5 years Campus El Gouna
An insight to the Energy Engineering department

By Sarah Hamdy

Campus El Gouna has opened its doors to new students for the fifth time in October 2017. Since the first intake in 2012 a lot of things have evolved in the Energy Engineering department. Amongst others new research projects have started, new modules have been introduced to the module catalog and two new study programs, M.Sc. Business Engineering: Energy and M.Sc. IT for Energy were established in 2016. Statistics show that 45% of Energy Engineering Alumni is employed in Germany and more than 61% found a job within less than 6 months after graduation.

This newsletter aims to give you an insight in a few of the most recent developments in the Energy Department. Starting with our running interdisciplinary project, the newest added module, a student profile of one of our first senior Business Engineering Seniors and our latest excursions.

The Interdisciplinary Project

As energy engineers are continuously confronted with diverse issues external to their background or expertise the interdisciplinary project is a core module to all study programs in our department. Companies generally prefer to employ people with dissimilar proficiency to create a diverse and strong team. An interdisciplinary work environment and tasks freestanding from one’s familiarities necessitate a large scale of skills that can only be gained with experience. Goal of this project is to teach the significance of interdisciplinary collaboration as well as to make students experience the challenges and benefits of intercultural and cross-disciplinary teamwork. An insight on this semesters interdisciplinary project is given on page 2.

Latest excursions

TU Berlin Campus El Gouna strives to provide a number of excursions and cultural activity in both Egypt and Germany. The annual visit of the Hannover Fair, the most significant industrial fair worldwide, became a tradition within the energy department. Moreover excursions to a number of diverse power plants such as: Reuter-West power plant Plant in Berlin – a coal fired CHP plant, an Oil fired power plant Hurghada, several Wind Farms in Egypt e.g. Gabal El Zeyt (220 MW) and different PV projects in Germany and Egypt. All excursions are posted online at our News section: http://www.campus-elgouna.tu-berlin.de/energy/v_menu/department_overview, a small insight into this year’s visit to the Hannover Fair is given on page 3.

Energy Law

There is no denying the fact that the energy sector is in a constant transition of change. To catch up with most recent topics, also the electives offered in the Energy Engineering Department need to be extended and revised regularly. An example for this may be the last year added project “Energy Entrepreneurship for Developing Countries” and this semester addition “Energy Law”. More details on this can be found on page 3.

A Student Profile

Not only our programs evolve and so do our students. One of our first seniors MBE students answered some of the most urgent questions new students ask themselves before starting their journey at Campus El Gouna. All answers can be found at page 2.
This year’s interdisciplinary project

The topics tackled in the Interdisciplinary Project alter annually. The content is adjusted to confront latest issues in the field of sustainability and will differ from contents of other modules as energy engineering, water engineering and urban development students participate. In interactive input sessions the students will be provided with the necessary concepts, knowledge and skills to tackle the Interdisciplinary Term Project.

This years term projects works on the “Rooftop Building”: The rooftop house is a plus-energy residential unit, which can be placed on existing residential buildings. Providing additional living space on trusses usable under ecological, energy-efficient and modern aspects. More about the rooftop building can be found at http://www.belutec.com/referenzen/rooftop-projekt-tu-berlin/.

This year’s project will teach the students how to mirror reality, like a building, within a digital environment. How to overcome obstacles in the process and how to effectively use both worlds for the advantage of a planning engineer are tasks to be learned during interactive lectures, extensive group work, discussions, and presentations which dominate the project.

Four different groups with diverse objectives were formed. The first group shall get into the “Magic Mirror” project, more at: https://magicmirror.builders, and develop their own module to be used in the Rooftop building. This could include linking information about a user to sensors or actuators of the building.

The second group will work with the 3D Virtual Reality environment in the Unity environment, more at https://unity3d.com/de and extend the digital twin of the rooftop building.

A third group has to develop and perform a measurement campaign with the available sensors and actuators of the rooftop building.

The last group shall link sensors and/or actuators of the building with each other. Therefore, the OpenHAB project for the Raspberry Pi has to be used http://www.openhab.org.

The groups will learn about collaborative working, especially in software development and programming. Furthermore, they will refine their presentations skills and learn about group dynamics in interdisciplinary and intercultural groups. They have to use and adopt their knowledge from previous classes e.g. “Intercultural Communications” and “Innovation Management” in particular, to develop an own concept to work on during the project.

After participating in this module, the students will be able to tackle a problem, formulate the right research questions, find and evaluate possible solutions, conduct a feasibility study, and present their research work. All of this while making the best of an interdisciplinary and intercultural work environment.

This year’s intercultural project

Apart from cultural activities in both Egypt and Germany such as for instance visits of local museums, the fresher day safari, visit of the German Reichstag, German and Arabic courses. Apart from the unique intercultural experience at TU Berlin Campus El Gouna being surrounded by 20 nationalities and most diverse backgrounds, intercultural competencies are as well content of the study course.

