Software Engineering in Vienna

Summer 2024

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

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

- Demonstrate an understanding of all phases of the software engineering life cycle, including requirements gathering, design, implementation, testing, deployment, and maintenance.
- Evaluate and compare software engineering approaches between the US and Europe.
- Effectively document software requirements and design artifacts.
- Analyze and assess software usability using analytical evaluation techniques.
- Demonstrate proficiency in project management skills relevant to software engineering, including planning, execution, and evaluation.
- Apply critical thinking and problem-solving techniques to real-world software engineering challenges encountered during the study abroad program.
- Apply software engineering techniques to develop a minimum viable
• Understand the historical and cultural aspects of technology and manufacturing in Austria, particularly within the field of software engineering.

• Foster intercultural competence through collaboration and engagement with local communities and software engineers in and around Austria.

• Enhance career readiness through exposure to international engineering practices, networking opportunities, and the development of a global perspective on software engineering.

**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.
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.)

<table>
<thead>
<tr>
<th>Week</th>
<th>Lessons</th>
<th>Activities</th>
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<tbody>
<tr>
<td>0</td>
<td>Program Overview</td>
<td>Front-load material you’ll need to complete your assignments in the week before departure.</td>
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<tr>
<td></td>
<td>Software Engineering Basics</td>
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<td>Intro to Software Project Management</td>
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<tr>
<td>1</td>
<td>Launch term project</td>
<td>Arrive in-country and get settled into housing</td>
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<td>Software Requirements &amp; Design</td>
<td>In-Country Orientation</td>
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<td>Continuous Integration</td>
<td>Walking tour of central Vienna</td>
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<td>Orientation fo public transportation</td>
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<td>Visit to Naschmarkt</td>
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<td>Tour of Schonbrunn Palace</td>
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<td>Start bi-weekly Cafe Scene meetings, exploring different cafes and coffee houses within Vienna</td>
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<td>2</td>
<td>Supporting Diverse and Distributed Software Teams</td>
<td>Term Project Sprint 1</td>
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<td>Guest Speaker from Austrian Software Industry</td>
<td>Cafe Scene Meetings</td>
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<td>Technisches Museum Wien</td>
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<td>Tour Belvedere Palace</td>
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<td>Excursion to Bratislava</td>
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<td>3</td>
<td>Software Quality</td>
<td>Term Project Sprint 2</td>
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<td>Software Usability</td>
<td>Cafe Scene Meetings</td>
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<td>Career discussions, including remote work and</td>
<td>Naturhistorisches Museum Wien</td>
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<td></td>
<td>living abroad</td>
<td>Excursion to Wachau Valley and Melk Abbey</td>
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<td></td>
<td>Guest Speaker</td>
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| 4  | Software Testing  
Guest Speaker | Term Project Sprint 4  
Cafe Scene Meetings  
Kunsthistorisches Museum  
Explore 11th District – Cultural / Ethnic Diversity  
Excursion to Sopron, Hungary |
| 5  | Project Review  
Guest Speaker / Local Project Reviewers | Term Project Sprint 5  
Cafe Scene Meetings  
Vienna Prater  
Excursion to Salzkammergut region, including Hallstatt |
| 6  | Wrap up any remaining project needs in Austria  
Return to US | Farewell dinner |
| 6.5 | Project / Final Assignment Delivery | In the US – week after returning |