Welcome to the 2018 edition of the UBT Research Electronic Newsletter. The Research E-Newsletter is being published for its third year to share, celebrate, and recognize the research work of UBT faculty members and students, their publications, their inventions, and their awards. In this issue, you will know more about services that facilities your study and research, you will find opportunities, and you will be inspired to excel.

Enjoy reading, and wishing you more publications, inventions, conferences, awards, citations, etc.
ABOUT US

The Deanship of Scientific Research team

OUR VISION IS
to be the leaders in research excellence, creativity, and innovation that serves the community and solves current life problems.

OUR MISSION IS
to support faculty, staff, and students to perform creative and innovative scientific research to develop the business & Technology in the Kingdom of Saudi Arabia, commercialize, transfer technology, to serve the national and international economic development needs in different business sectors.
Featuring Dr. Ahamad Shawqi

Dr. Ahmad Shawqi received his Ph.D. in physical chemistry and material science from the University of Limerick, Ireland in 2007. He joined the College of Engineering and Information Technology (CEIT) at the University of Business and Technology (UBT) in October 2010. He has been Head of the Department for General Subjects since 2012. In 2015, he was awarded the Dr. Abdullah Bin Sadiq Dahlan prize for the best researcher in UBT. He was promoted to the rank of Associate Professor at the beginning of 2016. He has published 11 papers in peer reviewed European and American journals in the field of electrochemistry, crystallography and sensors.
Welcome on Board

CONGRATULATIONS FOR BEING PART OF OUR UBT FAMILY. WE ARE CONFIDENT THAT YOU WILL BRING GREAT VALUE WITH YOUR CONTRIBUTION.

Kholoud Batarfi has a master’s degree in art and Design from Leeds- UK, her study focused on Graphic Design and Islamic Art. Kholoud is an enthusiastic hardworking designer who is committed to providing a non-ending excellence in her field of study. She is willing to improve her skills to acquire the indispensable experience in art and design. Also, she enjoys teamwork and found herself a natural leader who is able to lead the team to success. She is born to be a successful leader which makes her interested in the art management field. More importantly, she is a very talented, keen and dedicated to her works and has the ability to face the cultural challenges. Now, Kholoud is working as a Graphic Design lecturer at the University of Business and Technology (UBT) as well as working as a Publishing Services Administration at the same institution. Kholoud is a member of Jeddah House of Artists and her goal to finish her Ph.D. very soon in the same field.

Mohamed Shaker was a pleasant experience, it started in 2010 when I joined as a student in the College of Business Administration, where I had the chance to develop and acquire the needed knowledge in today’s dynamic business environment and secure an internship at the Saudi airlines treasury unit and I was able to complete my bachelor of Finance in 2014 and my MBA degree in 2017. Today my journey with UBT is still moving forward as an employee, I am working as a Research Assistant in charge of the International Affairs at the Deanship of Scientific Research and Graduate Studies, a department that allowed me to engage in research activity and in promoting our academic growth. And that’s why I am very proud and honored to be a UBT graduate.
The Deanship of Scientific Research is honored to serve graduate students during their application process to any of the graduate courses offered at UBT. In addition, it will continue to provide all support for current graduate students, faculty and staff.

Deanship of Scientific Research to Take on Graduate Studies

- **MBA** | Master of Business Administration
  - Accounting
  - Finance
  - Management Information System
  - Marketing
  - Human Resources
  - Entrepreneurship
  - International Business Management

- **MEM** | Master of Engineering Management
  - Quality
  - Industrial Engineer
  - Construction

- **MSc** | Master of Accounting
- **MSc** | Master of Human Resources Management
- **MSc** | Master of Supply Chain Management
- **MSc** | Master of Marketing
- **MSc** | Master of Finance

UBT Graduate Programs
The Graduate Studies Council held its first meeting on the 5th of September. Council members are:

- Dr. Basma Elzein, Dean of Scientific Research and Graduate Studies - President
- Dr. Hatem Akeel, Vise Dean of CBA – Vice President
- Dr. Ayman Zereban, Academic Advisor For Graduate Studies Program
- Dr. Hussein Reda, Head of Industrial Engineering, Member
- Dr. Ameen Alharbi, Major of Human Resources
- Dr. Ruaa Bin Saddig, Vice Dean Of CBA For Academic Affairs

The Graduate Studies Council is formed to ensure quality and to support all members who work or study in MBA or MEM. The council duties are:

1. Suggesting general graduate studies strategies and ensuring the correct application
2. Collaborating with collages to organize Graduate programs
3. Suggesting general admission conditions and ensuring the correct application
4. Making recommendations regarding new programs and comparing them with already existing programs
5. Making recommendations regarding graduate studies curriculums
6. Deciding on all matters concerning graduate students
7. Setting rules and regulations for dissertations, scientific research, examiners comities, and research marking criteria
8. Quality control
Founded in Milan in 1921 is the only university in Italy with campuses all over the country: in Milan, Piacenza, Cremona, Brescia and Rome – which is also home to the Agostino Gemelli General Hospital.

The Catholic University of the Sacred Heart offers many undergraduate and graduate courses and opportunities for summer training in Business, Finance, Law, and Economics, insurance, advertising, and media.

Ms. Margharita Biskwi, head of the international relations visited UBT on the 10th of May and met with UBT Rector Prof. Osama Jannadi and other faculty members from Jeddah College of Advertising and the Deanship of Scientific Research to discuss areas of collaboration that includes summer training and student exchange. The collaboration between both universities is due to take effect in Summer 2019.
A delegation from Loughborough University along with Qobolak Study Abroad Company visited UBT to discuss the Ph.D. studies on the 23rd of July. Loughborough University is named the University of the Year 2018, and is rated among the top universities in areas like student experience, Guardian University League, student support, and research. Leader in Knowledge Management Ms. Gillian Ragsdell and International Officer Will Burns, met with Deans form UBT to discuss areas of collaboration between the two universities. Following they presented to UBT staff their colleges and the areas they can supervise under, which include:

- Aeronautical and Automotive Engineering
- Architecture, Building and Civil Engineering
- Arts, English and Drama
- Business and Economics
- Chemical Engineering
- Computer Science
- Design
- Mechanical, Electrical and Manufacturing Engineering, among other areas

In addition, Ms. Gillian gave the attendees tips and hints about writing a successful proposal, and she answered many questions about studying Ph.D. in the United Kingdom.
An Egyptian delegation led by Dr. Waleed Alsulami visited UBT on Thursday the 6th of September to tour the university and to discuss research strategy. The delegation was welcomed by Mr. Mohannad Dahlan and was offered a tour of UBT Dahban, then they were hosted at the Deanship of Scientific Research.