The aim of the course Intercultural Communications and Project Management is on the one hand to provide students with an awareness of cultural differences and to equip them with skills required for tackling problems of intercultural communication in a global setting, and on the other hand to introduce them with project management and its application in different situations.

This years intercultural communication project a student of the EE department came up with the idea of interviewing his fellow students on the moon to rise awareness of their own understanding of culture. Under the slogan: “Imagine that you got a chance to travel all the way to the moon surface, and there, you met a group of children who don’t know anything about culture.” The video can be find at: https://vimeo.com/251387859.
In 2016 the first intake of Business Engineering students was launched. The students of the 2016 intake of the new study programs MBE and ITE are shown with their country of origin in the picture above. All students will start their Master thesis this summer semester 2018. The Graduation ceremony is scheduled for October 2018.

As a representative of the intake 2016 the senior Business Engineering: Energy student Alicia Benitez from Paraguay answered a few questions and shows the perspective of a student in the Energy Engineering department at Campus El Gouna.

Why did choose to study M.Sc. Business Engineering Energy at Campus El Gouna?

I chose to study M.Sc. Business Engineering Energy at Campus El Gouna, because I was searching a master program which combines business and engineering. I was working before joining the program, and a realized that as an engineer it is important to have a general overview including a technical, economic, social and environmental point of view.

I found out that the MBE program offers what is important for a successful professional life like the experience of an intercultural environment, where we learn how to cooperate with colleagues and people with different background and cultures, improving our social skills. What is more, the program is structured in a way that enhances a good understanding of the engineering projects taking into consideration technical, economic and environmental aspects.

What did you like most about your studies?

From my point of view, the biggest advantage of the program is that all modules are dictated by well-known professors in a personalized environment. Meaning that students are more predisposed to make questions and the professor to dig deeper into any content that was not clear. Moreover, it facilitates networking and opens the chances to find internships or find supervisor for a master thesis.

During the first semester of the MBE program, most of the modules are shared with the students of the program energy engineering. The modules are more focus on technical aspects which is needed as a base to be able to analyze afterwards, an energy power system from the economic side. From the second and third semester, modules are more focus in energy economics and electricity markets, with an emphasis on the German electricity market. In the course of the master program, all modules also offer the opportunity of improving soft skills by means of teamwork and presentations which is a good simulation of what we can expect in the professional field.

Life in El Gouna is quiet which makes good for studies. The advantage of being in a small city is that it facilitates sharing with colleagues and creating bonds of friendship. Also, activities outside of the campus are a good option for instance diving, hiking or snorkeling.

What did you achieve already and what are you planning to do after graduation?

After completing the third semester, I got a student position at Forschungszentrum Jülich to work on my master thesis. I am very excited for the opportunity of working in a prestigious German research institute.

After my graduation, I am aiming for a PhD position because my goal is after I gather more experience, to work in academia back in my country.
Energy Law

Ever since the German „Energiewende“, became a role module for Energy policies and laws, great interest in the context of Energy has risen, which is why a new module was introduced to the study program M.Sc. Business Engineering: Energy. More on the german Energy transition, can be found at https://energytransition.org/.

The module is designed as an introduction to the structure and methodology of European and international energy law. Students are provided with the necessary understanding of the European and international dimension of energy law and learn about the fundamental principles that influence the development and application of energy law in Europe. Students become acquainted with the EU's Single Market and study the important role of fundamental freedoms as a prerequisite for a well-functioning European energy market. Furthermore, they learn about the development of energy law as an application of regulatory and competition law. The module conveys also the latest insights in special topics of energy law such as renewable energies or network development.

Excursion to Hannover Fair 2018

On Wednesday 25th of April 2018 our EE, MBE and ITE students visited Hannover Messe “The world’s leading Trade Fair for industrial Technology”. Where all key technologies and core areas of industry – from research and development, industrial automation, IT, industrial supply, production technologies and services to energy and mobility technologies are presented. Every year our students have the opportunity to meet all company representatives at the exhibition and the chance to understand from them the updated market challenges and exchange ideas related to the energy sector, the German market and the global market in general.

Wind farm excursion in January 2018, Egypt

Through mutual cooperation between the Technical University Berlin and the New and Renewable Energy Authority in Egypt (NREA), on Sunday the 14th of January 2018 students of the first semester of the Energy Engineering department conducted an excursion to Gabal Elzayt windfarm. The farm is the latest and most advanced windfarm connected to the grid in Egypt. During the excursion, the students got an insight on how the theoretical systems being taught in the university are operated under real life conditions and how wind farms are being managed and operated. The students also got an idea about the regular maintenance of the farm as well as the problems facing the windfarm operators.