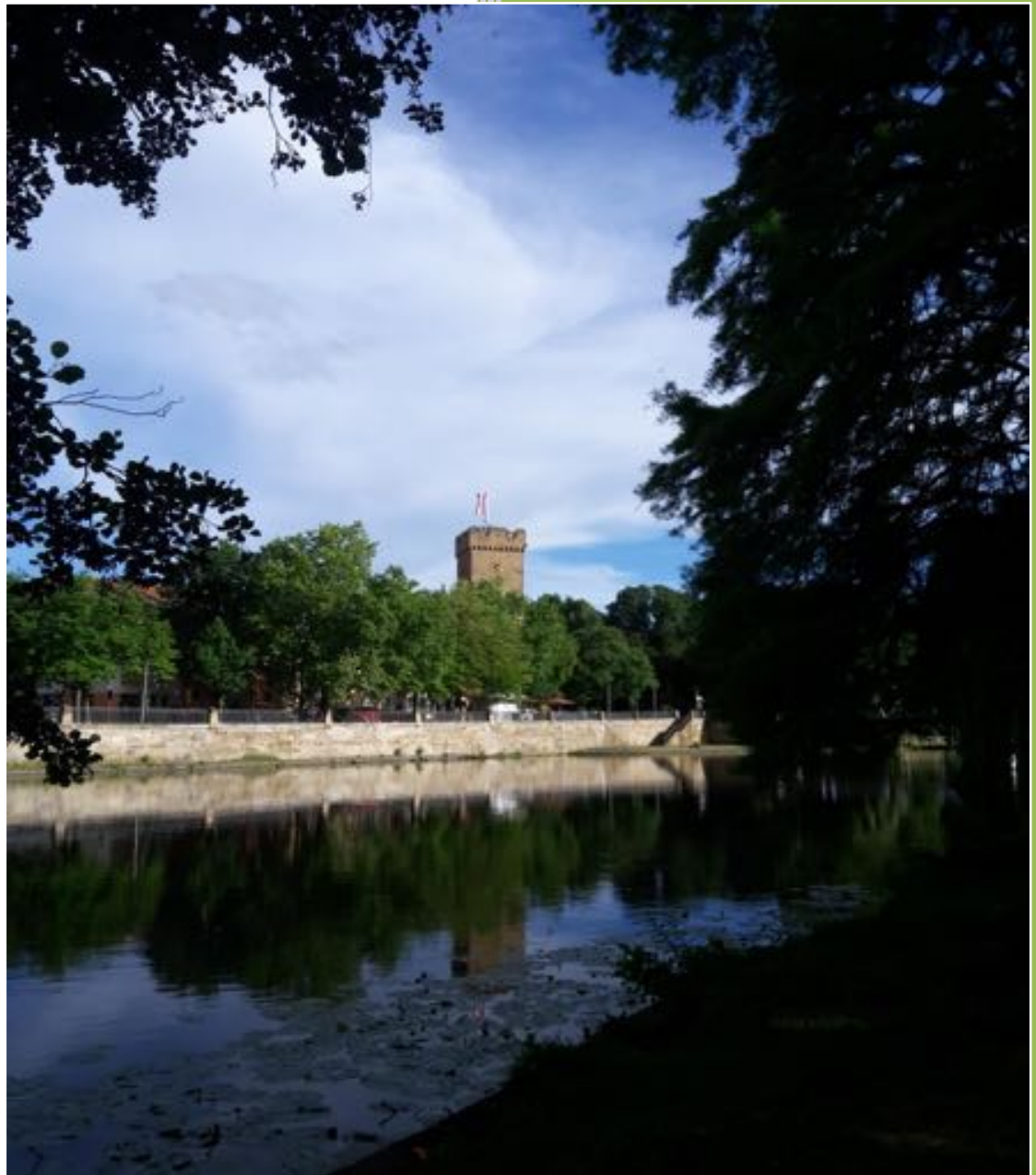


# Train the Trainer Report



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# Introduction:

This report describes the most important events and training topics I have done during my visiting to Germany under the umbrella of train the trainer, which established in German Jordanian University since 2014 with the cooperation of the DAAD institution.

It is divided into four main chapters, each one describe the events in certain part of the training trip.

The first chapter is about my visiting trips to the Audi Company in Neckarsulm , Germany, where I was guided in a science tour in the Audi manufactory. The second chapter discusses my job and tasks during working in Heilbronn Technical Hochschule, the labs I visited and the instrument and software I worked on even my experience with other people and culture.

