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## **HEIBus Project**

### **WORK PACKAGE 5: Flexible Student Mentoring by Companies (Flex Mentoring)**

#### **D5.5.2. Comparative study**

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## Introduction

After feedback was collected from everyone involved in Flex Mentoring group and a comparison of the results is written and analysed. This report contains the findings.

We have made this comparative study between student groups who are involved in Flex Mentoring program and student groups in regular study program in order to follow, the motivation and study success of the students in their studies. This could offer solutions on helping students who are lacking behind or are at risk of dropping out of their studies.

For the comparative study data are obtained from the questionnaire of the students, companies and professors/teachers involved in the Flex Mentoring group. In this report we shall focus on the progress and the motivation of the students, to find out if the cooperative study program could be a good solution method on motivating students during their studies.

We present the conclusions drawn from the multi-month mentoring program at each university.

## JAMK University of Applied Sciences, Finland (P1)

We compare the progress of the students involved in the Flex Mentoring program with those who are not involved concerning the written answers on the questionnaires by your students and staff.

We list the advantages and the disadvantages concluded from the feedback for both group of students.

### *Advantages / Participants:*

- Students got a lot information of the working life and companies' ways of operation as well as about the management of the companies.
- Students got new motivation to their studies.
- Practical point of view to the engineer's work.
- Ideas/options when searching jobs after graduation.
- Internationalization point of view. To get experience of international work and use of English language in working life.
- New technical knowledge of production.

### *Disadvantages:*

- Not found

## Technical University Cluj-Napoca, Romania (P2)

The comparative study is developed based on the feedback received from the students during the FlexMentoring Program implementation. In the program more than 40 students from TUCLUJ participated during the 3-year pilot implementation of the program. The students that participated came from the bachelor level, from first till 4th year of study. The specializations of the students were Fine Mechanics and Nanotechnologies (MFN) and Mechatronics (MTR).

In implementing the program TUCLUJ collaborated with Protehnic SRL (mentor: Teodor Tiuca), Automates SRL (mentor: Razvan Andrus) and Bosch Plant Jucu (mentor: Liviu Dinu). Together the following activities were developed: company visits “one day in the company”, tailored lectures, entrepreneurial tailor courses, laboratory activities, bachelor thesis, practical training in company.

The participating student gave a positive feedback after being involved in these activities. They consider as an advantage by implicating in the program the following aspects:

- good to be in contact with the companies and see the activities an engineer has to do
- I got to understand the process of a project within the industry that the company works in
- gain new knowledge that was backed up by subjects I studied at the university
- I learned something new, saw how it works in a factory
- inside knowledge that was presented to us
- it was a captivating presentation and it pointed me towards a decision in my career
- I gained a lot of knowledge that I was able to use for the bachelor final project
- it offered me a boost to my engineering experience and I was able to develop as a future engineer
- The opportunity to interact and ask experts
- New skills performed in CATIA designing
- I was introduced to real apps that function in the factory
- Motivation for applying for internship at BOSCH
- I learned about the opportunities to use my knowledge in real life
- I understood better a company needs and its activity domains
- It helps to think as an engineer
- It offered me the opportunity to test my learned knowledge and skills in actual projects and equipment

As can be seen from the above statements, the student appreciated the direct interaction with company experts and the involvement in the company activities. These offered them several advantages in comparing with the students that did not participate in the program. They are now more motivated and involved in the development of their engineering career. The developed lecturers and company activates helped increase their competences in different fields of engineering in a multidisciplinary environment. The activity “one day in the company” offered to the students that choose to participate to this activity and insight of the company from an entrepreneurial point of view helping them in developing new skills and understood better how a company works.

## University of Miskolc, Hungary (P3)

In the Flex Mentoring Program 18 students were involved. The majority of students involved into Flex Mentoring Program are studying at Bsc level, with a smaller group at MSc level and few studying at Phd level. Two companies participated in the mentoring: Electrolux Lehel Kft. And Bosch Power Tool Kft. Electrolux is located in Jászberény, 180 km from Miskolc. The Bosch Power Tool is located in the same city, Miskolc, as the University of Miskolc.

The two companies provided the most support in the supervising of student research topics and in the dissertation topic management. Special tailored lectures were organized regularly, and laboratory and production presentations were held. On company tours, open days and job fairs, they showcased the company's product development, product range and job opportunities.

