

**EXCHANGE REPORT****Name****Year and semester for exchange**

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Exchange university

Universitat Politècnica de Catalunya (UPC)

Degree programme

Energy and Environment

Meeting Spring in Barcelona

Before departure

Ever since I started KTH I knew I wanted to do an exchange semester abroad. It seemed like a once in a lifetime opportunity to be in a different country for an extended period of time. I also wanted to stay in Europe and explore the continental culture. We were three friends who applied for Barcelona but only two of us got accepted, me and Noel Arancibia Holm. I chose Spain and Barcelona because I had heard good things about it from students before me. To be honest I also thought Spain was a little overlooked and underrated by people around me. Places like Italy appeared to sound more attractive to people. But Spain is a large country with many provinces, each unique and with a rich culture to experience. I'm very happy I went to Spain.

Upon arrival

Noel and I arrived on the 5th of February and the school officially started on the 13th. We didn't have accommodation yet and spent the first days going to apartment showings and getting all the documents ready for the university. ESN, the Erasmus organization had also already started organizing events we could join. There you would meet the other Erasmus students from UPCs many different faculties. There were probably student unions to engage in if you wanted to but I, and many like me, were satisfied with ESN events. These events could be going to the beach and playing volleyball, going out to a bar and club, or going on a hike.

Financials

I received the Erasmus scholarship. I know there are other scholarships like Carl Levin and Anna Whitlock that some of my friends applied for. However, I forgot to apply and missed the chance. In general, I spent more money in Barcelona because there were so many things to do. I took more trips, went to more restaurants, and saw more tourist attractions than I would normally do. However, the same lifestyle would probably be slightly more expensive in Sweden than in Spain. By cooking food at home, you can save a lot of money. Also, Catalunya is home to many beautiful cities and if the cities lie close enough to Barcelona, it is often included in the regular train ticket. The public transport in Barcelona is cheap, only 45 € for 3 months. By exploring these cities and beaches you can save a lot of money. To receive the ESN card, which was required to sign up for the activities, you had to pay around 15 euro as a one-time payment. Some events also required an extra fee but in general the prices for these activities were reasonable.

Accommodation

When me and Noel first arrived, we stayed in a hostel near Camp Nou, the famous football stadium. There we met Hannes, a German who was also going to do his Erasmus in Barcelona. Before arriving, Noel and I uploaded posts in different Barcelona Facebook groups explaining that we were looking for an apartment. Some reached out to us, and we went to two apartment showings. One was expensive but looked really nice and the other one was cheaper but in a little worse condition. However, the

landlord was really helpful and we decided to take the latter one. It was a three-bedroom apartment so we asked Hannes if he wanted to stay with us, which he did. We paid 550 euros each every month but did not have to pay any service fees since we rented directly from the owner of the apartment. We lived in the neighborhood Eixample and had about 20 minutes to get to the university by tram. I know the University has some accommodation to offer but I am under the impression that most people find their own. It is common to live with many roommates, and with people coming and going all the time in Barcelona it is not difficult to find a place to stay. I would really recommend Eixample because it is calm, green, close to campus, and offers a lot of good restaurants and bars.

University and studies

The university is big with many different faculties. I was in the ETSETB which was the telecommunications faculty. All programs at KTH have an equivalent faculty at UPC. There are fewer scheduled lectures and tutorials at UPC than at KTH. On average I would have one lecture a day. This lecture would be 2 to 3 hours. Almost every Tuesday I had nothing scheduled and evening classes were also common. This meant more time had to be spent studying on your own. I took 2 entrepreneurship courses which is something I had not had at KTH. These courses required group work and we would regularly have meetings to discuss the projects.

Courses

230679 Photovoltaics Systems

This course was about solar cells and its implementation on both small and large scale. We learned about the theory, the different technologies, and the global market. I liked this course a lot as I feel like I got an overarching understanding of the history and future of the energy source and also in-depth knowledge regarding theory and forecasting. During lab sessions, we worked with the program PVsol, where you can model a system anywhere in the world and predict the cost and the produced energy.

230654 Innovation Based Service Management

In this course, there was only one project throughout the entire semester. The task was to write a draft business plan and to present this as if there were investors present. Once a week we had lectures where important topics like marketing, financing, and market analysis were discussed. It was up to us to schedule meetings and work on the business plan.

230712 Entrepreneurship for World Challenges

This course was similar to “Innovation based Service Management” in that we had to create business plans and do sales-focused presentations. However, in this course, there were three different projects all related to world challenges. One was to develop a business that helps reduce the amount of pollution that bikers are subjected to in the city. Another one was to decrease the severity of the drought in Catalunya.

230206 Matlab and Its Applications in Engineering

This course was very demanding with many different topics covered. However, when looking back, I feel like I have learned a lot of useful tools and improved my skills in Matlab. This knowledge extends beyond just Matlab; I now have a broader understanding of the possibilities and applications of any programming language, even if I'm not as familiar with their syntax.

230728 Control and Applications in Power Electronics

Also one of the more challenging courses this semester but also one of my favorites. It was held on Wednesday evenings and the teacher really made the subject interesting. Half of the course was devoted to control of buck and boost DC converters, and half of the course was devoted to control of inverters/rectifiers of AC to DC or vice versa. The latter part was particularly interesting since all renewable energy sources like solar power and wind power are heavily reliant on this.

230637 Critical Thinking and Creativity

The course had continued examinations every week and mandatory lectures. The course introduced different ways to approach engineering problems. The course also pointed out the different biases that affect all decision-making and the importance of being creative when figuring out a possible solution.

“Critical thinking and creativity” and “Matlab and its applications in engineering” will be elective courses and the other four courses will either be conditionally elective courses or conditionally elective project courses. At least this is according to my study plan and hopefully it will still work. At first, there

were no available spots in many of the courses described here. When coming to Barcelona I had to sign up for different courses that did not seem as interesting. I was a little nervous about this but there were no issues switching courses after a few weeks when spots had opened up in all courses I wanted to do.

City and country

I loved the city and the culture. There were always activities to join or celebrations somewhere in the city. And of course, you always had the option to go to the beach to swim or play volleyball. The only negative aspect I can think of is that they could be very pushy and stressed on the metro, not letting people off before entering and pushing you to get to the exit. So if I was going somewhere during rush hour I would usually take the bus or walk. At restaurants and bars, the servers were always nice and polite and most of them spoke English.

Leisure and social activities

In my spare time, I hung out with my friends. We usually played spikeball or volleyball at the beach or went to bars and restaurants. My friends were also Erasmus students from all over Europe. The football team is a big part of the city and we went to see a game. Unfortunately, Camp Nou is under construction now, so we did not get to see the renowned football stadium. The ESN organization offered many different sports events and I attended one at the beginning of the term. It was a volleyball tournament and the winners got to go to Santander to meet Erasmus teams from all over Spain. The winners there went to Poland and met the best Erasmus teams from all over Europe.

Sustainability

Erasmus can help pay for the tickets if you go to your city by train. I did not use this but I used trains and buses when traveling within Spain. Spain has high-speed trains and the public transport in Barcelona is so good there is really no other alternative. There are fruit stores everywhere with great quality and I ate a lot of fruits and salads.