Dr. Basma El Zien presented the UBT vision and mission and explained the Research Roadmap and the Research Flagships adopted at UBT. The delegation was impressed at the research efforts, and there shall be areas of collaboration in the near future.
Vice Dean of Scientific Research at Umm Al-Qura University (UQU) Mr. Abdulla Tamim visited UBT on the 9th of August to offer the chance of conducting applied research. The Deanship of Scientific Research at Umm Al-Qura University aims to make UQU a reliable research reference in science as well as a key pillar in supporting scientific decision-making in Saudi Arabia.

As a first stage of support, the Deanship gives attention to all segments of knowledge society at the university (professor, associate professor/lecturer, teaching assistant, postgraduate student, undergraduate student). External research support programs included Ma’arefa Program, Saudi Basic Industries Corporation “SABIC” Grant Program, KACST Grant Program, and internal support programs include Ra’ed, Baheth, and Wa’eda.
Building research skills and establishing the achievement file of a researcher helps in creating Research Group programs, research center grants, establishing innovation centers or specialized research chairs, all of which pays off in many forms. The most important form is the intellectual property and patents resulting from these researches. Moreover, knowledge transformation of research capacity is clearly manifested in the knowledge economy, which means investing the research capacity in productive outlets such as consulting firms, technology, and business incubators and accelerators. This can positively influence the establishment of start-ups that contribute to social development and meet the national needs of the knowledge economy.

An MOU between the two universities is expected to be signed later this year to support the advancement of innovative research and technology transfer, hence, resulting in more patents, IPs and startups in Saudi Arabia.
The French university, Rouen, visited UBT on the 10th of September. Rector of UBT Prof. Osama Jannadi, Dean of Scientific Research Dr. Basma El Zein, and Vice Rector for Academic Affairs Dr. Weam Tunsí greeted Prof. Alain Kokoowski and Miss. Bashira Taama.

2016 marks a pivotal moment for the University of Rouen as the 50th anniversary. For the past fifty years, the university has upheld the same spirit as in the 1960’s, among faculty, staff and students alike, encouraging progression in the modern world. Over the years, the university has developed, both internally and externally, aiming to always progress and enhance the students experience at the University of Rouen.

On this note, the two parties discussed providing training opportunities to students in international companies, collaborative research opportunities, and a Ph.D. co-supervision program.
As a result of an MOU between UBT and University of Jeddah (UJ), Dr. Akram Aloqbi, the vice dean for development at UJ visited the Deanship of Scientific Research and Graduate Studies on the 16th of September. The two parties discussed organizing a Scientific Day on November. The Scientific Day is an event that allows faculty members from both universities to explore and build up a research collaboration between science and College of Engineering, College of Business Administration, and College of Law.

During the visit, Dr. Aloqbi also stressed on the importance of providing training opportunities to students in national and international companies, as students who get hands-on experience are more likely to have a greater understanding of the taught courses materials.
DarTec Engineering Consultants Visit

DarTec is a Saudi engineering office specialized in offering engineering services in collaboration with international partners specialized in the areas of reverse engineering, 3D laser scanning, equipment inspection, and certification. DarTec focuses on providing value-add services that contribute to their customer’s success by uncovering their hidden needs, behaviors, and desires which customers themselves find challenging to articulate. Engineering design is not restricted to how things appear and operate; rather, it’s about how they function. Thinking like a designer can transform the way organizations develop products, services, processes and strategy. The design-thinking approach that DarTec implements with its customers brings together what is desirable from a human point of view with what is technologically feasible and economically viable. It also allows people who aren’t trained as designers to use creative tools to address a vast range of challenges.

DarTec chooses to focus its efforts on providing value-add services to its customer’s experience and lifestyle enrichment to uncover the customer’s hidden needs, behaviors and desires which customers themselves find hard to articulate.

MR. Hashim Omar Al-Zain, the CEO of DarTec visited UBT on the 27th of September where he was introduced to research strategy at the university and how research focus on social, economic and industrial development.

The two parties agreed on many areas of collaboration to support UBT students and Alumni in their projects.
In order to raise the university’s ranking to be among the leading world universities in education and applied research, UBT is working to increase its visibility. On this note, the Deanship of Scientific Research works to form strategic partnerships and collaborations that would benefit all members of UBT in their Ph.D. studies, scientific research, innovation, or projects.

On the 1st of May, Dean Basma El Zein and related members of UBT had a conference call with Ravensbourne University and Gordon College, London, United Kingdom and Hamline University, Minnesota, the United States to discuss providing:

- Opportunities for student and faculty exchange
- Consultancy
- Opportunities for summer training
- Opportunities for industry requirement
- New research projects
BT hosted the German Academic Exchange Service (DAAD) to inform students and academic staff about the academic landscape in Germany. MR. Michael Alszer presented DAAD on the 14th of April, and he elaborated on:

- How does DAAD supports and connects students, academic researchers and universities in Germany and throughout the world?
- What kind of international study and research programs do exist in Germany?
- What are the funding possibilities for students and academic researchers from KSA and how does DAAD support them? Together we will have a look at the DAAD scholarship database and discuss the funding possibilities for Saudi and Non-Saudi students and academic researchers.