The students gave a very good evaluation of the practical advice and measurement opportunities provided for the topic guidance.

### **How the flexible mentoring program helped you?**

- This program helped for the problem solving.
- More experience
- It helped me reflecting on things from a wider perspective.
- Good ideas for thesis writing
- New friendships were established.
- Great tasks solved, good for my thesis work.
- New partnerships and friends.
- Everything was new, I liked it much.
- I could write my thesis.
- Helped writing my thesis work!
- I liked working with company experts.
- Writing my thesis work and I found a good job as well
- I hope I can have an internship
- Great task, good material can be for a thesis.

### **Can you mention any issues in which you would have needed more help or support?**

- More time
- More access to data, new tasks given (longer programs)
- Find the topic of my thesis work
- I want to continue working with the company.
- Some tasks were difficult and new for me, but I think I could learn a lot.
- The same for my master studies...
- I wanted more focus on my thesis-research, but I understand that a plan must have been followed.
- More discussion could have been better
- some tasks were difficult to me
- No. But sad for closing the factory.

### **Have you found any benefits provided by the Flexible Student Mentoring Program in your professional development compared to students who did not participate?**

- Yes, a lot
- More experience
- I am more capable communicating with foreign students. I am more sociable and outgoing.
- Yes, it was a good to have experience
- I can write my thesis easily
- Good experience to find, I hope that they will help me in writing the thesis work.
- Good experience, good tasks. But I do not like much documentation.
- Better practical knowledge available.
- I will understand the learning materials much better.
- Easier than without it.
- Much better opportunities!
- Practical experience
- Great possibilities, if you are active
- See the technology in operation
- Everybody must participate a program like this!
- I do not know, but it was a good project!

The overall summary is that the students' opinions were positive. The only criticism was that they wish there were longer programs, and that BSc students would like the program to continue during their master studies.



## Hochschule Esslingen, Germany (P4)

The goals of the WP5 implementations were to give students a unique insight look into what all is possible after graduation, provide contacts to companies, set up mentorships and assist with the search for thesis topics/ supervision, internships and job placements.

Some students who participated in WP offerings described their involvement as “It helps me understand how it works inside the company”, “It helped me connect with companies”, “It helped me to network” or “better understanding for the company work”. Asked about benefits the WP5 students enjoyed compared to students who did not participate, some answered as following: “it helped me get in touch with the local enterprise, knowing how the working staff do their everyday ´s work. I find it a precious experience , which broaden my horizon and is helpful to my future study.”, or “the chat I had with my mentor gave me an a better perspective of the job market in Germany and helped me form a more well informed decision about picking my bachelor thesis.”, and “can learn more about the real work before graduating and they can deal with the work easier when they just graduate. Lastly the Enterprise Tortur can give them helpful advice about choosing the suitable job, which is not easy for students not participating difficult to get.”.

The mentoring platform the HE created provided assistance especially for international students. Giving them a helping hand to better understand the German job-market was a big criteria for planning the activities. Concrete benefits that some WP5 students experienced was a thesis topic and thesis support from the company mentor. Personal mentorship and even a placement into another company for better support.

### **How the flexible mentoring program helped you?**

- better understanding for the company work
- I only met my mentor once and we didn't have any exercises or events to further the conversation. However the chat I had with my mentor gave me an a better perspective of the job market in Germany and helped me form a more well informed decision about picking my bachelor thesis.
- As I am concerned, it helped me get in touch with the local enterprise, knowing how the working staff do their everyday ´s work. I find it a precious experience , which broaden my horizon and is helpful to my future study.
- Very little
- It helps me understand how it works inside the company.
- It helped me connect with companies.
- It helped me to network

### **Can you mention any issues in which you would have needed more help or support?**

- in project management process
- We just had an introduction session with the mentors at which I was informed that I was a good fit to become a mentee but we didn't have any further events or meetings. I had expressed my desire to visit their work-space, shadow my mentor to learn more about the company and about internship opportunities at the company to which my mentor responded positively and also offered to get me in touch with some people he knew in the industry who were interested in my particular field of interest. I do understand that this was the first time a mentorship program was held at the university and that there was more stuff planned which could not be done because of the same reason.
- It would be better if there will be more communication between the cooperating Enterprises and the WP5 students. If possible, the enterprise tutor can come to the campus, set and analyse the projects at weekends so that students would have more time and interest to join in it.
- More contact with more Enterprise leaders.
- It would have been nice if more companies were involved earlier in the semester as I was hoping to find an internship in the fall semester.