The third chapter introduces little about the culture cities I discovered, and the scientific museums I visited. Finally, the last chapter addresses some problems related to our students in Germany Hochschule which was discussed during the time being there.

## Chapter One: Audi Company and Manufactory

The first amazing thing I have done in the first week of being in Germany was the visiting to Audi Company, Plant and Exhibition in Neckarsulm, Germany.

I went there twice while being in Germany , At the first time i went with professor Meroth to see the factory of Audi cars and vehicles there, at which different types and models of cars can be designed and manufactured, while the second time i went to see the exhibition there.

At the first visiting, the factory contains different sections and sectors such as logistics, manufactory, and design and customer service. The customer can chose any addition on the car design at which the designer and manufacturers can execute it.

The guide tour introduces us to the history of the audio company, its founder and the meaning of the four circles in their logo. Those four circles represent the car companies that banded together to create Audi's predecessor company which called the Audi Union.

Even more the guide tour told us story around the name of the company, Audi name is based on the Latin translation of the surname of the founder, August Horch. "Horch" meaning "listen" in German, becomes "Audi" in Latin.

Audi Company has a wonderful history, fighting for develop the country and establish new version of automobile system that is luxury and achieved the customer desired.



*Figure1 : Audi AG Werk Neckarsulm*

Then we entered the factory, at which multi sections present, logistic, manufacturing, assembly and shipping section.

The first section was the logistic one , multi parts are arranged in large containers at which a red light presents, when the laborer needs to pick up parts , the red light on the required containers become on to ensure he pick up all necessary parts.

Unfortunately, there are no pictures for the plant, the department and the logistics in the Audi factory as the instructions in the plant not allow visitors to take photos cause of the privacy and security of industry. Below a picture from the gallery of Audi Neckarsulm and general new achievements in this industrial field.





Figure2 : Audi Plant Summary Panel

By traveling around Germany, it was clear for me and my friend that there is a systematic way to give numbers and labels on German and European cars, at which the label shows the Germany state at which the owner live and belong , or from which European country it is belong .They also put the symbols of the Federal States.



Figure3: Electronics Charger for Audi cars with panel of Heibronn city.

## Chapter Two: Training in Heilbronn Hochschule

During my training in Heilbronn Hochschule, there were multi sections, departments and labs I had visited, main system I have worked on and classes, presentation I attended. Each of these items will be covered in the following subsections.



*Figure4: Heilbronn Hochschule*

### Visiting Labs in the Hochschule

#### *Industrial Robotics Lab:*

One of these labs was the industrial robotics lab “Laborausstattung Industrieroboter “at which many types of robots are supplied from different industrial companies and used by students. The main software used there is KUKA Sim Pro, RTToolBox “which is an open source programming environments “

Some setups are used in industrial field like KUKA robots in car company , some of them are robots used to play Billiard Sport, other depends on colour of parts on the work station while others depends on electrical and mechanical sensors . The following figures show some setups and systems.



