Report for the ERASMUS Exchange Semester

Period: January 14 – June 14

Home University: University of Applied Science, Munich
Faculty 06: Mechatronics and precision engineering

Exchange University: University of Southern Denmark
Faculty of Engineering

Studying Mechatronics in master degree at the University of Applied Science in Munich, I decided to go abroad for one semester. Main criteria influencing my decision were increasing my language experience as well as finding out foreign culture and habits. Due to the fact, that my application was delivered fairly close to the deadline, I was pleased to find a prescribed position at the University of Southern Denmark (SDU). This educational institution consists of five faculties in Esbjerg, Copenhagen, Kolding, Odense, Slagelse and Sønderborg. The faculty of engineering, where courses for mechatronics master are provided, is placed in Sønderborg. The application procedure was accomplished online and supposed to submit ERASMUS documents, synopsis of graduated course achievement and a language requirement form. I started my semester abroad in January 2014 and stayed in Denmark for five month until June 2014.

Field of study:

One of three different types of mechatronics topics, namely dynamics, embedded systems or nanotechnology has to be selected by master students. To guarantee, that an apportionment of the courses I wanted to choose is possible, notional assessments were signed by the chairman of the examination board at the University of Applied Science in Munich. Unfortunately students of a certain mechatronics topic are not allowed to participate in courses of other fields. It was announced, that the courses can be selected freely, but two of the courses, I wanted to choose, were not available for mechatronics students. Hence I had to modify my schedule and finally selected the following three courses with a workload of 20 ECTS-points:

- MDB - Mechatronics Design and Build 5 ECTS
- SMS - Scientific Methods 5 ECTS
- DPRO – Dynamical modeling project 10 ECTS
MDB (Mechatronics Design and Build) includes a comprehensive project, in which an autonomous sailing boat has to be built. This course is open to students of all years and attended by students of mechatronics and innovation and business. All steps from draft, development, engineering to the implementation are performed in team-work. The validation of course is dependent on a report and a final experiment, at which the fulfillment of the semester goals are verified.

SMS (Scientific Methods) transmits knowledge about accurate scientific procedure, such as presentation, reports, error analysis, data acquisition, editing and exposure. This course is graded by a pass or fail classification and requires complying several reports as well as presentations in groups of up to three members.

DPRO (Dynamics Project) contains the elaboration of a problem, which is to be defined by the students. My group assigns to analyze different approaches of energy storage systems, to be installed on an isolated island. A lighthouse is located at the island and photovoltaic panels supply the consumption of the bulb. Due to irradiation, power generation is time variant and has to be balanced by a storage system to cover the constant demand. DPRO is validated by a report of 40 pages, a presentation and oral interrogation.

The quality of the lessons and the assistance of the university have been excellent at all times. An intro-team, run by local full-time students, provides help for every matter. Therefore all issues which occurred while the arrival and registration process were solved immediately and new contacts have been established soon.

Figure 1: Alsion - University of Southern Denmark
**Environment and activities:**

The University of Southern Denmark at the place of location, Sønderborg, was built in a novel block of buildings close to the sea, which is called Alsion. Companies that are collaborating with the University and a concert hall are located in Alsion as well.

The city is placed in Syddennmark around 40km far from the German border and has around 27 400 inhabitants. Due to the fact, that the cost of living in Denmark is fairly high, shopping at Flensburg is a cheap alternative compared to the local stores. Some of my fellow students went to Flensburg regularly and I was glad always finding a ride. The nearness to Germany also provides German mobile network at the beachside, why I didn’t need to conclude a Danish mobile contract. After my arrival I registered myself at the local council hall and received a Danish insurance card. With that card, one is able to arrange a bank account, mobile contract, consultation and the announcement for the Danish course. The course at Lærdansk is free of charge and takes place one evening per week. In my case the beginner’s course was on Tuesday from 5:30 pm until 8:30 pm, additionally some speaking practice lessons are offered on Monday evening as well.

The accommodation I lived in is called Ungdoms-kollegiet (UK) and is administrated by a company, which is called Kontor and takes care of several residential homes. The monthly rent was around 2100 DKK which equates to 280 € additionally laundry, broadcast service fee and heating costs. I paid the rent cash at the local bank implying an obligatory fee of 5-10€ per transfer dependent on the bank company. Two monthly rents were paid in advance as security guarantee before my arrival. My home was a single room with a separate bathroom and shared kitchen. Around 20 other exchange students, most of them from Switzerland, Netherlands, France and Germany were living at my floor and shared the kitchen with me. It takes around 30 min. from the UK to go to the university by foot or ten minutes if a bicycle is available. I brought my bike with me from Germany and was able to explore the environment flexibly. Capital costs for bicycle are fairly high, but the University offers a second-bike acquisition and all of my fellow students acquired bicycles as well. The local bus service is expensive and imply rarely operational schedule.
The main sights in Sønderborg are beautiful beaches, the castle, a harbor and several small museums. Two shopping malls with opening hours until 10 pm seven days per week offer nonrestrictive shopping facility. A small airport provides a direct connection to the international airport of Copenhagen for around 80€, the railway station is located in front of Alsion.

Figure 2: View to the west at the beach next to Ungdoms-kollegiet (UK)

The experience of living a semester abroad was one of the best decisions I have taken. I met many kind fellow students and made a lot of new friends from several countries. The lessons, the fact of speaking English intensive and the Danish course increased my language experience. I appreciated the time in Denmark a lot, like to recommend everybody to take such an option and I am looking forward to spend more time in this beautiful country.