What I Did Last Summer!

Engineering Students Share their Practical Training Experiences During Summer 2009

Hikmat El Ajaltouni: Computer and Communication Engineering

Qatar

As a part of its holistic academic curriculum, Notre Dame University (NDU) requires of its students 6 credits of practical training the equivalent of two months of training experience. In order to fulfill this demanding requirement and hoping to optimize the experience gained during my training, I started searching for the best telecommunication companies in the Arab world. Hence, my eyes turned towards Qtel, Qatar. With its promising vision of becoming among the top 20 telecommunication companies by 2020, Qtel was the ideal match to my aspirations. Moreover, since the beginning of my studies, I felt attracted and moved by the mobile sector with its infinite possibilities and ever expanding horizons. Thus, I tried my best to participate in this sector and thankfully I was accepted as a trainee in Qtel, Qatar in Summer 2009.
During the course of my internship, I followed a structured program on designing and planning a GSM network. I attended presentations on radio propagation to explore the available models and equations for quantifying the path loss. I also learned the fundamentals of noise-limited systems, slow fading, shadowing effects and their impacts on planning. Cellular network planning in terms of link budgets (up and downlinks), radio coverage planning, and capacity planning (Erlang B formula) were all explained in detail and I was assigned tasks to fulfill within due dates.

In addition, I also visited base stations and explored the Network Operation Center in Abu Hamour, Doha. I spent several days in that Base Station where I was assigned a team each day. On the 1st day, I joined the RF Planning team, the 2nd day the Optimization team, and the 3rd day the Fields' Quality of Service team. I interacted with people on different levels thus widening my experience and knowledge. On the last day, I went in a drive test and measured the field strength in different locations across Doha.

Moreover, during my internship, I was introduced to the real-world working environment and exposed to the bureaucracy of work. I had a schedule which I had to follow, deadlines to abide by, reports to hand out, and requirements to interpret as design solutions. I attended meetings and observed interactions between managers and employees.
Training in Qtel provided me with a great range of novel information and knowledge. It widened my knowledge in mobile communications and I felt the pleasure of working with the best equipment and accompanying the most recent technological advances. The experience gained being colossal and the work performed enormous; I hope that the future years will carry the same fruitful results to me and to my university.

Hikmat El Ajaltouni

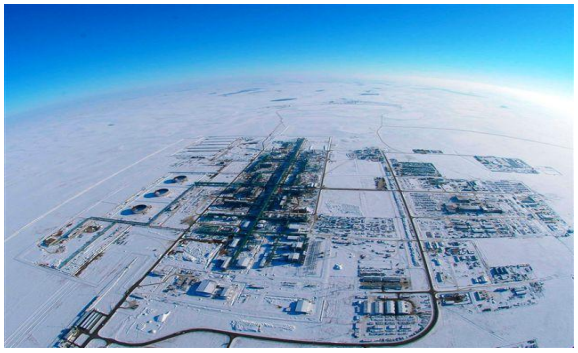
Georges C. Khairallah: Mechanical Engineering

Kazakhstan

Kazakhstan is the ninth largest country in the world, in which only 53.4% of the population is local and the rest are Russians, Ukrainians, Uzbeks, Germans, Tatars, Koreans, Azerbaijanis, Jews, Kurds, Turks and many more. Therefore, with the help of the internship office, it was a pleasure for me to work with CCC (Consolidated Contracting Company), a multinational company, in a multicultural country. As mechanical engineers, we were responsible for the construction and installment of the pipes & equipments (large vessels, tanks…) in the Kashagan project.

My journey started, at the Lebanese International Airport, when I first met the four Lebanese trainees, coming from different Lebanese universities. At first, it was hard to me to integrate with the Kazakh people working on site because they don't understand English. But, after attending some Russian classes I managed to talk with the workers thus getting to some better results, at work. In addition to the Kazakh, I met some Arab engineers, supervisors, Foremen, charge hands, pipe fitters (only these are not managers!!)…who supported me at work through their teaching or by giving me some handouts to read. Moreover, they taught me the right way to apply what I studied at university and to acquire some useful information that will launch my engineering career. And after only four weeks I was responsible for the area S2-01E and there were ten people helping me to get the job done.

To conclude, an internship during our studies is of extreme importance because it plays the role of a transitory stage between the university and our professional career.



Kazakhstan from the air

Carl Abi Saab: Electrical Engineering

Oman

I'm Carl Abi Saab electrical engineering senior student at NDU. I had my practical training this summer abroad, the main objective of this internship was to introduce me to the industry of electrical engineering with all its aspects, fields and principles to try to put in action all what I have learned in the past three educational years.

I had the training in Muscat, Oman with TARGET LLC contracting company. Target is a contracting company specialized in civil, electrical and mechanical works with more than 30 years of experience in the Gulf. I stayed there for eight weeks under the electro-mechanical department and worked on many projects on-site and in the office.

