

1. Overall Impression of the semester abroad

The fall semester started on the 22nd of August 2017 at the University of Portland (short: UP). All international students had to attend an orientation week before the semester started on the 28th of August. I studied in the field of mechanical engineering as well as civil engineering. Most classes are designed for graduated students, but for me as an undergraduate student it was easy to follow the classes due to my education and work experience in Austria. I really liked the way some teachers taught their classes, due to the fact the maximum number of students was limited. Therefore, it was possible to ask many questions if something wasn't that clear at the first place. The project Solar Thermal Organic Rankine Cycle (short: ORC) I worked on is a senior design team project of the Shiley School of Engineering. Previous teams already worked on this project before, but they had some troubles with design decisions including leakages of the refrigerant cycle. Due to my education as HVAC engineer we as a group were able to find solutions to prevent the system from leaking. The team in general did a great job this semester and we are looking forward to install the system during summer semester. Unfortunately, I am not able to attend the summer semester at UP, but due to all the contacts I made during this time, people will let me know about the current project status. The housing of UP was expensive for what we had. In my opinion, Austrian housing standards are higher than US standards. All in all, it was okay for one semester. During fall break we had the possibility to travel to Canada which was great. Oregon, especially Portland is beautiful. There is the gorgeous coast on the one hand but also Mt. Hood which is a volcano south to Portland. If you got lucky, you can see Mt. Hood from UP, which is amazing.

2. Quality of the Research Institute

The theoretical quality of UP is good. The main majors are mechanical, electrical and civil engineering. The way classes are graded are very different to Austrian Universities. During the semester, we had a lot of homework's and smaller projects, which was good for learning but very time consuming. Sometimes it was hard for me to focus on my bachelor thesis 1 during this time, simply to the fact that I didn't have enough time for all those homework's and projects. US students don't even have such theses, therefore they were able to focus on classes easier than me. All in all, I think that it is easier to study in the US than in Austria. Final exams in the US were much easier than in Austria. Sometimes I had the feeling that students from technical high schools in Austria (short: HTBLA) have better technical understanding than engineering students at UP. In case of the project we made some good progress. As mentioned before, we did all the theoretical work during fall semester. All components which are needed are already ordered and will arrive during summer semester. The next step is to connect all components and fill the system with refrigerant. Previous design teams had some major problems with leakages, but we found a good way to prevent those issues. The system will be able to generate electricity, even though the overall efficiency will be very little, approximately 7%. The reason why the efficiency is that low, is that Organic Rankine cycles in general have a maximum efficiency of 15%. The research facility of UP in general is good, there are several labs with different equipment. Sometimes it was very time consuming to get access to such labs.

3. Established Contacts

During my semester, abroad I established lots of contacts, both students and teachers. Dr. Heather Dillon was our supervisor of the project and also taught some mechanical engineering classes I attended. She is very competent, especially in the field of mathematics and thermodynamics. She helped me with some programming in MatLab and EES. Our turbomachinery teacher is publishing a book in a few weeks and we as students had the possibility to proof read the book. All students I met during the semester abroad were really friendly and helped me whenever needed. The team I worked with will give me project updates next semester and I am trying to help them whenever needed.

4. Recommendations for future Marshall Plan Students

In my opinion, it is important to focus on the project and to schedule every week, otherwise you will get lost in homework and other projects. Start the research paper as soon as possible to prevent very stressful days/nights. Finals week in the US is hard enough, and you don't want to study and write all your research paper during this time.