First Edition





ELECTROMECHANICAL



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Message From EMET Department Head

On behalf of the EMET faculty and staff, I would like to welcome you to the 1st issue of EMET NEWS. The department's news and information will be communicated through this newsletter. The EMET program is both challenging and rewarding, you will find that in order to be truly successful, it will demand your time, energy, and commitment. For our part, we will make every effort to assure that you are able to complete the program successfully and be ready to begin an interesting and fulfilling career. You will study what at first may seem like a wide range of different subjects, but will finally be recognized as a rather unified set of fundamental principles that are the core of the professional practice of Electromechanical Engineering.

We have entered a period of unprecedented competitiveness for the products of our technologies and in order to compete in such an environment our nation must have engineering talent second to none. It is critical to your professional development that



you begin with a sound educational and training experience. The faculty members in this department are dedicated to providing the best educational and training experience possible. We encourage you to take advantage of the resources of the department, and the Institute in achieving this common goal.

Dr. Saud Aldajah Department Head

Tadweer Awareness Award

The award aimed to educate students about the importance of waste management. Moreover, it aimed to raise environmental awareness among students and cultivate a culture of waste reuse. The award was open to school and university students from the private and public sector in Abu Dhabi. It focused on encouraging the students to use their creativity and innovation to support Tadweer's efforts in protecting environment for future generations, while promoting a healthy competitive spirit among students. Participants were expected to produce an innovative piece promoting the reuse of waste.



Project done by Sultan Rashed Al

EMET students participated in this competition through two projects. The first project was done by Ahmad Ibraheem Al jasmi. He designed a chandelier that was made of used plastic cups. The second project was

NQA Workshop

Based on the directions of the IAT Managing Director, Dr. Ahmad Alawar, the Electromechancial Engineering Department (EMET) at Abu Dhabi Polytechnic organized a symposium and a workshop on developing the UAE's Engineering National Qualifications on February 18, 2016. The symposium and the subsequent workshop were attended by several members of the industry from different emirates. They appreciated the efforts made by



the EMET department to involve the industry in the development of the National Qualification curriculum and provided invaluable feedback to the four majors of the EMET department: Mechanical, Mechatronics, Electrical and Instrumentation and Control Engineering.

The main objectives of the symposium were to obtain the industrial stakeholder's feedback on the developed Engineering Qualifications and to increase the awareness about NQA. The event began with a welcome speech by Mr. Humaid Al Nuaimi, Senior Manager Student Services at ADPoly followed by a panel discussion mediated by Dr. Saud Aldaja, Head of the EMET department.



Sr. Manager SS, Mr. Humaid Al Nuaimi speaking to the attendees of the NQA Symposium

The discussion panel provided excellent overview about the mission of NQA and the accreditation process. The industrial partners highlighted the importance of applied engineering education as it serves their needs better.



Panel Discussion

Later, four workshops were run in parallel; one each for Mechanical, Mechatronics, Electrical and Instrumentation and Control Engineering majors. During each workshop, a representative from EMET program presented the Diploma, Advanced Diploma and the Applied Bachelor draft qualifications. Feedback from the industrial participants was collected and analyzed.



Audience at the NQA Workshop

Khalifa Award for Education

The award aims to encourage innovative and talented students to design and apply educational projects. Abu Dhabi Polytechnic EMET students participated with two projects in the award.

The first project was implemented by Manal Mabkhoot Ali and Sara Mohammed Abdo AlAzazi. The project was about an obstacle avoiding robot. The robot detects any obstacle that it faces while moving and then moves to



Project 1: Obstacle Avoiding Robot

a side, whether to the right or to the left, in order to avoid the obstacle.

The second project was about a kinect controlled robot. The project was done by Ahmed Mohamed Al Maskari and Jawahir Salem Al Shamsi. The robot moves according to the hand gestures detected by the kinect. So, if the user moves his/her hand to the





Project 2: Kinect Controlled Project



Participants

right, the robot will move to the right. The hand gestures included right, left, front, back and stop.

Students Joining ASME

The American Society of Mechanical Engineers is a not-for-profit membership organization that enables collaboration; knowledge sharing, career enrichment and skills development across all engineering disciplines, toward a goal of helping the global engineering community develop solutions to benefit lives and livelihoods. From college students and early-career engineers to project managers, corporate executives, researchers and academic leaders, ASME's members are as diverse as the engineering community itself.