*Figure5 : MITSUBISHI Robotic Arm with SPS und Motion Controller*



*Figure6 : SCHUNK Mini-SCARA robot*

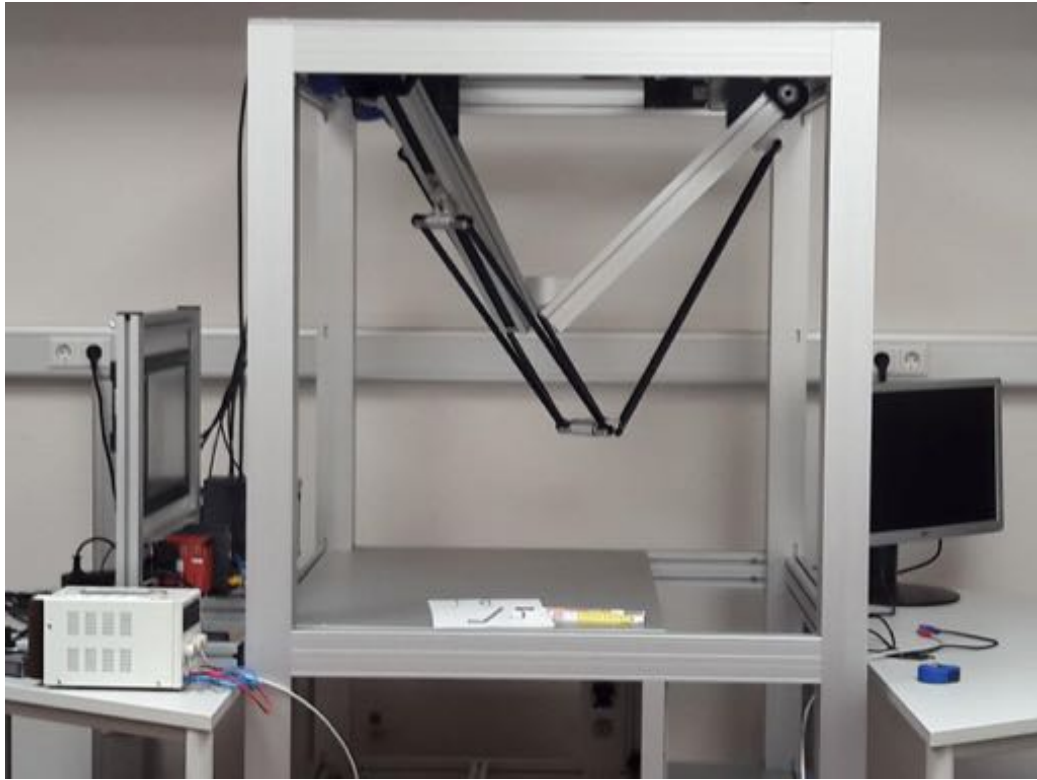




*Figure7 : Robotic Designed by Students in Heilbronn Hochschule*



*Figure8: KUKA Robot.*



*Figure9: Delta Robot*

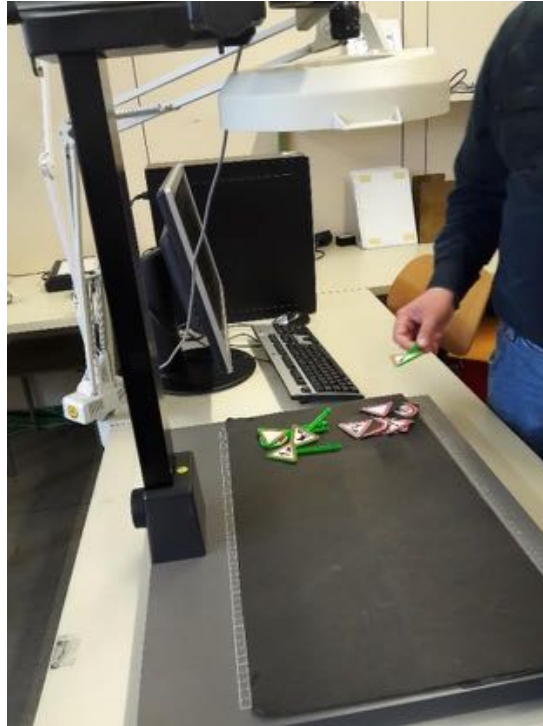


*Figure10: Staubli RS20*

### *Image Processing Lab:*

One of another amazing labs that I love visiting and explore is the image processing lab, at which lots of setups and experiments have been done and achieved using different simple equipment and an ordinary PC to do the image analysis.

One of those application is the image recognition for different traffic signs, seen in figure 11 where the signs can be known according to the black shape drawn in it.



*Figure11 : Traffic Signs Classification*

Using the features, functions and image processing techniques in MATLAB software, and according to the edge and curve classification, an identification of people according their fingerprint can be achieved. Shown in figure 12



*Figure12 : Imprint Identification.*

Classification of coins according to its size also done in the same lab using CV program and MATLAB. See figure 13



*Figure13: Coins Identification Setup.*

In addition to previous application, another programs and codes were written to identification cards, numbers on dice, shapes in Ubongo game and colors of balls in billiard game.



*Figure14: Classification of Pieces in Ubongo Game.*



In Heilbronn Hochschule, they prefer using an open source programs and languages cause of being much cheaper and students can download it easily from their home and use it on their laptops. So the used open CV as image processing and analysis software.

Halcon and MATLAB were also used in Heilbronn Hochschule, even though this software are expensive.

#### *Lego Robotic Lab:*

In addition to that, in Heilbronn hochshule there are a certain lab for design and programming robots using lego mindstorm robots, at which each students has his own kit and use it for his own special design. The lab contains about 18 kits for working on.

