

Internship Semester Report

I'm Christian Pressa, student in the 5th semester of Mechanical Engineering (Undergraduate, B.Eng.) at the TEC faculty of Reutlingen University. In my 5th semester, I attended a study term at Kettering University as part of my internship semester during fall term 2019. The internship part took place at the SME family company Frei Electrical Engineering. There I worked on the project "Concept creation of a transfer process for the series launch of a new product".



I will report on my study term at Kettering University in Michigan, Flint during Fall Section 2019. The necessary preparations, boundary conditions, the start of studies and life on the Flint campus are discussed.

I intend to give future exchange students an imagination of Kettering, to make the preparation process easier and to getting started smoothly.

Contacts

The first point of contact in Reutlingen is the Reutlingen International Office (RIO) staff. In particular, Max Alber and Brigitte Bahcaci are able to help with all questions relating to the application process. The RIO also arranges contacts with former Kettering exchange students who study at HS Reutlingen.

Prof. Reibetanz was also able to give us good first information about the stay abroad and has motivated us to take up the opportunity to stay abroad at TEC partner universities since the first semester.

The Office of International Programs OIP is responsible for the interface to administration in Kettering. Kelsey Fedewa is the first point of contact here and can help in all matters.

Application & Preparation

Once a semester, the TEC faculty (Prof. Sönmez) organizes a general information meeting on all questions of a semester abroad at the partner universities

The TEC internal application deadline for a stay abroad in the winter semester 19/20 was March 11. 2019, i.e. about half a year before the start of the course.

Prof. Baldur Veit invites you to apply for a detailed information event, which is held in English-language. There, you also receive the first documents for the application process.

The application must be sent to RIO by email. The nomination will be decided there first. The application documents -in English of course - consist of:

- Resumé (1 Page)
- Transcript of Records Reutlingen
- Different Forms: Housing Request, Health Record, Exchange Student Application Form
- Letter of Motivation (approximately one page)
- Proof of sufficient funds from your bank, Minimum 3000 EURO per term abroad

No proof of sufficient knowledge of English is required in advance, but it is the responsibility of the student to at least be able to follow conversations and to express themselves (B1 level). Here I would like to emphasize that you should not shy away from the language barrier. The level of English among the international exchange students was very broad, but everyone has improved. Max Alber will send you feedback on the nomination at the end of March.

At the beginning of July, the positive feedback (“Acceptance Letters”) including documents and forms from Kettering University arrived at the RIO. The visa can then be applied for in the next step. You will also receive another email from the OIP at the beginning of July with hints on the visa application process. Looking back, the visa process was a very unpleasant part of the application process, as it was expensive, time-consuming, and contained a kind of uncertainty. You also have to go through the visa process parallel to the exam phase, which creates additional stress.

However, in comparison to apply as a “Free Mover”, which describes studying without a partner university, a *lot* of work is relieved!

A prerequisite for admission to the semester abroad is to sign the Health insurance “Wellfleet” from Kettering University. This costs about 350 € per term and is absolutely compulsory.

In my opinion, Wellfleet offers less benefits compared to German insurances. That is why I have taken out additional insurance. This was also recommended to us by the RIO.

There are many providers in Germany like ADAC or DKV, which are fortunately significantly cheaper than Wellfleet insurance.

Traveling in the United States

The US is a country with incredible and diverse nature, vibrant metropolises and incredibly nice and welcoming people. A stay abroad also includes getting to know the country and its people. Especially in such a globally present country as the US, some prejudices are refuted - but also confirmed. The J1 Visa does not only allow you to travel to the country during your stay abroad, but also to enter the country 30 days before the program begins and 30 days after the program ends.



In the case of term 2019, an unusually large number of mechanical engineering students from Reutlingen attended the exchange program in Kettering.

This resulted in a small tour group. We decided to travel to the US before the program started in the summer. Since we were in the very advantageous situation of sharing our travel expenses in a group and the setting in the group was very positive, we decided to rent an RV (Recreational

Vehicle) and discover the west coast of the US. We enjoyed all kind of outdoor activities like hiking the Bright Angel Trail at the Grand Canyon, swimming in the Pacific Ocean, surfing the waves of Malibu Beach, paragliding at the coast of San Diego... But most importantly, while travelling you get to know the country and the people living there.

I got to know the Americans as very open-minded people. First of all, the superficial "How are you?" which should not be understood as a serious question, may seem very unusual.

But thanks to the positive atmosphere that comes with this question, great conversations can develop and you get in touch with many people very quickly. Something that you are not used to in this form, when you are German.

Kettering University

Kettering provides students with a first class academic experience. All my professors at Kettering were very passionate about all aspects of their classes. The buildings, learning equipment and organization of studies were also excellent.

It was very interesting that you could choose from all classes available, even graduate courses. For example, "MECH 526 - Fuel Cell Science & Engineering", which was labor intensive. But for us mechanical engineers from Reutlingen in the fifth semester it was completed very well by everyone. We have been rewarded with a deep and interesting insight in a technology which will play an important role in the future.



Another specialized course I attended was "MECH-521 Energy and Environmental Systems Design". Professor Dr. Pourmovahed offered a unique, very practical course. Students work in design teams on a self-chosen project in the fields of energy efficient and environmentally friendly system design. For example, students worked on a new type of method to extract micro plastics out of water, did research on a new type of vertical wind turbines, developed a system to passively temperate solar cells to increase efficiency and built an automated soilless indoor farming plant in the basement of their dormitory. Students are given a limited budget to actually build a prototype of their design. The course workload was determined by the students' motivation, which was very high in fall term 2019.