Most benefits of the membership are available online, so you can access information when you need it, anytime and anywhere. Here are some examples:

- Take advantage of networking opportunities while learning about exciting new techniques and trends
- Gain free access to educational tools specifically designed for students
- Communicate and collaborate with fellow ASME members in your area and in your field of interest
- Find essential content and interesting titles – from ASME Codes to heat transfer problems



- ME magazine subscription
- Connect with engineering professionals and participate in as many as 8 interest groups
- Job board including jobs and internships

• Invitations to local student section meetings, workshops, events, seminars

• Student competitions and much more

More than 50 students in the EMET program have subscribed for the membership. Any student in the EMET Department may join. The more students joining, the better the society will be. Be part of the ASME society and enjoy the field trips that will be held soon!

Hybrid Cars Competition by Global EEE

Global Education Energy Environment organizes student competitions around the world to promote education, energy efficiency and environmental consciousness. Part of its competition is the Hybrid Electric Challenge which requires the participants to apply engineering design, management principles and strategy to construct and race full-size electric and hybrid-electric cars. The challenge of this year took place between the 7th and 9th of April at Al Forsan International Kart Circuit. Teams from different countries participated in the challenge such as the UAE, Kuwait, Qatar and Egypt. Moreover, different universities from the UAE participated in the competition. Local Universities include MI, PI, UAEU, AUS and ADU. One team from Abu Dhabi Polytechnic EMET students participated in the challenge. The team members

are Khamis Albreiki, Obaid Alblooshi, Adel Almarzouqi, Mohamed Albannai, Osama Alktheeri, Abdullah Altemimi, Obaid Alnaqbi and Abdullah Alblooshi and supervised by Dr. Qais Khasawneh.



Participants



AD Polytechnic Hybrid Car

EmiratesSkills National Competition

EmiratesSkill's focuses on having activities that raises the awareness about career-based technical and vocational education among young Emiratis. It holds different activities to attract young talented Emiratis. Activities include competitions, events, training programs and technical career activities. The National Competition organized by the Emir-



atesSkills is open to innovative young Emiratis, both men and women, to compete in the field of craftsmanship and technology. The competition for this year will take place in ADNEC between the 10th and the 12th of May.

On Job Performance

As part of the study plan at Abu Dhabi Polytechnic, students have a training program where they go and work for different companies and authorities. This program helps the students in gaining technical and soft skills.

For the third quarter of the academic year 2015- 2016, our students worked for both, the governmental sector and the private sector. The authorities and companies that trained our students were ADWEA, SIEMENS, Arabian Power,



| Name of Student/ Trainee | Trainer |
|---------------------------|---------------|
| Mohammed Abdullah Ali | SIEMENS |
| Suhila Salem Al Shaer | SIEMENS |
| Mariam Ali Mohamed | ADNOC |
| Fatima Mustafa Saeed | Ves Bes-ADSSC |
| Jawahir Salem Khalifa | Ves Bes-ADSSC |
| Ahmed Mohamed Salem | Arabian Power |
| Abdulla Abdulraheem | Arabian Power |
| Asma Saeed Mubarak | Ves Bes-ADSSC |
| Aref Al jasmi | Thuraya |
| Reem Mubarak | Thuraya |
| Reem Suwaid | Thuraya |
| Sara Mohammed | ADWEA |
| Manal Mabkhoot Saeed | ADWEA |
| Hamad Tareq Al Ali | ADWEA |
| Mohammed Haqqi | ADWEA |
| Ali Jamal Alhammadi | ADWEA |
| Khalid Abdalla Khalfan | ADWEA |
| Ahmed Saeed Yousef | ADNOC |
| Ahmed Saeed Yousuf | ADNOC |
| Saeed Sultan Ahmed | ADNOC |
| Hassan Ali Obaid Alaleeli | ADNOC |
| Salim Abdalla Salim | ADNOC |
| Ali Mohammed Hassan | ADNOC |
| Omar Hassan Mohamed | ADNOC |
| Sultan Ibrahim | ADNOC |
| Abdalla Yaqub Juma | ADNOC |
| Khalifa Ishaq Ibrahim | ADNOC |
| Adel mohammed Ali | ADNOC |
| Mohammed Helal | ADNOC |
| Khuloud Khaled Saeed | ADWEA |