**The presentation was structured as follows:**

1. The German Academic Exchange Service (DAAD)
   - Structure and organizations
   - Budget
   - Goals and tasks
   - DAAD in KSA and the Middle East
2. International study programs in Germany
   - Bachelor programs
   - Master and PhD Programs
   - Postdoc
3. The DAAD Scholarship Database
   - Funding and grants in general
   - Funding for postgraduates
   - Research funding
4. The German language
- A necessity for a study program in Germany?
- Learning German in KSA

**About the Speaker:**

Michael Alszer
Languages & Translation
Lecturer | DAAD Lecturer for German as a Foreign Language

2009 - 2012: Lecturer of German as a foreign Language at "Activ Lernen" in Cologne, Germany.
2012 - 2016: University Lecturer and Coordinator at the German Jordanian University in Amman, Jordan.
2013 - 2016: Lecturer of German as a foreign Language / German for Doctors and Nurses at the Language Generation Center in Amman, Jordan.
2016: DAAD Lecturer at the King Saud University in Riyadh, KSA.
The 26th edition of the “Arab Economic Forum” was held on the 12th and 13th of July 2018 at the Four Seasons Hotel in Beirut under the patronage of Prime Minister of Lebanon Saad Hariri.

The Forum is taking place against the background of economic changes in the region represented by the decline in the economic growth and acceleration of economic reform, the sustainable drive to diversify sources of growth, strengthen public finances and stimulate job creation.

**The agenda of the Forum tackled issues including**

- Launching the International Monetary Fund’s Report on the Middle East and North Africa.

- The investment in infrastructure in Lebanon after the “Cedar” conference in Paris

- Lifetime Achievement Awards to the Saudi Fund for Development and participation of Saudi economic delegation.

- Participation of a high-level Egyptian economic delegation from the public and private sectors

- Developing the economic partnership between the Arab countries and Africa

- The investment climate in the region and how to develop and enhance the region’s attractiveness to foreign investment, focusing on the experiences of Saudi Arabia, Egypt, Kuwait and Lebanon.

Youth Dialogue: Unlocking the Potential of Arab Youth.

University of Business and Technology was represented in the Forum with the presence of Dr. Abdulla Dahlan and Dr. Basma El Zein Dean of Scientific Research.
In a global manifestation and a large international media presence, the Global Council for Tolerance and Peace (GCTP) held the first procedural session of the International Parliament for Tolerance and Peace (IPTP) in the main hall of the Maltese Parliament in Valletta on the 6th of July, at the invitation of the Speaker of the House of Representatives of Malta, Mr. Anġlu Farrugia, and the President of the Global Council for Tolerance and Peace, Mr. Ahmed bin Mohammed Al-Jarwan and the presence of a 54 heads and representatives of regional and national parliaments from around the world.

Al-Jarwan stressed on what is threatening humanity which includes religious extremism, racial intolerance and intellectual violence. He stressed that "the participation of this number of members of national, regional and international parliaments demonstrates our agreement and our collective recognition of our common need for this kind of inter-parliamentary cooperation in leading a new global culture and channeling public energies towards tolerance and peace".
Community Service

Launching of The International Parliament for Tolerance and Peace (continued)

The International Parliament will include a total of five committees on:
- Youth and women
- Legal and legislative matters
- International matters
- Cultivating peace and sustainable development.

And it will serve by focus on establishing a parliament that:
- serves the cause of tolerance and peace
- respects the principles of international democratic relations
- committed to the rules and principles of international law
- respects the principles of national sovereignty
- does not interfere in the internal affairs of any State

Representing the University of Business and Technology in this meeting was Dr. Basma El Zein as vice president for science and academic affairs (community service).
The aim of this study was to assess the role of social support systems for Saudi Arabian students in the United States. A survey was conducted with Saudi sojourners using the Index of Sojourner Social Support (ISSS) instrument and the Ethno-Cultural Identity Conflict Scale (ECIS) (N=210) and semi-structured interviews (N=15). Saudi students reported that when it comes to adapting to their lives in the United States, they rely on few people (M=3.07) to support them during their stays, thus indicating that they rely on minimal social support networks. This was confirmed by the ISSS data, which provides that students overwhelmingly have limited social support networks. When the ISSS scores were compared to the ECIS scores, the data show that there is a weak negative statistically significant correlation between identity conflict and social support rs(125) = -0.200, p < .05. As social support for the Saudi sojourners increased, their intrapersonal identity conflict decreased. Interview data adds that although the majority of sojourners had small (limited) support systems, those support systems were nevertheless robust and able to assist the students with overcoming obstacles with their academics as well as assimilating, if only temporarily, into American society.

Keywords: Saudi Arabian students; intrapersonal identity conflict; social support systems; study abroad
Accounting and auditing failures are still a hot topic despite strong efforts for efficient corporate governance. The motives and attitudes behind decisions and events leading to Enron’s eventual downfall appear to be simple. It is individual and collective greed born in an atmosphere of market loose of regulation. The financial results of the company were too good to be true and no sound was heard to criticize the company albeit very few opinions. It was a network to deceive stakeholders. Saudi Arabia government has sought to change its oil-based economy into a modern diversified economy with a more trend towards privatization consistent with 2030 vision “a vibrant society, a thriving economy and an ambitious nation” and in this situation an effective, transparent, accountable, enabling and high-performing government and corporations are an essential pillar for success in order to advance economy including stock market. Corporate governance is intended to increase accountability of corporations and to avoid problems before they occur. An accounting scandal at one of Saudi Arabia’s largest telecommunications companies is posing pressure on regulators, as Saudi Arabia moves to open up the Arab world’s largest stock market to foreign investors. The Capital Market Regulator in Saudi Arabia banned Deloitte’s firm (Bakr Abulkhair & Co.) from auditing public companies as of June 1st, 2015, on account of its work for the targeted loss-making company MMG (Mohammad Al Mojil Group). Another scandal in Saudi Arabia is Etihad Etisalat, known as (Mobily), as company’s audit committee pointed in their perspective to accounting errors that decreased about $380 million in previous profits. The aim of this research is to explore what went wrong and the violations of corporate governance rules by highlighting corporate accounting and auditing scandals in MMG (Mohammad Al Mojil Group) and Etihad Etisalat, known as (Mobily). Although what happened at Enron is very well known worldwide, the corporate accounting and auditing failures in the case of Saudi Arabia is unprecedented territory of research.
Corporate governance is a cornerstone in improving efficiency and creating confidence to attract investors. After collapses of giant companies, worldwide business community are trying to infuse a culture of honesty and integrity in business. Commitment of board of directors and willing of top management and employees to strength corporate governance is essential. Failure to compliance with corporate governance rules will increase operational risk and hence impacting interests of stakeholders. Saudi Arabian Monetary Agency (SAMA) which is the central bank in the Kingdom of Saudi Arabia with Capital Market Authority (CMA) are thriving continuous-ly to strength corporate governance rules for banks and financial institutions. One of the circulars for banks and financial institutions is the requirements for appointments of senior positions in financial organizations with the objective of appointing persons who possess integrity, honesty, and good reputation. Companies should obtain written non-objection form for the appointment of senior managers and it is the responsibility of board of directors to ensure compliance with this regulation. In addition, SAMA issued several guidelines for anti-money laundering, rules for countering fraud and a code of professional ethics of staff. Recently, banks are required to form compliance unit to make sure banks prepare their financials according to International Financial Reporting Standards (IFRS). The aim of this paper is to highlight a case of corporate governance and board responsibilities in one of the financial institutions in Saudi Arabia. The case will be presented to show the mechanism followed by the financial institution and whether it is complied with rules in appointing senior managers and if not what corrective actions are done in order to strength corporate governance principles.