**Have you found any benefits provided by the Flexible Student Mentoring Program in your professional development compared to students who did not participate?**

- little to none as of yet but I hope I can get in touch with my mentor through the WP5 programme again for support with making important career decisions in the future. I thank the university and FESTOOL for the opportunity and hope that the programme reaches its potential soon. Please do not hesitate to contact me for any further questions. Thank you.
- In my opinion, if the wp5 students can have long time and systematic guides from the Enterprise, they can learn more about the real work before graduating and they can deal with the work easier when they just graduate. Lastly the Enterprise Tutor can give them helpful advice about choosing the suitable job, which is not easy for students not participating difficult to get.
- No, there was just one session to talk and interact with one company. So it was a not a valuable experience.
- It lets me know what the company needs and motivates me to think about their demands when I learn.
- Yes it was beneficial

WP5 offered valuable benefits for students, HEI staff and companies. Through Keynote-Speeches companies have the chance to reach a larger group of people (future workforce) without investing a lot of time or money. On the other hand, students get more than just the usual company information; they get an insight look from a real employee's perspective. Universities benefit due to the networking activities, new companies can be approached, new professional connections made.

## University of Jaen, Spain (P5)

### **How the flexible mentoring program helped you?**

- It gave me a better understanding of my future working perspectives
- I have received additional training on power electronics
- I learned a lot of new technologies
- It was very helpful to be in this program to boost my career.
- Me ha permitido a fondo el departamento de prototipado de la empresa Valeo.
- The program helped me show different tasks that are necessary for my future
- It was a challenge in a completed new environment
- I have been integrated in a real project
- I think the opportunity is very positive

All the student responses regarding the flex mentoring program have been positive. Because some of the seminars, in this program, were given by Valeo company, and were focused on electronics applied to the automotive sector, the students have underlined this in their responses. For instance, the additional training in power electronics, learning new technologies, contact with the electronics department in Valeo have been very positive aspect that only the student taking part in this program have enjoyed.

Students taking part in the flex mentoring program have shown more participative in those courses that have organized seminars taught by company personnel.

### **Can you mention any issues in which you would have needed more help or support?**

- More company involvement
- The company should propose final a thesis
- I can't remember any issue
- Maybe to be in closer contact with companies experts.
- I don't remember any issue
- Develop is the project (organization)
- I can not contribute anything in this regard

This is an specific question and related to those who have taken part in the flex mentoring program and it cannot be included in the comparative study. The flex mentoring program students state that more company involvement and more contact with the company expert would be valuable.

### **Have you found any benefits provided by the Flexible Student Mentoring Program in your professional development compared to students who did not participate?**

- I don't know
- Yes, I have acquired a better understanding about power electronics and its real applications
- Not really
- Adquirir una visión global de la empresa e introducirme en el mundo de la impresión 3D.
- It is so early to know
- The benefits helped me to growth professionally as I got: Useful team work skills, open international environment, long distance work(Skype)..
- Now, I have a more real vision of work in an industry

This question is quite related to the first one. For this reason, the responses are similar. Students consider quite positive their participation in the flex mentoring program. They have a more real vision of the industrial world compared to those one that had not taken part in the program. Our students also mention the better understanding of power electronics.

## Summary

The comparative study aimed to evaluate the benefits of the participating students in FlexMentoring Program in relation with the students that followed the regular curricula in their universities. For the evaluation the students feedback from the questionnaire was used. It can be observed that in all participating universities the feedback was a positive one. Comparing the effect on the students involved in the Flex Mentoring program with those who are not involved, related with their engineering career development, the following conclusions can be summarize:

- students involved in WP5 have positive feedback
- they enjoyed to work with company experts
- they enjoyed to know the newest technologies
- they were given a better insight into the life of the companies
- students got new motivation to their studies.
- practical point of view to the engineer's work.
- it was very helpful to be in this program to boost their career