Excursion 2011: Trip to Berlin

"This fabulous trip made us perceive the state-of-the-art of Germany's research in Wireless/Optical Communication Technologies and Hardware Development"

says Tilahun GETU, senior ECE-student from Ethiopia

Electrical engineering and Computer Science students, together with students in the Master program Electrical Communication Engineering (ECE), participated in an excursion to Berlin from October 4-6, 2011, organized by the Communications Laboratory (ComLab).

Our first stop was at the former inner German border crossing „Grenzübergang Marienfelde". Here the transit road through the GDR en route to Berlin started before Germany's re-unification in 1989.

Berlin's Technik Museum with Science Centre Spectrum

http://www.sdtb.de/Englisch.122.0.html

"The Berlin's Technik Museum with Science Centre Spectrum was our first destination in Berlin. Berlin's Technik Museum displays different fields e.g. mobility, energy, communication, production and hence, allowing the visitors to witness the evolution of the specified field. The mobility related section caught my attention and major part of my visit to Technik Museum was spent in this section, presenting the evolution of bicycle and rail engines. One can see the evolution of bicycles from very basic completely wooden based design to the much familiar metallic assembly and rubber tyres based designs. However, the highlight of the section is the section displays the evolution of modern rail engines. In this

section one witnesses the evolution of rail engines from steam based rail engines used in 19th century to diesel based engines.



"*The day ended with the visit to Science Centre Spectrum, which is full of fascinating hands-on experiments based on basic optical principles and perceptional optics. The centre houses a wide range of optical experimental setups and visitors are free to perform their own experiment by using different approaches and changing conditions. Hence, providing visitors with a unique opportunity to experimentally validate the basic concepts of optics. Furthermore, the centre also houses a range of experiments based on perceptional optics. All ECE students being electrical engineers and familiar with basic of optics were very fascinated and were keen to validate their basic concepts of optics. All of us learnt a lot from this experience and had lots of fun*, says Mohsen Khan, ECE speaker 2011.



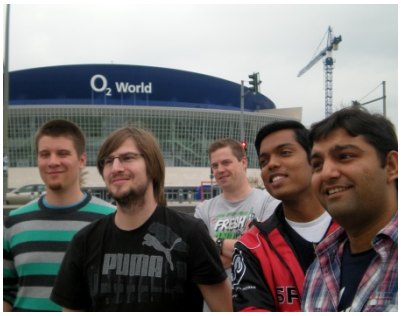
Rhode und Schwarz http://www2.rohde-schwarz.com/

R.S. is the leading company in the field of electronic test equipment, also manufacturing equipment used in broadcasting, secure communication and radio monitoring. On our arrival we were greeted by representatives from human resources and technical departments. The representatives than gave a brief presentation about history, various departments, research and development activities and functioning of the company. Presentations were followed by the visits to various labs and test facilities.

First of all we visited the integration room for analogue and digital TV Broadcasting equipment, where we were introduced to different TV broadcasting equipment based on power and frequency. A brief overview of functioning and testing of broadcasting equipment was given to students. Next we visited the amplifier integration and testing lab, where students were introduced to basic performance parameters of amplifiers. Furthermore, testing of various amplifier performance parameters such as gain was demonstrated. All these visits to different labs were of keen interest to the students as they displayed the latest research and testing facilities in these areas. Furthermore, they also presented the student with an opportunity to witness the working environment of a leading R&D based company.

Various career prospects in the company for students or as full time employee were presented towards the end of our visit. An employee shared his working experience and a student from Kassel, who was currently doing his internship at RS in Berlin, shared his experience.

In the afternoon we had a guided city tour that took us along the river Spree and the former Berlin wall that divided Berlin before reunification in 1989. We reached so-called „Checkpoint Charlie“, visited Europe’s biggest chocolate shop at Gendarmenmarkt, the Berlin city centre, with the Brandenburger Tor and Reichstag. It was really an amazing experience to see the remains of the Berlin wall and learn about the history of Berlin.



An ECE alumni get-together rounded up the day. ECE students met at night with ECE alumni who are currently working in Berlin as researchers doing their PhD. Three 3 ECE speakers (former and current) had the opportunity to exchange experiences.



Heinrich Hertz Institut http://www.hhi.fraunhofer.de/

On our last morning in Berlin we visited the Heinrich Hertz Institute (HHI). Keeping in mind the focus of ECE studies the visit was planned for photonics networks and systems department and wireless communication and networks department. At first we visited photonics networks and systems department, where we were greeted by the head of the department Dr.-Ing. Ronald Freund. He introduced us to research activities carried out by his department in the field of network design and modelling, submarine and core systems, metro access and In-house systems and free-space optical network. It was a great learning experience to be acquainted with the latest research activities in these core areas of modern day communication network. While

highlighting the achievements of the department Dr. Freund mentioned that the departments hold the world record of serial data transmission via optical fibre. This world record was achieved by transmitting serial data at 10.2 Tbits/s over an optical fibre link of 29 Km.

In the next part of visit, we visited wireless communication and networks department. A scientist from the department briefed us about the research activities of the department such as cognitive radio, wireless ad hoc networks, wireless channel with multi input multi output (MIMO) system etc. A demonstration of achievable data rates with MIMO system in real scenarios was given to students.

“Our last stop at HHI was "Das Theseus-Forschungsprogram" , was really an enjoyable experience and specially "Alexandria- A knowledge platform on the Internet" http://www.theseus-programm.de/en/924.php, was the best way to manage the exponentially growing scientific knowledge and events of the world and it will definitely uplift the curiosity of the succeeding generation”, says Getu.



A reception at the Pakistani Embassy Berlin added additional value to our excursion. On our ride back to Kassel we enjoyed Pakistani delicacies.

Report: Mohsen Khan/Tilahun Getu/Anke Aref, 2011