**Keywords:** Board of director’s responsibilities; Saudi Arabian Monetary Agency, Corporate Governance
Visual and Musculoskeletal Disorders (VMSD) are one of the occupational diseases prevalent among office workers in the globe. Many studies have been devoted to examine such disorders in developed countries. However, few studies have recently been initiated in developing countries. Among them is this study which aims to assess the prevalence of VMSDs among office workers in Palestine. To this end, a self-reporting questionnaire was designed and distributed to 501 respondents from office workers working in public and private organizations in West Bank, Palestine. The collected data were statistically analyzed performing ANOVA and Multiple Linear Regression. The results showed that about 62.5% of the sampled workers suffered from the development of at least one VMSD symptom, and about 17% indicated they have one permanent symptom. Besides, gender and age of office workers showed significant statistical differences in the prevalence of VMSD’s symptoms. The results of the MLR showed significance in modeling the VMSD’s symptoms prevalence. The findings of this study could help the relevant stakeholders in taking engineering and administrative interventions to alleviate the adverse effects of VMSD on office workers’ occupational health, safety and job performance.

**Keywords:** Office workers; musculoskeletal disorders; visual disorders; ergonomics; multiple linear regression.
Quality costs are those resulting from producing, identifying, repairing, and avoiding defective products. Quality costs consist of the following four categories: Internal costs, failure costs, external failure costs, and appraisal costs. A survey of several plastic and glass industries in Saudi Arabia is conducted. The survey includes a cross representation of manufacturing activities existing in the region. The survey is intended to assess the level of awareness and quantitative estimates of quality costs as related to the plastic and glass industries. The survey design and findings are presented along with analysis. Specific conclusions are drawn regarding quality costs studies and reduction/improvements programs as related to the surveyed industry category.

**Keywords:** TQM, plastic and glass industry, quality cost, quality improvement
The new generations of nano-devices successfully apply with great promise as drug carriers in the treatment of different diseases. The proposed model aims to determine the pharmacological targets and evaluate the biosafety of usefulness of carbon nanotube conjugated with two different antiviral compounds, Acetylcholine and Ravastigmine, for treating Alzheimer disease. We also obtain the medicinal model mathematically to evaluate the interaction energy arising from encapsulation of each antiviral compound inside the single-walled carbon nanotube. Acetylcholine is modelled as two-connected spheres, while Ravastigmine has two possible structures which are an ellipsoid and cylinder, all interacting with the interior wall of single-walled carbon nanotubes with variant radii $r_c$. Our calculations show that the single-walled carbon nanotube of radius $r_c$ greater than 3.391 Å that will accept both drugs which are quite closer to the recent findings.

**Keywords:** Carbon Nanotubes (CNTs), Alzheimer Disease (AD), Acetylcholine (ACh) (Aricept), Ravastigmine (RAV) (Exelon), Mitochondria (MTCDH), Lysosomes, Van Der Waals Interaction and Lennard-Jones Potential
Fabrication of Microelectrode Ensembles on Thin-film Single Electrodes: The Degradation of Electrolytized Benzene-1,3-diol Films in Caustic Solutions

Ahmad S. Barham, Sultan Akhtar, Mohammed I. Alkhatab, Sameer. Y. Jaradat, Brendan. M. Kennedy, Basma. El Zein

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ABSTRACT

This paper explores the degradation of poly benzene-1,3-diol films in caustic solutions. A polymer film was deposited on Micrux® thin film gold electrodes (A=0.008 cm²) or gold-coated silicon wafer chips (A=1.0 cm²). The deposition parameters, exposure time and the concentrations of caustic solutions were optimized to obtain the efficient microelectrode ensembles. The electrochemical behavior of the deposited material was studied by cyclic voltammetry. The final morphology of the films was investigated by scanning electron microscopy (SEM), atomic force microscopy (AFM), and transmission electron microscopy (TEM). Through exposure to caustic solutions, polymer removal from the electrode surfaces resulted in the creation of a microelectrode ensemble. The voids on the surfaces were filled successfully with polyaniline by electropolymerization process. TEM and AFM analyses revealed the existence of polyaniline spherical nanoparticles in the modified films with a diameter slightly above 50 nm. The calculated average inter-pore distance using SEM micrographs was approximately 543 nm for the Micrux® electrode, and approximately 860 nm for gold-coated Si-chips. The number density of the pores was equal to 4.9×10⁸ electrodes/cm² for Micrux® modified electrode, while 2.0×10⁸ electrodes/cm² for gold-coated Si-chips. The present work allows the production of high-density microelectrode ensembles using a cost-effective route, and a platform for a wide range of applications including sensor technology.