A further (mandatory) course I want to mention is "COMM-435 Written & Oral Communication for Overseas Students". Course instructor Kevin Fedewa offered without doubt the best English course I've ever had. We got a lot of personal feedback to improve our English skills significantly. A diverting class with interesting and practical, useful topics was provided by Mr. Fedewa. With European and Asian participants in Fall term 2019, differences in culture and business life are shown and a deeper understanding for each other was elaborated

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Applying for an Internship

There are many ways to get support while looking for an internship.

Of course, it is possible to apply directly to various companies in the USA or to use existing contacts in companies, which is the most promising.

Professor Veit from Reutlingen University also offers help with finding an internship as part of the RIO.

Kettering University essentially offers three options:

1. Co-Op Partner & Technology Showcase

The Coop Showcase is somewhat smaller than the Employment Fair and its purpose is rather that companies introduce themselves to new students and arouse interest. In contrast to the Employment Fair, the atmosphere is more relaxed and less formal.



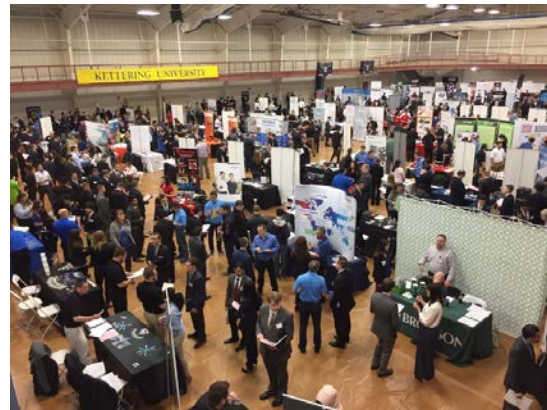
2. Employment Fair

The Kettering Employment Fair is the largest, regular fair at Kettering University as far as I know.

Dozens of the 500 Coop companies at Kettering University, not only from Michigan, use the direct contact to the students that this fair offers.

Well-known companies such as Bosch, GM, Dow Chemical, Mitsubishi Motors, TRW, Borg-Warner, Lear, Ford, Tesla, and Hyundai are sending their personnel to the fair.

Many companies send their HR decision-makers directly to the fair, so that many Kettering students find a job or a Coop position directly.



However, in the Orientation Week at the beginning of the semester, the Kettering Coop-Office made clear that the Kettering Coop-Companies are normally not interested in hiring exchange students for the very short period of time we were looking for.

It is best to ask the OIP for the exact date and time of the Fair, since it takes place in the mornings during the regular lectures. So you can announce your absence to the professor. Exchange students will not be informed about the fair as they don't belong to the intentional target group of most companies. It is also advisable to ask which companies visit the fair to prepare accordingly.

A lot of value is placed on a professional appearance. Without a business outfit, you are definitely underdressed.

Preparation also includes creating a current resume, which you bring to the trade fair in multiple copies. It is also advisable to have the resume checked by your English lecturer at Kettering or at the Kettering Career Service.

3. Research / Laboratory Work

It is possible to get a job with a professor at Kettering University to carry out research or laboratory work. It is important to approach the professors directly and ask for a conversation, with emails it is not unlikely that they will go down.

The OIP can provide tips on which professor is currently looking for assistants.

My Internship at Frei

Short development times are a key feature in the product development process to increase competitiveness, regardless of the industry.

A fairly important part of this development cycle is the transition of development results into the production process. This transition is described by the term "design transfer"

In short, the design transfer answers the question: "What has to be done by whom so that the product can be produced in series on schedule?"

My task was to develop a concept of a reference process

"Design Transfer" for a product launch in the manufacturing

department. The concept should primarily follow the needs of Business Area "Control Systems

for Transport Technology" but it should also be able to serve as a template for other business

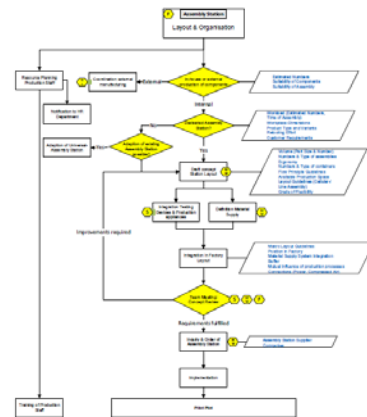
areas. I approached the task by identifying the existing processes by collecting information

during employee interviews, personal discussion and research in the QM manual. Afterwards I

recorded the processes in detail and visualized them. The information gained in the process

evaluation afterwards was used to develop a draft of a new process concept.

Furthermore I was able to get a deep insight into plastic injection molding technology, CAD, and company structures.



Summary

During my 5th semester, I was able to gather great experiences and learn a lot. Not only about engineering topics and business life but also about the American culture and thanks to the diversity at Kettering also about a few of other cultures.

In general, the exchange is very well organized and you always have contacts who can help.

The exchange program offers the opportunity to gain experience abroad with comparatively little effort during application (compared to free moving), without losing time. It was very important to me personally, to spend a period of study abroad within the regular study period.

In addition, the country, people, education system and culture of the USA can be experienced.

During my internship I was also able to get a deep insight into product development processes and process organization.

I am very thankful for this opportunity.

Not only can you also set yourself apart from competitors during an application process after your studies. In addition you gather many new friends, contacts and experiences for life.