#### *My Project and Training Setup*

I got training on a hexapond system in a project called “Real time control of brushless DC-motor by using dSpace and Matlab/Simulink”.

We used two main software, the MATLAB environment to make the simulation of the system, and the dSpace for connect the software to the real time system, which was the DC motor of the steering in the car. See figure 15



*Figure15: Software's used during my project in Heilbronn Hochschule*

A short report about every aspects learnt was written by me , describe the mathematical way of represents the electromechanical systems in a simple way , how we test the model



with different signals , then design a PI and PID controllers for the system , then test it in MATLAB.

During our working on the Simulation system , it was clear that we need to convert the systems, models into discrete form instead of continues one ,as every real time system dealing and controlled by computer must be in digital form. The whole system shown in the figure 16



a.



b.

*Figure16: a. The Data Acquisition System and Controller, b. the electromechanical parts, motors and sensors.*

I used new documentary software called LaTeX to write the technical report of my training. It is very professional software, helping in writing document with images, captions, chapters and section. It is totally different from Microsoft Word in way of design and work, as it depends on programming. See figure 17

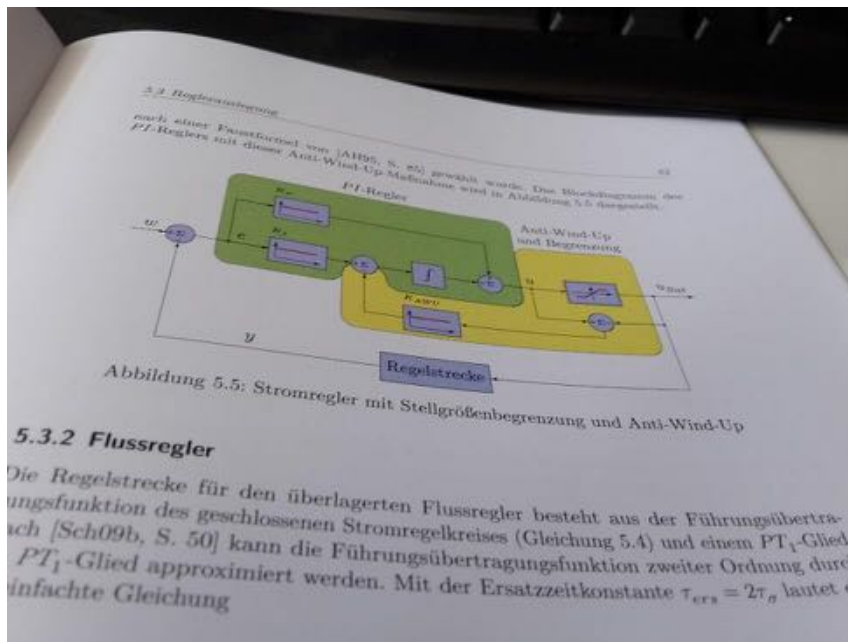


Figure 17: Reports and Documentations.

### Seminars and Presentations

Attending different seminars and presentations most of them were in English language.

During my training I attend the last class in Human Machine Interfaces course, at which students presented their work during the semester. Different projects were presented, most of them focus on car services and applications, and one of them was about application for automotive systems , another one about developing a mobile apps for trucks , there way and services to delivery in short and effective time .

Even more, I attended a seminar for a master student in German language, at which he discussed his project about designing motor for automobile system. There are lots to know even in Germany language. But you can understand the ideas of technical parts and symbols.

Starting to read a German book for Java programming language was one of my achievement.

### Activities and facilities

The university support student with a large play area for sports and fitness activities such as Volleyball, Badminton, Basketball and climbing.

University Library, with wide range of books opens more than 8 hours a day. The eLearning and research paper are open with lots of international scientific journals, such as Elsevier, and IEEE.



*Figure 18: Heilbronn Hochschule Library "Bibliothek".*

Solar systems are used widely at the hochschule, covers most of the roof of university.



