

First Issue, 2016

School of Applied Technical Sciences

# SATS Newsletter



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## About SATS

The School of Applied Technical Sciences (SATS) was established in 2005. SATS offers undergraduate programs in three engineering disciplines giving the students the knowledge and skills they need for success in a technically oriented career. Graduates of the SATS are expected to fill the gap in the Jordanian and the regional markets in critically needed disciplines concerning technology transfer, innovation, and management. The approach of the faculty is to foster applied learning in all courses offered via practical projects, teamwork, technical writing, and presentations.

SATS provides labs in the following areas: materials science, manufacturing processes, industrial automation, work measurements, ergonomics, systems simulation, instrumentation and measurements, automatic control systems, hydraulic and pneumatic systems, and automotive maintenance. In addition, the SATS has a modern engineering workshop facility.

## Vision

The School of Applied Technical Sciences aspires to be the preeminent engineering school, nationally and regionally, that delivers a world-class education and research

## Mission

School of Applied Technical sciences is committed to the intellectual, personal, and professional growth of its students, faculty, and staff to function effectively in an interdependent global community.

SATS mission is:

- To educate students to the highest quality of education by blending teaching, research, and creative activity in an engaging, challenging, and supportive learning environment
- To prepare students to become productive, responsible, ethical, creative and compassionate members of society in an interdependent global community.
- To prepare students to become citizens for lifelong learning in a global society.

The logo for SATS is displayed vertically on the right side of the page. It consists of the letters 'S', 'A', 'T', and 'S' stacked from top to bottom. Each letter is white with a thick black outline, set against a solid orange background.

