for this course will result in the development of a software application incorporating the study abroad experience.

Credits Offered

CS 321: Software Engineering - 3 credits
(Writing Intensive course for Computer Science)

Then select one course from the following:

ENGR 398: Applied Engineering Abroad - 3 credits
(Mason Core – Global Understanding)

CS 399: Exploration of the Global Software Engineering Industry - 3 credits
(CS Elective)

Learning Objectives

Upon completion of this course, students will be able to:

1. Demonstrate an understanding of all phases of the software engineering life cycle, including requirements gathering, design, implementation, testing, deployment, and maintenance.
2. Evaluate and compare software engineering approaches between the US and Europe.
3. Effectively document software requirements and design artifacts.
4. Analyze and assess software usability using analytical evaluation techniques.
5. Demonstrate proficiency in project management skills relevant to software engineering, including planning, execution, and evaluation.
6. Apply critical thinking and problem-solving techniques to real-world software engineering challenges encountered during the study abroad program.

7. Apply software engineering techniques to develop a minimum viable product.
8. Understand the historical and cultural aspects of technology and manufacturing in Austria, particularly within the field of software engineering.
9. Foster intercultural competence through collaboration and engagement with local communities and software engineers in and around Austria.
10. Enhance career readiness through exposure to international engineering practices, networking opportunities, and the development of a global perspective on software engineering.

Mason Core

By meeting course outcomes 2, 4, 6, 7, 8, 9, and 10 students will satisfy the Mason Core Global Understanding learning objectives of:

1. Identify and articulate one's own values and how those values influence their interactions and relationships with others, both locally and globally.
2. Demonstrate understanding of how the patterns and processes of globalization make visible the interconnections and differences among and within contemporary global societies.
3. Demonstrate the development of intercultural competencies.
4. Explore individual and collective responsibilities within a global society through analytical, practical, or creative responses to problems or issues, using resources appropriate to the field.

Satisfaction of these learning outcomes will be demonstrated through the term project, student reflections, and the writing assignments.

Prerequisites

Grade of C or better in CS 310 AND ENGH 302

Course Materials

Textbooks and Learning Material: There is no required textbook for the class. All necessary learning materials will be provided via Blackboard.

Computer Requirements: You will need a laptop computer that you can bring with you to Austria. Recommended specifications from the CS Department can be found here. Your laptop should be easily portable, have a good battery life, and be capable of accessing WiFi. The CPU and RAM should be sufficient for running your favorite development environment. (Teams may choose their programming language for the term project.)

Software: You will need a browser and operating system that are listed as being compatible or certified with the Blackboard version available on the myMasonPortal. You will need access to GitHub as well as the appropriate GitHub client for your laptop.

Miscellaneous: Bring a comfortable backpack capable of storing your laptop as well as a paper notebook and writing utensils. Make sure to also pack a good pair of walking shoes – we will be doing a lot of walking!

Packing lists will be provided closer to the start of the term.

Grading Policy

Attendance and Participation: 25%

Term Project, including Weekly Reflections: 45%

Writing Assignments: 30%

Attendance & Participation

Attendance and class participation are integral components of your final grade in this experiential course, as it immerses you in real-world experiences beyond the traditional classroom setting. Class participation entails actively engaging in discussions, completing assigned readings, attending scheduled events, and exploring the city of Vienna and surrounding area. These events encompass lectures provided by the instructor, guided walking tours of historical landmarks, visits to galleries and museums, and guest speakers from the Austrian software engineering industry. While I aim to create an enjoyable learning environment during this trip, it is crucial to note that failing to attend assigned events in favor of personal activities may significantly impact your overall course grade.

Please also note that for our cafe visits, you're expected to at least purchase a beverage. We don't want to cause the Austrian cafe's to lose business by taking up space without purchasing anything.

Term Project

A major outcome of our software engineering study abroad experience will be the development of a software application that incorporates your experiences in and around Vienna, Austria. Through this term group project, you will gain software project management experience as well as learning how to document requirements, architecture, and design while incrementally creating a software product.

Writing Assignments

Writing assignments will satisfy the CS 321 Writing Intensive component of the Mason Core as well as supporting the Global Understanding component of ENGR 398. There will be multiple writing assignments throughout this term in which you will write about your experiences in and around Vienna. Some of these writing assignments will be incorporated into your term project and serve as travel guides that others may use when visiting Vienna and the nearby region. Writing assignments will receive instructor feedback and you will be able to incrementally improve your writing submissions.

Presentation & Discussion

Though not a graded aspect of this study abroad course, I will encourage you to share your study abroad experiences to future classes. I firmly believe in the value of international travel and experiential learning but the best way to encourage others is for you to share your personal experiences.

Email policy	You must use your Mason email account for all email correspondence having anything to do with your work at Mason. Federal laws protecting your privacy rights require that we only communicate student information directly to students –and use of the university email system is our only way to validate your identity. You may forward your campus email elsewhere, but we can respond only to a Mason email account.
Honor Code	You are expected to abide by the University's honor code and the CS Department's Honor Code and Academic Integrity Policies during the semester.
Accommodations	Any student who requires special arrangements in order to meet course requirements should contact me to make necessary accommodations (**before the pre-departure orientation please).** This includes students with disabilities as well as those needing accommodations for dietary or allergy restrictions.

Tentative Schedule (6 Weeks in Austria)

(A detailed daily schedule will be provided in your pre-departure information sessions.)

Week	Lessons	Activities
0 Early June	Program Overview Software Engineering Basics Intro to Software Project Management	Front-load material you'll need to complete your assignments in the week before departure. Meet your classmates and form groups for the project.
1 **6/17/24**	Launch term project Software Requirements & Design Continuous Integration	Arrive in-country and get settled into housing In-Country Orientation Walking tour of central Vienna (Including Hofburg Palace, Rathaus, Stephansdom, etc.) Orientation fo public transportation Visit to Naschmarkt Start bi-weekly Cafe Scene meetings, exploring different cafes and coffee houses within Vienna
2 **6/24/24**	Supporting Diverse and Distributed Software Teams Guest Speaker from Austrian Software Industry	Term Project Sprint 1 Cafe Scene Meetings Technisches Museum Wien Tour Belvedere Palace Excursion to Bratislava
3 **7/1/24**	Software Quality Software Usability Career discussions, including remote work and living abroad	Term Project Sprint 2 Cafe Scene Meetings Vienna Prater Night Excursion to Wachau Valley and Melk Abbey

	Guest Speaker	
4 **7/8/24**	Software Testing Guest Speaker	Term Project Sprint 4 Cafe Scene Meetings Tour of Schonbrunn Palace Explore 10th District – Cultural / Ethnic Diversity Excursion to Sopron, Hungary
5 **7/15/24**	Project Review Guest Speaker / Local Project Reviewers	Term Project Sprint 5 Cafe Scene Meetings Naturhistorisches Museum Wien Weekend Excursion to Prague, Czechia or TBD alternative
6 **7/22/24**	Wrap up any remaining project needs in Austria **Return to US (7/28 - 730)**	Farewell dinner
6.5	Project / Final Assignment Delivery	In the US – week after returning