*Figure 19: Solar Systems on the Roof of the University.*

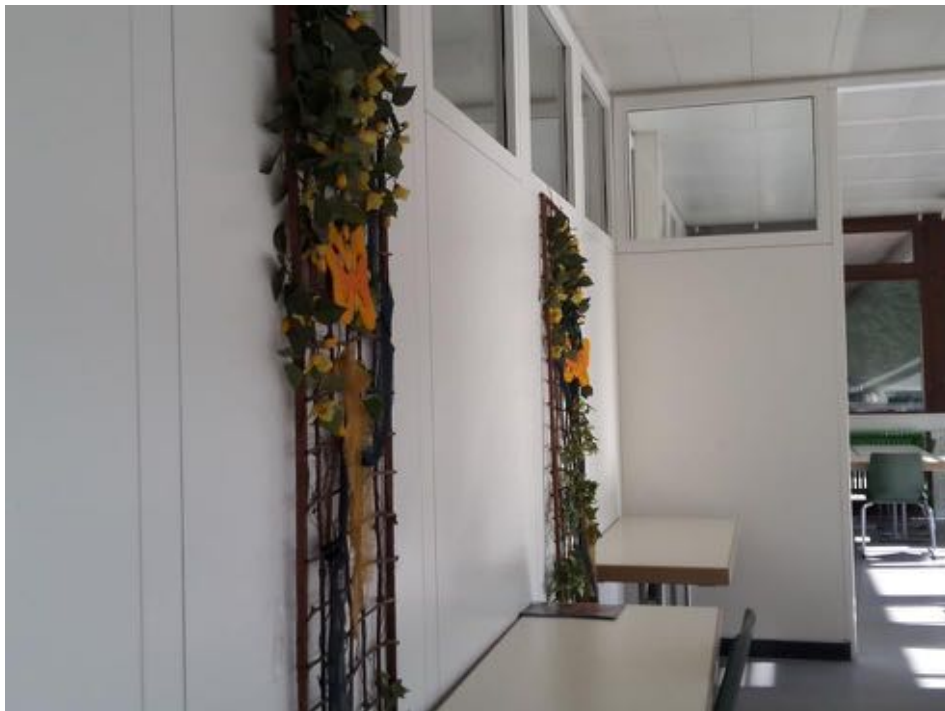


Also there is a wide canteen for students, staff and professors to have their lunch and breakfast .with some sweet food. It's open from 7 until 3. And the lunch from 12 until 2, where different kinds of food offered to commensurate with the tastes of different people from different countries, with addition of healthy food.



*Figure 20: University Canteen*

Lots of free and study rooms are available for students to study, meet and do activities around the hochschule building.



*Figure 21: Free Room for studying and activities, with beautiful wall decorations.*

## Chapter three: Culture Information, Trips and Urban Features

This section will discuss a nonscientific part of my trip. I think it is important and nice to know more about such aspects

### Urban Features

One of the most wonderful thing in Germany is the transportation , Germany has an amazing transportation at which there is a main train station in each city in Germany , this trains system connect all part of Germany and help people there to reach any place with a wide range of cost. Even more there is a local train in some cities to connect places in the city with near towns. When I start to count the numbers of transportation I found there, it was almost 9 ways. There is also buses travel around the city, buses travels between cities in Germany even more buses connect between Germany and other nearby countries.

The private cars are available as Germany is the country of manufactory of such machines; also taxes are there with high cost rather than other public transportation.

Motor cycles are used for some reasons and for rich people sometimes, but the ordinary bicycles are one of the most popular way of movement not in Germany, but in most Europe countries. Flight is also available with sometimes less cost than trains; air flight is available for both inside and outside Germany. As the country has rivers, there will be boats and ships movement around. Finally, foot can be used for short distance around the city, at which you can discover place and enjoy the beauty of nature.

Discovering the difference between the new way of building and the old temper house was one of my new experiences there. Moreover, each city there has its own public park at which lots of playground and beautiful gardens for enjoying and entertainment.

In addition, each city has a huge public library, at which people went with different background and ages. Also there is a public garden “park” for each city weather it’s a small or large city. The minimum number of gardens in each city must be one, some cities have more than one garden such as Heilbronn.

The way of arrange the market places and shopping in the same place at the center of the city near the Rathaus is wonderful.

The idea of Europe union and open boards between all Europe countries is amazing, it enhances investments, encourage Tourism and develop the economy.



Using smartphone with its application was helpful, you can find any place you want and the suitable transportation using just smartphone and internet.