Keywords: Electropolymerization, Etching, Polyaniline Nanoparticles, Oxidation.
Natural resources are substances deposited by nature within a defined geographical region and used by man. They have a major economic significance in any national economy. However, their economic contribution is only a function of how they are fitted in a multi sector economy. A system approach to natural resources utilization is defined as one which treats resources as a sector in a system of many sectors such as technology, production facilities (e.g. transportation network), manufacturing, trade, and others. Some of the dynamic interactions between the resources, technology, and transportation sectors are discussed. Then, a structure of a system dynamics model is presented including its basic objectives and features. Finally, two examples of feedback loops are presented, followed by general recommendations for further investigation and research.
A Dynamic Model For Muslim Pilgrims Movement

Hussein M. Reda

ABSTRACT

This paper presents a model for simulating Muslim pilgrims movement during Hajj (Pilgrimage to Makkah) using the system dynamics modeling approach. Its objective is to provide better understanding of the pilgrim’s movement system. The model also can serve as a planning and analysis tool for studying related issues such as traffic bottle necks, and effect of various transportation modes and traffic regulations and policies on pilgrims flow. In addition, it can facilitate investigating alternative infrastructure design (e.g. roads, parks), or expansion projects.
One of the most important problems in using photovoltaic systems (PV) is the low power production due to increasing the ambient temperature, and the accumulation of dust on PV panels surfaces. In this work, self-cleaning and self-cooling PV system with feedback control was designed, constructed and operated. The programming method of control of water pumping system is achieved by means of programmable logic controller (PLC) and frequency inverter (FI). The control system consists of two subsystems based upon the same electromechanical system. One system for controlling the cooling of PV system by using temperature sensor and feedback system, and the other system for controlling the cleaning of PV system by using huge pressure of water to push away the accumulated dust on the PV surface.

An experimental study was performed to investigate the effect of using self-cleaning and self-cooling system on the electrical power generation at the output of PV system. The electrical power generation at the output of PV modules with self-cleaning and self-cooling system has increased by 34% and the efficiency by 26%.

**Keywords:** PV system; Feedback control; Self-cleaning; Self-cooling; PLC system; Frequency inverter.
This paper proposes a model to develop a university smart campus enabled through Internet-of-Things (IoT) technology. The infusion of IoT in education embraces the internet-based communication between controllers, sensors and the physical objects. This landscape of modern technology has changed the universities education on a massive scale. Various objects are integrated with sensors, wearable technologies are collecting data with augmented reality and intra-communication is taking place through cloud computing. This IoT paradigm defines the diverse range of parameters for universities identifying opportunities to make them smart urging new interaction between objects and people. This research focuses to make smart rooms, smart parking as well as delivering smart education to students. Index Terms—Internet, Higher, Education, Smart, Campus, University

**Keywords:** Internet, Higher Education, Smart Campus, University
Absorption of light, generation of charges carriers (electrons and holes), the separation of the electrons from holes and their transport to electrodes, are the sequence of events of solar energy conversion. Different nanostructures have been employed in the structure of solar cells, to improve its efficiency with simple manufacturing process and low cost. Zero dimensional nanostructures have gained interest due to their unique properties especially tuning their band gap based on their size and multiple exciton generation. One dimensional nanostructures are promising for PV devices due to several advantages. They offer large surface area, high optical absorption across a broad spectrum direct path for charge transport and high charge collection efficiency. Graphene has recently emerged as an alternative to ITO substrate as an electrode in solar cells structure. With its remarkable electrical, physical and chemical properties, and high degree of flexibility and transparency; it is considered as an ideal candidate for flexible 3rd generation solar cell, the graphene solar cells an eco-green technology is getting to the same level of ITO based solar cells. This presentation is about presenting a flexible quantum dots sensitized solar with graphene electrode.
A quantitative research study of the relationship between emotional intelligence, job satisfaction, and organizational performance was conducted at a Healthcare Administration Organization, in the Kingdom of Saudi Arabia. Research in Healthcare has shown a link between job satisfaction and quality outcomes for patients, and therefore, the construct has been identified as an important element for Healthcare organizations. This study investigates the management of organizational behaviour outcomes related to worker productivity, job satisfaction and performance levels, by investigating measures of emotional intelligence, its relative impact and how the characteristics may influence the success of a Healthcare Administration Organization. With focus on the diversity and potential cultural biases in the respondent pool, the analysis will address intervention that may help to achieve positive emotional intelligence outcomes for business management success in the multi-national administrative organization. The study was conducted with 380 employees from The National Guard Healthcare Administration, (KSA). The National Guard Healthcare Administration is a multi-site Healthcare network, that serves the public health sector in KSA. The administrative department is financed and operated by the Kingdom’s Ministry of Health, thereby limiting the organizations direct authority to combat shortfalls that are reported to be common in organizational behaviours. A Spearman’s rank-order correlation was run to determine the relationship between job productivity and emotional intelligence. Evidence showed, there is a clear, significant relationship between job satisfaction and emotional intelligence and they indeed do impact organizational performance.
Award

RESEARCHER OF THE MONTH

Hussein Reda
College Of CE

FEBRUARY

HOW MANY PUBLICATIONS DO I HAVE?
I GOT AN AWARD!
I HAVE AN INVENTION / CREATIVE IDEA!
I HAVE A HIGH CITATION!

WHO'S NEXT
RESEARCHER OF THE MONTH

Ayman M. Zarban
College Of CBA

MARCH

HOW MANY PUBLICATIONS DO I HAVE?
I GOT AN AWARD!
I HAVE AN INVENTION / CREATIVE IDEA!
I HAVE A HIGH CITATION!

WHO'S NEXT
RESEARCHER OF THE MONTH

Ahmad Shawqi
College Of CE

APRIL

HOW MANY PUBLICATIONS DO I HAVE?
I GOT AN AWARD!
I HAVE AN INVENTION / CREATIVE IDEA!
I HAVE A HIGH CITATION!

WHO'S NEXT
RESEARCHER OF THE MONTH

Dina S. Fadaly
College Of CBA

MAY

HOW MANY PUBLICATIONS DO I HAVE?
I GOT AN AWARD!
I HAVE AN INVENTION / CREATIVE IDEA!
I HAVE A HIGH CITATION!

WHO'S NEXT
RESEARCHER OF THE MONTH
Award

RESEARCHER OF THE MONTH

Mahmood Ali
College Of CBA

JUNE

HOW MANY PUBLICATIONS I HAVE?
I GOT AN AWARD!
I HAVE AN INVENTION /CREATIVE IDEA!
I HAVE A HIGH CITATION!