# SATS

## School of Applied Technical Sciences

### Deanship

**Mar. 2016 - Present**

**Dr. Ala'aldeen Al-Halhouli**

**Mar. 2012 - Mar. 2016**

**Dr. Ziyad Masoud**

**Apr. 2008 - Mar. 2012**

**Dr. Hazem Kilani**

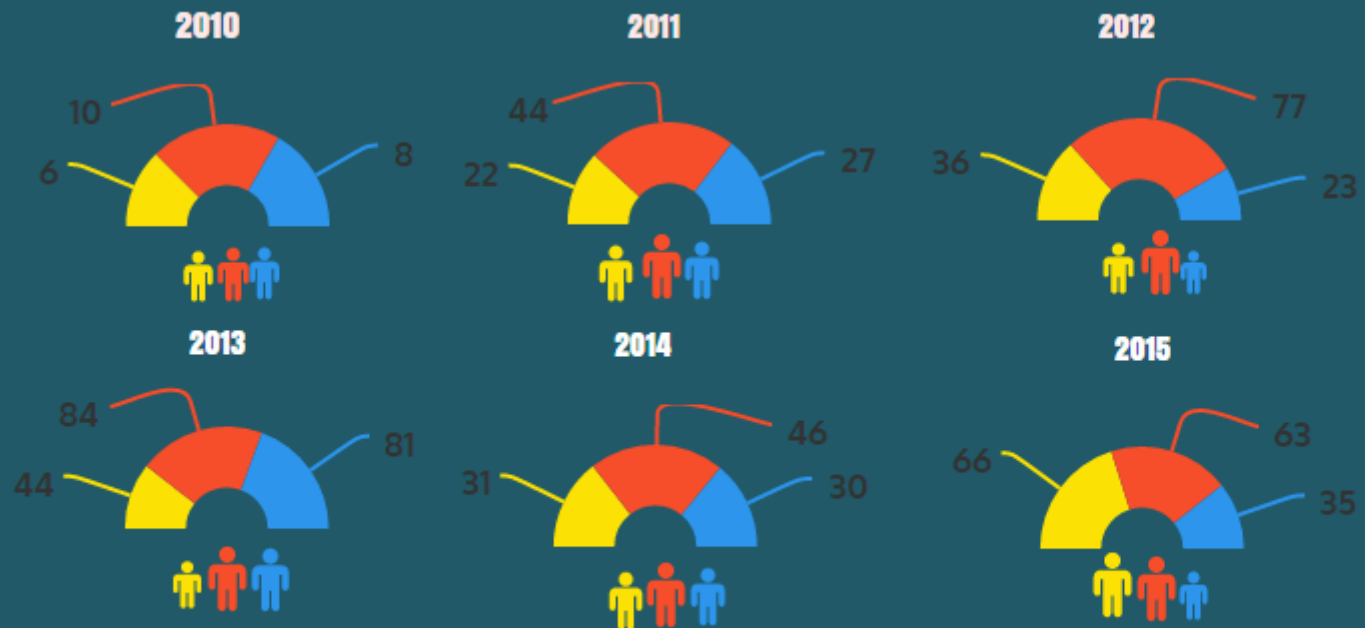
**Feb. 2006 - Apr. 2008**




**Dr. Fikri Dweiri**



**93 Students enrolled in 2011**

**164 Students enrolled in 2015**



 Mechatronics  
 Industrial  
 Mechanical

## Word from the Dean

Welcome to the School of Applied Technical Sciences (SATS) at the German Jordanian University. Here at SATS, we aspire to solidify the core definition of our name. To be more specific, if you seek Oxford's dictionary's interpretation of the word "technical" (or in German *technisch*), you would find it as involving or concerned with applied and industrial sciences. Whereas Wikipedia defines "Applied science" as a discipline of science that applies existing scientific knowledge to develop more practical applications, like technology or inventions. Simply this is our story.

The three engineering study programs (Industrial Engineering, Mechanical and Maintenance Engineering, and Mechatronics Engineering) offered here are designed, built, and executed to serve this concept, making them one of today's most exciting and rewarding career choices. It was only then a natural outcome that after 10 years, the school has become the most popular and the largest engineering school in the German Jordanian University comprising of 800 students.

Study programs at the School of Applied Technical Sciences are both interesting and demanding. Our curriculum focuses on academic knowledge, analytical skills, and hands-on experience. We have recruited faculty with excellent academic credentials and industrial experience. This ensures unsurpassed quality, experience, and commitment for the education of the future engineers who choose the German Jordanian University. Our study programs respond to the local and regional industry's increasing demand for engineers who are able to deal with more sophisticated and challenging technologies, and who have good academic and practical skills. I am deeply gratified by the progress and achievements of our students, faculty, and staff during the past year. The SATS's successful network of German partners and industrial partnerships play an active role in our success. Through student exchange, advisory councils, financial assistance, and other supporting activities, stakeholders in the SATS reflect the dedication and generosity needed for our school to be one of the top schools in the region.



*Dr. Ala'aldeen T. Al-Halhouli*

# SATS

## Queen Rania visits German Jordanian University



Her Majesty Queen Rania Al Abdullah visited the German Jordanian University (GJU) Madaba Campus on Sunday 8th of May to support the University's cutting-edge teaching initiatives, especially its collaboration with Edraak, the first digital platform for educational content in the Arab world. Accompanied by the Chairman of GJU Board of Trustees Eng. Othman Bdeir, GJU President Prof. Natheer Abu Obeid and GJU Vice Presidents Prof. Manar Fayyad and Prof. Anton Mangstl, Queen Rania also visited an exhibition displaying projects by students in the robotics club. SATS Professor Dr. Natheer Rawashdeh briefed Her Majesty about the club's projects and how they are developed to assist local technologies. The exhibition included an upper limb exoskeleton suit, Bluetooth controlled cars, and smart carts.



## HRH Prince "El Hassan bin Talal" Visit to GJU



Under the patronage of His Royal Highness Prince El Hassan bin Talal, the German Jordanian University in collaboration with the Royal Institute for Inter-Faith Studies organized a lecture delivered by Abbote Primate Dr. Notker Wolf, Representative of the World Wide Benedictine Order, under the title of "The Secret of Successful Leadership". SATS was honored to display some robotics projects to an honorable delegation of visitors lead by His Royal Highness Prince El Hassan bin Talal, Abbote Primate Dr. Notker Wolf, Representative of the World Wide Benedictine Order, His Excellency Prof. Labib Al-Khadra, Minister of Higher Education and Scientific Research, and our own, Prof. Natheer Abu Obeid, The president of GJU.