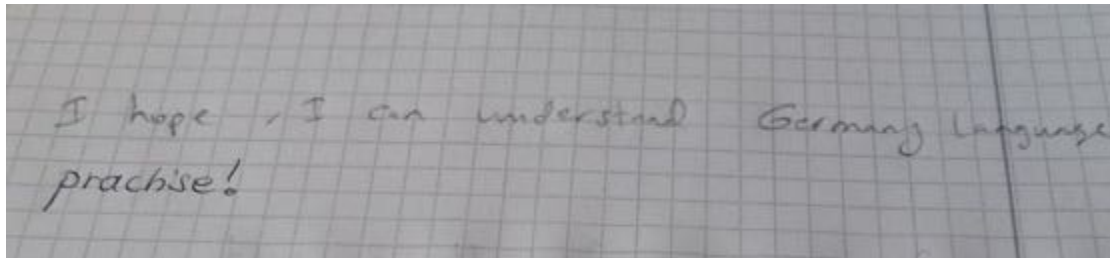
The changing in weather during day is noticeable, even though it makes the country much green as there is a heavy rain in summer.

### Language

While staying in Heilbronn, I met different people with different cultures, some of them from Europe countries, and some of them from Turkish.

I have a chance to meet different engineering students in the hochschule, with different background, ladies from the department and from other department. We enjoyed the time together speaking in English, and then I did my best to speak in Dutch some words.

I learned some social and culture words such as "Guten Appetit" which means 'enjoy your meal', "gesundheit" which is an indication for 'wishing a good health'.



*Figure 22: having a fun time with Germany language.*

Also I found out that there are some differences in academic and science words between German and English language such as the word 'controller' in German language becomes "Regler".

They discussed with me the different accents in different parts of Germany, the differences between High German, the Bavarian, Baden-Württemberg and other Federated States accents. It seems to be similar like the differences between the accents in the east and west of the Arab world. Sometimes people with different accents cannot understand each other's, and the same words can have different meanings between north and south of Germany.

Trying to learn Turkish was one of the other things that I wanted to do there, but I found that German language is much easier than Turkish. As it has some words related to English language.

### Culture and Historical Places

Knowing more about the History of Germany, its 16 states where I was in one town of them called Baden-Württemberg in the south of Germany in the border of Switzerland.

Visiting different places in Germany during this short period of time, I have visited the following,

- The **capital of Baden-Württemberg state**, which called **Stuttgart**; where I saw the big library and the University of Stuttgart , Mercedes-Benz Museum , Schloss Solitude and Feuerseeplatz.



*Figure 23: Stuttgart University*

- **Ulm city**, where I have a look on the bread museum there and the big Church.



*Figure 24: Church in Ulm.*

- **Heidelberg city** , the city of old university in Germany ,visiting Heidelberg Castle (Schloss Heidelberg) and Deutsches Apotheken Museum.



*Figure 25: General View of Heidelberg City*

- **Ludwigsburg city**, with a great palace which return you back to the history of Germany and there Empires. Wonderful garden shows stories about wonderland from the European Heritage, even more the favourite castle.



*Figure 26: Residenzschloss in Ludwigsburg.*



- **Neckarsulm** , visiting Audi plant and German Motorcycle Museum (Deutsches Zweirad-Museum),



*Figure 27: Halftemper Building in Neckarsulm.*

- **Heilbronn** , see Astronomical Clock and visiting Pfuhlpark and Wertwiesenpark and playing mini golf there. Having lots of sport activates and visiting the public library.



*Figure 28: Last sport Competition in Heilbronn, contains three types of sports; swimming, running and biking.*

- **Hassmersheim**, visiting Guttenberg Castle and Deutsche Greifenwarte at which a show of wild birds are presents.



*Figure 29: Guttenberg Castle with multi kind of birds.*

Discussing the story of Ludwigsburg palace with the tour guide was amazing, having the idea about the princess and princes, the historical of the building and the Residenzschloss Ludwigsburg.

Related to the historical places , knowing more about Germany culture and history is the next goal from me , lots of historical , heritage and traditional museums are established in Germany which help tourists to know about this beautiful country . Fortunately I got a new friend from there, she studied historic and culture. We still in contact. Hopefully, she can help me know more about the Germany history.





*Figure 30: A bread museum in Ulm city, describe lots of information about Germany history related to food and backing bread.*

On the other hand, the history of Heilbronn where I went was discussed by my friend. She told me how the second war damaged lots of church and houses even industrial plants. Then how people and do their best to rebuild the country during 37 years.



*Figure 31: Grapes “wein” fields in Heilbronn.*

### *Diversity in German Society*

The diversity in the society in Germany make me feel and got a very good impression about such European country. Having different people with different culture, traditions and religion show me how it is nice and wonderful to have such all people whom can deal with rules and system in proper way. Respect and love the country they are live in and people they are meet with although the differences are presents. And focusing on people effort, performance and knowledge. Presenting the idea that all of them are human regardless all the differences.