WHO'S NEXT
RESEARCHER OF THE MONTH

Mohammad Zulfeequr Alam
College Of CBA

JULY

HOW MANY PUBLICATIONS I HAVE?
I GOT AN AWARD!
I HAVE AN INVENTION /CREATIVE IDEA!
I HAVE A HIGH CITATION!

WHO'S NEXT
RESEARCHER OF THE MONTH

Hakim Garalleh
College Of CE

AUGUST

HOW MANY PUBLICATIONS I HAVE?
I GOT AN AWARD!
I HAVE AN INVENTION /CREATIVE IDEA!
I HAVE A HIGH CITATION!

WHO'S NEXT
RESEARCHER OF THE MONTH

Isameddin Abdullah Amarneh
College Of CE

SEPTEMBER

HOW MANY PUBLICATIONS I HAVE?
I GOT AN AWARD!
I HAVE AN INVENTION /CREATIVE IDEA!
I HAVE A HIGH CITATION!

WHO'S NEXT
RESEARCHER OF THE MONTH
Workshops

RESEARCH WORKSHOPS

SR supports UBT’s research mission and solve problems facing the business sector and the whole economy in Saudi Arabia and the region, in line with Saudi Vision 2030 and the Development Plan 2020. The Deanship brings together faculty members, staff, and students, unifying their efforts to develop interdisciplinary approaches to goal-oriented problems by linking researchers and the industry together, providing an opportunity to solve current issues facing the Saudi community and economy. DSR is organized three workshops dedicated for researchers during May and June 2018, presented by Dr. Basma El Zein.

About the Speaker:

Dr. Basma El Zein
Dean of Scientific Research at the University of Business and Technology (UBT), Jeddah, Saudi Arabia

Dr. El Zein has 18 years of experience in academic and research institutions and is a renowned guest speaker at many international conferences on renewable energy and nanotechnology. Dr. El Zein is a grand Judge at Intel ISEF-USA, examiner at King Abdul Aziz city for science and Technology (KACST), and a board member of Arab Investor Award. She is a chair or co-chair on committees of different international conferences. Her research interest is currently in Energy Conversion and Energy Storage. She is also exploring Printed Metal Oxide Batteries.
Her previous research included Telecommunication, Artificial Intelligence, auto-control and auto-command by programmable logic controllers, and Computer Vision. She has a textbook entitled “Nanostructured materials for Photovoltaic applications”. Additionally, she has one patent filed in the USA related to materials for Solar Cells. Dr. Basma graduated from the University of Lille, France with a Ph.D. in Nanotechnology Engineering with High Distinction for her research Zinc Oxide Nanostructures for Photovoltaic Applications. Her master degree was from the Lebanese University, Lebanon in the field of Electrical and Electronics Engineering with Distinction.

Research Integrity

The workshop took place at the CEC on the 24th of May and was attended by many faculty members from both campuses and it covered the following topics:

- What is research
- Research team
- Publication
- Authorship
- Research manuscript
- Publication process
- Research misconduct
The workshop took place at the CEC on the 31st of May and was attended by many faculty members from both campuses and it elaborated on the following topics:

- Publishing in International journals
- Publication ethics
- Publication goals
- Publication strategy
- Cover letter
- Recommending/excluding reviewer
- Decision letters

The workshop took place at the CEC on the 7th of June and was attended by many faculty members from both campuses and it covered the following topics:

- Concept of a successful proposal
- Importance of a proposal when applying for a grant
- General process of grant application for an internal/external grant
- How to reflect the motivation in applying for a specific grant
- General parts of a proposal
- Tips and hints
On the 28th of June, the DSR team met with many Ph.D. students and candidates to hear about issues they are facing in their applications, forms, work, and studies. The meeting took place at the CEC and was attended by more than 20 members of UBT.

The team have listened and documented every issue, and have provided answers and all support possible by contacting the Saudi Ministry of Education or Professors and universities abroad.
Support Services

PUBLICATION DEPARTMENT

Research Support Services

SR Supports UBT members to publish with high quality in high impact factor journal up to the international standards and to generate and transfer knowledge to community, the Publication Department offers the following services:

1. Graphical support office:
   - Design and create presentations
   - Provide manuscript figures
   - Provide graphical abstracts
   - Provide journal covers
   - Create a scientific illustration
   - Organize paper format

2. Publication Verification & Translation office
   - Check plagiarism with Turnitin (Moodle)
   - Proofreading/ English editing for the paper before publication.
   - Improve grammar, sentence structure
   - Translate English to Arabic and Arabic to English
   - Organize and Disseminate the recommended list of peer-reviewed and indexed journals to researcher.
   - Track the researcher’s publication and verify its online publication.

For more information and for requesting a service, kindly visit our website by clicking on the link below.

Research Support Services
On 14 May, the Italian Consulate General in Jeddah organised a conference entitled “Future Environmental and Biological scenarios between the Mediterranean and the Red Sea”, supported by an impressive interactive exhibition on biodiversity in the Red Sea, organised in association with the Italian scientific community at the King Abdullah University for Science and Technology (KAUST): a futuristic university campus north of Jeddah, which already counts more than 100 Italians between professors, researchers and students. The conference emphasized that the Mediterranean Sea and the Red Sea present fundamental environmental and biological differences, but they also have similarities, and represent a continuum with unique peculiarities. The introduction of the conference was by Italian Consul General Elisabetta Martini. Then many speakers went to the stage starting from Daniele Daffonchio, professor of biosciences, (KAUST), Giorgio Bavestrello, professor of Zoology, University of Genoa and Folco Giomi, researcher in Zoology, University of Padoa. The conference showcased several exhibitions such as the photographic exhibition that highlighted Red Sea biodiversity. — SG
The event was a great success among the public of over 60 scholars who, at the end of the Conference, attended the presentation of the "Study in Italy" website by the staff of the Consulate General.
This topic was specifically chosen to indicate the strong link between Saudi Arabia and Italy, which is the Suez Canal that connects both the countries through the Red Sea and the Mediterranean.