# SATS's Scientific Day: Micro/Nano devices- Current and Future Perspectives

SATS organized a scientific day of micro- Nano devices on Wednesday, May 18, where the school hosted Prof. Andreas Dietzel and his team from TU Braunschweig-Germany. Dr. Ala'aldeen Al-Halhouli, Dean of SATS and Nano Lab founder, welcomed all the guests and stressed that it is an honor for the school and the Nano research group to gather guests from different countries to participate in the event, to exchange ideas and experiences and motivate students, wishing all a fruitful activity. For his part, Prof. Dietzel thanked GJU and SATS members for their hospitality and gave a brief presentation about TU Braunschweig and Institut für Mikrotechnik (IMT), explaining its main tasks, research, projects and partners. The visit of IMT team was in the frame of funded DAAD project on nanoparticles separation. At the end of the day, Prof. Natheer Abu Obeid inaugurated the Nano Lab, which has been recently established in Building G, where he listened to a short description of the new devices and projects conducted in the lab by some of the professors and students at SATS and SAMS. The President expressed pride of the establishment of a new research lab at GJU, wishing the Nano research group represented by faculty members, researchers, and students every success.



## Nano Lab @GJU

The Nanolab @ GJU has been newly established by Dr. Ala'aldeen Al-Halhouli at GJU. It focuses on developing and investigating novel micro- and nano devices, circuits, sensors, systems, and materials for life science, food quality, electronics, biomedical and energy applications. The lab offers GJU faculty members from different fields (i.e. mechanical, mechatronics, electronics, biology, pharmaceutical, and biomedical engineering) to work in interdisciplinary novel research projects using high-tech equipment. In addition, it contributes into developing the skills of graduates and undergraduates towards future researchers in the field.

For more information about the research topics and the lab activities:

<http://nanolab.gju.edu.jo/>



## IEEE Smart Tech: Metro Area Workshop



Dr. Ismael Al-Hinti chaired the photovoltaics track at the first IEEE Amman Metro Area workshop that took place on 6 & 7 March 2016 at the Landmark Hotel in Amman. The workshop, which was attended by over 120 engineers who are interested in new and emerging technologies, included a series of lectures that were designed to cover niche topics related to the latest developments in the design, operation, and maintenance of solar photovoltaic systems.

## SATS students visit to Qatrana Power Plant



A delegation of 20 Mechanical and Maintenance Engineering students from the School of Applied Technical Sciences conducted a field visit on Sunday 27 December to KOSPO Qatrana power plant. The students were accompanied by Dr. Ahmad Al-Muhtady, the Department Chair, and Dr. Ismael Al-Hinti. During the visit, the students received a detailed description of the design and operation aspects and different components comprising the power plant. In

addition, the students had an in-depth discussion with the operation manager of the facility regarding the different maintenance strategies involved with such critical asset. The visit was organized to support the practical element of the "Power and Refrigeration Cycles" course, which is offered, by the Mechanical and Maintenance Engineering Department. Dr. Al-Hinti, the course instructor, stressed the importance of such visits to provide students with the opportunity to experience real life applications of engineering concepts. On his part, Dr. Al-Muhtady valued the hospitality and cooperation of KOSPO, and expressed his deep appreciation to the plant team for sharing their knowledge and experience with GJU students.

## GJU students won prizes in the annual graduation projects competition



A graduation project conducted by Omar Al-Tamimi and supervised by Dr. Anas Atieh from the Industrial Engineering Department at the German Jordanian University was awarded the first place in the annual industrial graduation projects competition organized by the Jordanian Engineers Association and Amman Chamber of Industry. This project was ranked first, not only among grand prizes of industrial engineering, but also among all other projects from different engineering disciplines. The project entitled "A Value Stream Mapping and Simulation Hybrid Approach" used two modern industrial engineering tools at a glass fabrication plant, Al-Mansour Glass Industries, as an effort to highlight sources of waste and test solutions that could improve the company's production.

## Dr. Wael Al-Kouz is the first authorized trainer in Jordan for (CEA)



Dr. Wael Al- Kouz has been recently selected as the first authorized trainer in Jordan for the Certified Energy Auditor (CEA) course and exam. The certified course & exam are offered jointly by the Association of Energy Engineers (AEE) in Atlanta, USA, and Jordan Energy Chapter (EDAMA). The CEA certificate is a prestigious worldwide certificate for energy auditor professionals.

## Enabling students to find their dream career path – GJU Career Fair 2016



Armed with their CVs, GJU students & graduates were able to interact directly with company representatives. GJU graduates were among these representative. This was an excellent opportunity for former and current GJU students to connect and ask questions about working with the company. The students and graduates received immediate feedback on many topics, from information on internships and jobs to possible career paths. The companies

also benefited greatly from GJU Career Fair. They could easily and directly recruit on-campus. Many companies had interesting interviews with potential candidates during the fair. Where else but at GJU Career Fair would you be able to meet some of the best students and graduates in their fields. The companies especially valued the international exposure of our GJU graduates. SATS also participated in the fair with students' graduation projects like the Smart cart which implies the innovative skills and abilities they have.