First I have been introduced to the general symbols of electrical items, components and drawings then I went to visit and work in three different sites for around 10 days in each one. The first site was the construction of a sewage treatment plant, the second one was the construction of two large reservoirs and the last one was the extension of a water project with many reservoirs and pump stations. My main work on site was in the power elements or monitoring and control devices. After that, I had around two weeks of office work focusing on the contracting and management of electrical engineering.

The main principles and objectives I have learned and done are the knowledge of the general electrical symbols and legends; the electrical drawings: lighting layout, power layout, fire alarm and security, Tel-cctv-data layout; Main distribution boards MDB/ SMDB/ DB components and design; power cables sizes, Ring main units/power transformers/feeder pillars/busbars/switchgears/Transmission lines/power supply to desalination plant and reservoirs; Sewage Treatment Plant with all components; Scada system: monitoring and control; Estimation/Take off/ Labor cost analysis; Planning and AutoCAD.

After two months of summer training at Target I have learned a lot about electrical engineering work and contracting and mainly the engineers' duties and responsibilities which gave me a good experience needed by every fresh engineer and senior student.

Carl Abi Saab (Electrical Engineer on the right) and Hanna Abi Saab (Civil Engineer next to him) at Bawshar site near the capital Muscat. Concreting of roof and installation of electrical conduits.

Michel Aoun (Mechanical Engineering) & Jad Nasr (Electrical Engineering)

Saudi Arabia

Our training has taken place in "Al-Khafji Field Development Project" (KFDP). This project is located in the Al-Khafji city in Saudi Arabia, 10 km away from the Kuwait border. Aramco Gulf Operations Company and Kuwait Gulf Oil Company are jointly operating and planning to install new onshore and offshore facilities for oil and gas exploration and production. The CCC Company is the "EPC" (Engineering, Procurement and Construction) of the KFDP project phase I.

This internship in CCC has given us the opportunity to be exposed to the leaders in construction in the Arab world for two months and to work with the best engineers in the construction field. In addition, we were able to discover the real life and daily work of international companies which has increased our passion regarding the field of engineering. This internship has increased our knowledge regarding pipe erection, equipments, the fabrication shop, the valve testing shop, HVAC, the quality control and hydrotest of pipelines in the mechanical department and regarding high power systems, electrical controls, sensors, the calibration shop, quality control and design in the electrical department. We have learned to manage the different problems that any engineer may face during work and that can stop or retard the site activity. Also, we had the opportunity to go through the different departments of CCC and learn the synchronization between them, their strategy in work and their job on site and in the office. During these two months of experience, we were able to relate our theoretical knowledge and studies gained in Notre Dame University with the real engineering work; in addition, we were ambitious for learning and working with the different departments. Furthermore, spending a two month period in KSA has increased our flexibility and adaptation to new environments. It improved our organizational skills, our written and verbal communication skills and our cooperation with the team members.

Finally, we thank our university NDU for giving us the opportunity to be part of this internship and we are sure that the knowledge gained during this internship will be the base of our careers due to the leadership of construction in CCC.

Michel Aoun and Jad Nasr

Elie Sawma (Electrical Engineering)

United Arab Emirates

During the summer of 2009, I had the opportunity to join the team of the Consolidated Contracting Company CCC. The internship office at NDU provided me with a summer internship in CCC ranked 13th worldwide according to the Engineering News Record (ENR). My summer training took place in the Ruweis Borouge Ethylene Unit 2 (EU2) Cracker where I had the chance to work on an engineering site alongside with people coming from all over the world. Germans, Italians, Greeks, Americans, Australians, Malaysians, Indians, Chinese, Jordanians, Egyptians & Lebanese to name a few joined forces in order to complete this project. Communication with people originating from different cultures was one of the most enjoyable challenges I faced while working in this multinational company. My training program was divided into weekly tasks. I started my training in the substation and satellite instrument shelter, SIS, where I learned how the power is distributed to the site and how the instruments and machines on the site are controlled. I had the chance to witness solo run tests on low and medium voltage LV & MV motors. In the calibration shop I learned the functioning, calibration and communication protocol of many instruments such as pressure, temperature, level and flow gauges and transmitters. I also had the chance to perform loop checking of the instruments I calibrated in the furnace, boiler, compressor, and turbine areas on site. During the last week of my program I was introduced to the lighting and fire & gas systems used on the site. Finally, the heat-tracing techniques were explained to me. During my summer internship, I also had the chance to take several safety courses and trainings in the HSE (Health Safety and Environment) department; I received the safety induction course, the commissioning induction, the training at heights and the training in confined spaces. I also took the Borouge work permit receiver course and test which qualifies me to give work permits in all the Borouge projects. Besides work, living in the desert was a great experience. Learning how to cope with such a harsh environment and how to solve never-ending problems due to the scarcity of resources helped me become a better person.

In summary, my training at CCC was extremely fruitful and helped me see many of the things I learned about at NDU. I would also like to thank CCC and the internship office at NDU for granting me the opportunity to have such a career- boosting training.

Elie Sawma