Italy’s Consul General Elisabetta Martini introduced the program. A number of Saudi and Italian experts also attended the conference.
“Italy ranks 8th in terms of scientific publications in the world, and this is something that not everyone knows,” she added.
Events

Vision 2030 Radio Program Hosts UBT

The Saudi Radio Station Alif Alif FM hosted Dr. Basma El Zein, Dean of Scientific Research to discuss the Vision 2030 and the scientific research in Saudi Arabia. First, Dr. Basma talked about Universities role in scientific research, elaborating that universities are based on 3 pillars; education, scientific research and community services. Only via the application of these tools universities are then able to serve the Saudi economy and community.

Universities that have contributed to scientific research are:
- King Abdullah University of Science and Technology: 74%
- King Abdulaziz University: 11%
- King Saud University: 4%
- King Faisal Specialist Hospital and Research Center: 2%
- University of Business and Technology: about 200 scientific papers and five inventions

Second, she explained factors affecting the progress of the scientific research, which are:
- Competence of the researcher (attending courses and international conferences hosted by Saudi Arabia)
- Financial support
- Workshops and training
- Graduate Studies (Scholarship Programs Offered by the Ministry)
- Infrastructure
- Scientific research topic areas
- The Nature Index; one of the most important indicators, which depends on measuring the scientific contribution of each country.

Dr. Basma then explained the successful practices of scientific research, and how it could generate money instead of depending on it. She added: “at UBT we promote for conducting research under a Research Flagship”. The Research Flagship is an interdisciplinary research group covering researches in Agriculture and food, Water treatment, Energy conversion and storage, Electronics and Communication and IT, Transport and Automotive, Construction and building, and Health from the business, legal, science, technology, and advertising point of view – serving the axes of economic development. It aims to coordinate research efforts to take UBT a step closer to contributing to economic development and serving the community.
The research flagship is an interdisciplinary research group covering researches in Agriculture and food, Water treatment, Energy conversion and storage, Electronics and Communication and IT, Transport and Automotive, Construction and building, Health, Entertainment, and Hajj and Umrah from business, legal, science, technology, advertising, and education point of view, serving the axes of the economic development. Registering your research interest will guarantee you better opportunities by connecting you with many researchers who are exploring your area of interest from different perspectives. Moreover, coordinating research efforts will take UBT a step closer towards operating the research roadmap effectively, which contribute to economic development and serve the community. Please, follow this [Link](#) to register.
SECOND CALL FOR RESEARCH PROPOSAL

Submit before: 30th of December 2018
What to submit:
• 2 Hard Copies
• 1 CD/USB Soft Copy

BRIEF PROCESS

1. Prepare your proposal with your Research Operation Supervisor (ROS)
2. Check with your HOD
3. Check your Final Proposal version with your ROS
4. Get the approval of the Dean
5. Receive external Reviewer evaluation report
6. Scientific Council approval
7. Start your project

RESEARCH AREAS

FOR ANY INFORMATION: DSR-Publicationservices@ubt.edu.sa; RCC-Researchservices@ubt.edu.sa
SciVid Science in Video Competition

Submit a two-minute high impact video about your research or a concept in materials science.

To TEACH, AMAZE, and AMUSE a broad audience and bring visibility to your research!

CASH PRIZES:
1st Place: $1000
2nd Place: $500
3rd Place: $300
People’s Choice: $700

EXTENDED DEADLINE:
NOVEMBER 9, 2018

For more information visit www.mrs.org/sci-vid

Winners will be announced at the...

2018 MRS FALL MEETING & EXHIBIT

Watch the 2017 winner videos on the MRS YouTube Channel.

Co-sponsors:
8th Annual Undergraduate Poster Competition
Abstract deadline: November 10, 2018

Join us for a week of inspiration January 20 - 24, 2019

As part of the Winter Enrichment Program (WEP), King Abdullah University of Science and Technology (KAUST) is hosting its eighth annual Poster Competition. Share and compare your work with peers from across the globe, win prizes and experience life in Saudi Arabia at a premier graduate-level research institution.

Submit your abstract by November 10, 2018.

While you are at KAUST, you'll present your work, visit our state-of-the-art facilities and be inspired by our faculty and students. You'll also have many opportunities to take part in recreational and cultural activities in our warm, friendly community.

A panel of experts will judge your submissions and will be looking for overall impact, novelty of work, clarity of ideas and creativity. Be sure to submit your best and most creative work!

Don't miss this fully-funded opportunity!

We look forward to seeing you!
For more details, visit: http://studentopportunities.kaust.edu.sa/WEP/
For additional information, please email: weppostersession@kaust.edu.sa

About WEP

WEP is one of the hallmarks of KAUST and is designed to enrich and inspire students through keynote lectures, workshops, entrepreneurial, cultural, and recreational events that are not typically found in academic programs. The theme of WEP 2019 is “Time”. enrichment.kaust.edu.sa

www.kaust.edu.sa enrichment.kaust.edu.sa
The Deanship of Scientific Research hosted the Falling Walls Lab on Thursday the 27th September at UBT Dahban. The Lab is a platform for excellent academics, entrepreneurs and professionals from all disciplines to present their research work, business model, innovative project or idea with peers and a distinguished jury from academia and business. Each participant has a 3-minute time on stage. The most intriguing presenter qualifies directly for the Falling Walls Lab Finale in Berlin. The Falling Walls Foundation covers the accommodation for the 8-9 November in Berlin. Also, all participants of the Finale receive a ticket for the Falling Walls Conference. There were many applications from all around the kingdom, 6 applications were accepted. Jury members were German Consul General Holger Ziegeler, Dr. Taghreed Alsaraj from Takamol Holding, and Mr. Hashim Daghustani, Director of Active People at Saudi Mass Participation Federation. The
The jury evaluated the business ideas based on originality and impact and chose the best three proposals. The first place went to Mr. Rayan Turkomani for Breaking the Wall of Bills. His idea is to create a billing application to reduce paper bills in order to save money for business with more than 100 stores. The second place went to Mr. Ahmed Ismael Breaking the Wall of Electrical Load Management, and the third place went to Mr. Ahmed Akram for Breaking the Wall of Traditional Internal Audit Process.