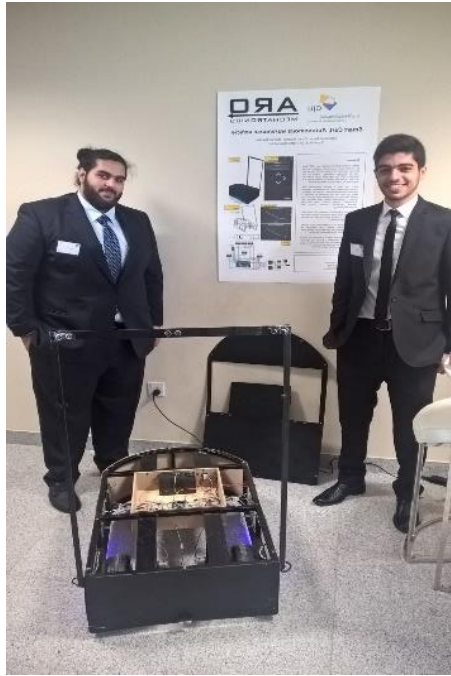
## Congratulations to SATS Staff



Eng. Haneen Saadeh, Eng Ahmad Hammad and Eng. Natheer Almtireen have passed the Autodesk Certified Professional (ACP) – Autocad 2016 test which is one of the official tests organized by Autodesk Company. Autodesk certifications provide reliable validation of knowledge and skills. These credentials can Lead to accelerated professional development, improved productivity, and enhanced credibility. Also, we want to congratulate Eng. Heider Mashalah for getting professional SAP certifications. SAP is a leading provider of business software that helps enterprises and governments around the world improve customer relationships, enhance partner collaboration, create efficiencies across their supply chains and business operations, and improve access to information.



## Smart Cart: Mechatronics Project Wins National Award



Smart Cart is a robotic platform that follows the user, using an ultrasonic sensor array. It can carry 80 kg of weight and is controlled via a smartphone application. It can be utilized to easily transport heavy loads in indoor setting such as warehouses, airports, or shopping malls. The project won the 3<sup>rd</sup> place ward at the 9<sup>th</sup> National Technology Parade (Industrial Production Theme) held on 4 May 2016 at Al Ahliyya Amman University. It was also on display at the 6<sup>th</sup> GJU Career Fair on 13 April 2016 under GJU's Program Innovation & Entrepreneurship (PIE) office. This mechatronics engineering bachelor graduation project was implemented by Ramez Haddad, Abdelhadi To'ma, and Omar Jadallah under supervision of Dr. Nathir Rawashdeh.



## Third Workshop on the CICTI Project



The third workshop of the DAAD funded project CICTI took place between the 16<sup>th</sup> and 21<sup>st</sup> of April 2016 at the premises of the German Jordanian University. The first two workshops took place at Furtwangen University of Applied Sciences, Germany (Project Coordinator) and Shiraz University of Technology, Iran, respectively. From GJU, the workshop was attended by the Dean of School of Applied Technical Sciences Dr. Ala'aldeen Alhalhouli, Dr. Iyas Khader (Project Coordinator at GJU), Dr. Jumana Abu-Khalaf, Dr. Anas Atieh, and Dr. Rula Allaf. The purpose of the project CICTI is to establish a dialogue between higher education institutes from different cultural worlds who share more or less the same research interests, manufacturing, industrial and mechanical engineering. The main objective is to establish a dialogue that despite the current crisis situation in the Middle East can contribute to an educationally meaningful development. The identification of the target societies will be done with respect to educational and cultural background, and their distinguishing features will be magnified with the help of statistical evidence.

## Dr. Al-Kouz participation in ICTEA 2016



Dr. Wael Al-Kouz took part in the International Conference on Thermal Engineering: Theory and Applications, at Abu Dhabi, UAE. The conference main objective is to bring together researchers engaged in the application of experimental, analytical, or theoretical thermal and energy engineering. During the conference, Dr. Al-Kouz presented a paper about Flow and Heat Characteristics of Low Pressure Flows in the Annulus Region between Two Concentric Horizontal Cylinders.