Graduation Project of the Quarter: Smart Remote Monitoring System

The project is a versatile, scalable and smart remote sensing system that is run by a microcontroller and accessed by via GSM/4G communication protocol. The system is implemented by our students Ahmed Almaskari, Jawahir Alshamsi and supervised by Eng. Umair Muzaffar, Eng. Shoaib Hussain and Eng. Nashville Toledo. The project monitors certain conditions of a particular site using sensors and updates the operator about the status of the site. The heart of the system is a programmable microcontroller that can derive information from environmental sensors (humidity, temperature, pressure, light), actuators (limit switches, motion, noise), and electrical components (variable capacitance, variable resistance).

duino microcontroller present at the

remote site; the required sensors will be connected to the microcontroller and will periodically record readings. Readings will also be recorded if there is any unusual sensor measurement. These readings will be stored on the Arduino. An Arduino GSM shield will be connected to the Arduino which will allow the information to be sent through SMS to any pre specified operator. The system will periodically send the sensor readings to the operator and will also send a warning message in case of an unusual reading. In addition to this, the operator can ask for a specific sensor reading at any time by sending an SMS to the system and the system will respond by sending the particular sensor reading to the operator's mobile phone.



Prototype of the Project

The proposed system utilizes an Ar-

Edition Article:

Impacts of Wind Farms-A step Towards Renewables

Many of the largest operational onshore wind farms are located in Germany. China and the United States. For example, the largest wind farm in the world is Gansu Wind Farm in China which had a capacity of over 6,000 MW of power in 2012 and a goal of 20,000 MW by 2020. The Alta Wind Energy Center in California, United States, is the largest onshore wind farm outside of China with a capacity of 1,020 MW. As of April 2013, the 630 MW London Array in the UK is the largest offshore wind farm in the world, followed by the 504 MW Greater Gabbard wind farm in the UK.

Environmental impact

Compared to the environmental impact of traditional energy sources, the environmental impact of wind power is relatively minor. Wind power consumes no fuel, and emits no air pollution, unlike fossil fuel power sources. The energy consumed to manufacture and transport the materials used to build a wind power plant is equal to the new energy produced by the plant within a few months.

Human Health

There have been multiple scientific, peer-reviewed studies into wind farm noise, which have concluded that infrasound from wind farms is not a hazard to human health and there is Wind Farms Effects Using the wind to create electricity has been around for a long time, you've probably seen windmills on farms. When the wind turns the blades of a windmill, it spins a turbine inside a small generator to produce electricity, just like a big coal power plant.

A windmill on a farm can make only a small amount of electricity, enough to power a few farm machines. To make enough electricity to serve lots of people, power companies



no verifiable evidence for 'Wind Turbine Syndrome', although some suggest that further research might still be useful.

Effect on Power Grid

Utility-scale wind farms must have access to transmission lines to transport energy. The wind farm developer may be obliged to install extra equipment or control systems in the wind farm to meet the technical standards set by the operator of a transmission line. The company or person that develops the wind farm can then sell the power on the grid through the transmission lines and ultimately chooses whether to hold on to the rights or sell the farm or parts of it to big business like GE, for example.

Ground Radar Interference

Wind farms can interfere with ground radar systems used for military, weather and air traffic control. The large, rapidly moving blades of the turbines can return signals to the radar that can be mistaken as an aircraft or weather pattern. Actual aircraft and weather patterns around wind farms can be accurately detected, as there is no fundamental physical constraint preventing that.

Radio Waves Interception

There are also reports of negative effects on radio and television reception in wind farm communities. Potential solutions include predictive interference modeling as a component of site selection.



Wind Farms

EMET Department Newsletter Abu Dhabi Polytechnic

Institute of Applied Technology Mohamed Bin Zayed City Abu Dhabi

Riddles

To know the answer, read it from right to left!

Q: I'm tall when I'm young and I'm short when I'm old. What am I?

A: eldnaC A

Q: What occurs once in a minute, twice in a moment and never in one thousand years?

A: M rettel ehT

Q: What has hands but can not clap?

A: kcolC A

Q: What can you catch but not throw?

A: dloC A

Q: What is at the end of a rainbow?

A: W rettel ehT

Q: What starts with the letter "t", is filled with "t" and ends in "t"?

A: topaet A