The Winner, Mr. Rayan Turkomani will travel to Berlin to attend the Falling Walls Lab Finale in November this year.
Think you can code?

Travel to any IEEE Conference of your choice

IEEE Xtreme is a global 24-hour online competition where IEEE student members solve a set of programming challenges over a 24-hour time frame.

Who can compete?
- Teams of up to three IEEE student or graduate student members in good standing
- Student Branches can form multiple teams
- Two graduate students may participate per team

Where will it be held?
- This is a virtual online competition.
- IEEE student branches are a tremendous resource to students during the competition.

What could I get?
- Fame: Unlimited bragging rights and a resume booster.
- Fortune: The Grand Prize is a trip to an IEEE conference of your choice, anywhere in the world.

Not an IEEE member?
- If you are not a student member, you can join IEEE for US $27 or US $32, depending on location
- Join today at www.ieee.org/membership/join

For more info, visit: www.IEEE Xtreme.org
VOLUME 3, ISSUE 2

Collaborations

DSR at Wadi Makkah

Wadi Makkah is a platform fully owned by Umm Al Qura University that aims to be an Incubator of creativity and innovation, a platform for entrepreneurship, increase and diversify the University resources through investment in tangible and intellectual assets and in knowledge-based production.

Wadi Makkah supports innovation and scientific research through three main programs:

Innovation Center: Helps the innovators by providing the necessary technical services to transform innovative ideas into economically viable products.

Accelerator: helps the entrepreneurs to transform innovative product to startup companies by providing consulting services, training, mentoring, funding, and office spaces, in addition to accessing the market.

Venture Capital: designed to provide the necessary investments for the startup companies to achieve the growth and sustainability by connecting them with Angle Investors and Venture Capital networks.

In an attempt to collaborate with Wadi Makkah, Dr. Basma El Zein and Mr. Layla Kamal represented UBT and visited Wadi Makkah on the 4th of June to
Collaborations

DSR at Wadi Makkah (continued)

meet with CEO Dr. Faisal Allaf. **Collaboration between UBT and Wadi Makkah would include:**
- The student internship Programs
- Promotion of the Creative Day
- UBT Commercialization for inventions and products
- Wadi Makkah attending Falling Walls event hosted by UBT to support local inventors

Accordingly, Wadi Makkah offered summer training for UBT students at the following areas:
- Graphic design
- Motion Design
- Marketing
- Production
- Civil Engineering
- Finance
- Management
- Law
- Human Resource Management
UBT – Deanship of Scientific Research (DSR) is pleased to announce

SEED FUND PROGRAM

To transfer your innovative idea to industry

The Seed Fund is a funding mechanism to transfer innovative ideas / research projects to industry by forming new businesses at UBT through the Seed Fund

OBEJECTIVES

- To support UBT student with an early stage fund to be future leaders.
- To build new generations of Saudi entrepreneurs and leaders.

OUR SERVICES:

- Provides funds up to 20,000 SAR.
- Equipped office space to early stage startup including access to a shared office and desk, shared meeting room and internet.
- Mentorship and advisorship to entrepreneurs within their journey in developing their own startup.

Pre-Award

1. Innovative idea
2. I discuss with SFO
3. My idea is Promising
4. I Prepare Business Briefcase and present my idea
5. Committee assess

Award

- I sign my contract

Post-Award

1. SFO Monitor
2. I see my Business Grow
3. I am ready to convert into funded startup

TERMS OF PARTICIPATION:

- Cross disciplinary projects involving team members from other colleges. Faculty/staff/external partners are only advisors.
- Team with a minimum of one UBT student.
- The idea or research projects must be new and innovative solving a real world problem serving vision 2030.
- The registration will be closed on 30th of December to be awarded in January.

For further information: please contact us on: DSR@ubt.edu.sa; +966122159353
تعمل جامعة الأعمال والتكنولوجيا عن توفير برامج ماجستير بتخصصات جديدة:

- ماجستير المحاسبة (ACCT)
- ماجستير التسويق (MKT)
- ماجستير إدارة الأعمال (SCM)
- ماجستير الموارد البشرية (HRM)
- ماجستير المالية (FIN)

شروط القبول:
- شهادة بكالوريوس من جامعة معترف بها
- معدل لا يقل عن 3.25 من 4
- اختبار إيلتس بدرجة لا تقل عن 5.5 أو أ.Reader
- توصيات أكاديمية
- خطة الفراغ من الدراسة
- اجتياز المقابلة الشخصية مع لجنة القبول

امتيازات الدراسة:
- م과학ية لمنح القبول ضمن برامج الدراسات العليا في كلية إدارة الأعمال.
- أعضاء هيئة تدريس متخصصون من ذوي الخبرة والكفاءة العلمية.
- 36 ساعة دراسية لمدة أربعة فصول.
- القبول للطلاب والطالبات.
- باللغة الإنجليزية.
- أقساط ميسرة.

التعليم من أجل العمـال

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MSC@ubt.edu.sa
www.ubt.edu.sa
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**Notes:**
- **8th Gulf Education Conference:**
- **IP DAY:**
- **4th Research Symposium Deadline:**
- **Research Symposium:**

**Dates:**
- **1st:** 1st March
- **2nd:** 2nd March
- **3rd:** 3rd March
- **4th:** 4th March
- **5th:** 5th March
- **6th:** 6th March
- **7th:** 7th March
- **8th:** 8th March
- **9th:** 9th March
- **10th:** 10th March
- **11th:** 11th March
- **12th:** 12th March
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- **14th:** 14th March
- **15th:** 15th March
- **16th:** 16th March
- **17th:** 17th March
- **18th:** 18th March
- **19th:** 19th March
- **20th:** 20th March
- **21st:** 21st March
- **22nd:** 22nd March
- **23rd:** 23rd March
- **24th:** 24th March
- **25th:** 25th March
- **26th:** 26th March
- **27th:** 27th March
- **28th:** 28th March
- **29th:** 29th March
- **30th:** 30th March
- **31st:** 31st March
For any further information please contact us

Jeddah, Dahban, (UBT), Saudi Arabia