Meeting people native people, Turkish people, Arab people and others from another Europe countries and from USA shows how this country respect all of them, give them their rights as human in equal way.



*Figure 32: Meeting with a Family of my Professor in Heilbronn*

The differentiation criteria between people in Germany are according to their effort to develop the country and helping the society.

## Chapter Four: Students Problems in Germany

The most problem that I was told about during staying in Germany was the attitude of some students whom didn't want to learn in German language, and the professors in the Hochschule did their best to give lecture in English, although this nice situation from professors, some students did not attend.

Another point was about the language levels of students, some students are not as good as necessary in Germany even more in English language, which made lots of problems during conversation and studying.

In addition to that, there must be more preparation meeting with students to let them know the importance of attend classes at which the professors translate the language to English for them, and they must be in the proper time for both classes and exams cause this make bad impression about our students and their management for time.

One of suggestions is to encourage students to make a German language test before going outboard, not just depend on their records during studying in German Jordanian University, this test shows their level in Germany language, and force them to revision their knowledge then according to the results, students can go to German or taking an addition language course before leaving Jordan for their outboard year.

Another problem was that some students did not find a good internship; there are multi reasons for that, most of them related to the students themselves like below;

1. Some of students did not do a good effort in researching for internship.
2. Less of contact with professors and other students.
3. The weak in Germany language, as the company even the universities think our students can speak German properly.
4. Need to have a wide data base of companies and internship association in many cities and states in Germany that accept our students. " I think there is something like that "

My suggestion is to encourage students to search for their internship in advanced before going to Germany because I notice that it's preferred for some companies to make contractors earlier with students.

## Conclusion

In general, people in Hochschule Heilbronn were so interesting for international students and people from Jordan. Professors there were so helpful. The general situation is perfect. Baden-Württemberg where Heilbronn city locates is one of the heavyweight players for car companies in Europe. At which lots of car companies and Factories are there such as Audi company in Neckarsulm, Bosch , Porsche and Mercedes.

Some of them as staff want to know more about Jordanian Culture and our ways of living, which give chances for having good cultural diversity and integration. The international offices there are helpful and kind.



*Figure 33: Mosaic of Heilbronn Hochschule presents in the hole of the university.*

The facilities of the Hochschule are almost good, many labs were introduced to me and students can take a variety of subjects, working on different systems, and attended different labs. As electronics and mechanical department, they are focus mainly on car and automobile systems, they have a good and helpful TA's and staff.

The natural there is beautiful, having a wide place of green and lots of activities, most people and societies there are open minded and accept the different in cultures and religions.



I suggest students to go there, have the chance of working and studying. Hope we can enhance our relation with this hochshule which maybe helping of having a wide research jobs and studying. Although there are no PhD positions in it until now, Professors there looking to establish a relations with other universities to start having PhD students and researcher.

# Appendices

## Appendix 1

Useful application can be used during stay in Germany.

Application name	Symbol	Used for
HERE Maps		Save maps to use later without needing Internet.
DB Navigator		Application for Duetch bahnhof.
TripAdvisor		Find information , historical and fun places in Europe
GoEuro		Find transportation in Europe
Athan		Pray time and Qibla
Trivago		The Hotel Search
XE Currency		Exchanging currency

Open WiFi Finder		Find the free Wi Fi nearest to your place
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## Appendix 2

Useful websites can be used during stay in Germany.

Usage	Website
Libraries in Germany	<a href="http://www.lib-web.org/europe/germany-central-europe/germany/">http://www.lib-web.org/europe/germany-central-europe/germany/</a>
Online Libraries	<a href="http://www.librarydir.org/CountryLibraries.aspx?Country=Germany">http://www.librarydir.org/CountryLibraries.aspx?Country=Germany</a>
Duetch National Bibliothek	<a href="http://www.dnb.de/EN/Home/home_node.html">http://www.dnb.de/EN/Home/home_node.html</a>
Historical info	<a href="http://www.historicgermany.travel/en/historic-cities">http://www.historicgermany.travel/en/historic-cities</a>
Islam Finder	<a href="http://www.islamicfinder.org/?lang=arabic">http://www.islamicfinder.org/?lang=arabic</a>