## Dr. Al-Halhouli participation in the third Arab-American Frontiers symposium



Dr. Ala'aldeen Al-Halhouli participated in the third Arab-American Frontiers symposium that was held in partnership with the King Abdullah University of Science and Technology (KAUST) in Saudi Arabia. The meeting brought together outstanding young scientists, engineers, and medical professionals

from the US and the Arab countries to discuss exciting latest advances and opportunities in their fields. Such unique series of meetings aim at enhancing the scientific exchange, interaction and dialogue among outstanding young researchers in Arab countries and the United States, including the Arab scientists in diaspora, towards facilitating research collaboration within and beyond the region. For this year, the theme "Sensing Technologies, Networks and Applications" was chosen as the major scientific topic for 2015. Dr. Al-Halhouli presented a poster on his recent research on "Printed flexible sensors for low cost diagnostics in developing countries".

## Automated arm robot presented in SOFEX 2016



Under the Patronage of His Majesty King Abdullah II, German Jordanian University had the honor to participate in The Special Operations Forces Exhibition & Conference (SOFEX) 2016. Engineer Mohammad Ayyash presented the Automated arm robot which is a graduation project designed and implemented by SATS students under the supervision of Dr. Jumana Abu-Khalaf. Eng. Ayyash said that this project specialized with its ability to deal with toxic materials and do tasks in dangerous environment. He also said that this type of exhibitions motivates students to be creative and to invest their knowledge in a productive way.

## Dr. Ismael Al-Hinti is the first authorized trainer in Jordan for (CMVP)



Dr. Ismael Al-Hinti has been recently selected as the first authorized trainer in Jordan for the Certified Measurement and Verification Professional (CMVP) course and exam. The certified course & exam are offered jointly by the Association of Energy Engineers (AEE) in Atlanta, USA, and the Efficiency Valuation Organization. The CMVP certificate is based on the International Performance Measurement and Verification Protocol (IPMVP) which is a globally accepted protocol for determining and verifying savings in energy efficiency projects. It is worth mentioning that Dr. Ismael has also been an authorized trainer for the Certified Energy Manager (CEM) course and exam which is also offered by the AEE since 2011.

## SATS students visit to Nestle Distribution Center- Sahab



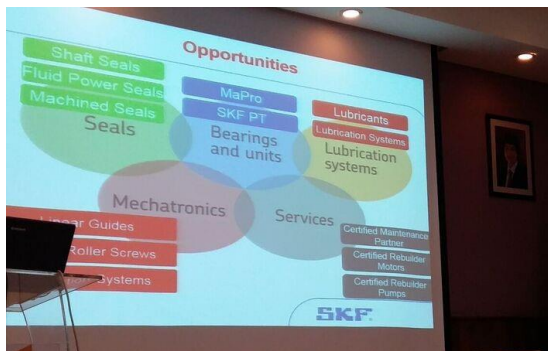
A group of industrial engineering students accompanied with Dr. Safwan Altarazi, visited the distribution center of Nestle Jordan Trading Co. Ltd. The visit was as a part of "facilities planning" course the students are taking. The operations manager of the warehouse, Eng. Bilal Al Hnaity, provided the students with a one-hour tour in which he gave the students insights about the operations done within the warehouse, in addition to the internal layout design of the facility. At last, Dr. Safwan emphasized the importance of the knowledge and experience exchange between the Jordanian academic and industrial sectors. Quoting Hussein Alhyari, a student participated in the field trip, "It provided me with a glimpse about the functions of a warehouse and the possible layout arrangements within it. I consider the warehouse management of this entity as a sample of pride and success for the Jordanian Industry."

## An Industrial lecture about Supply Chain



Mr. Samer Al Madhoun, A master instructor in SCOR-P, CDDP, APICS and CSCP at Muhakat institute, visited GJU and discussed with Dr. Ala'aldeen Al-Halhoul and with Dr. Anas Atieh the possibility for future collaboration between GJU and Muhakat, the partner of APICS in Jordan. Mr. Samer demonstrated his willing to provide the students with reduced APICS exam rate and to have the APICS material available for the students. During his visit Mr. Samer provided the student with free APICS international memberships and then he lectured from 2:00- 5:00 on a new production planning tool called fresh connection, which teach the students the supply chain concepts by doing while playing a game.

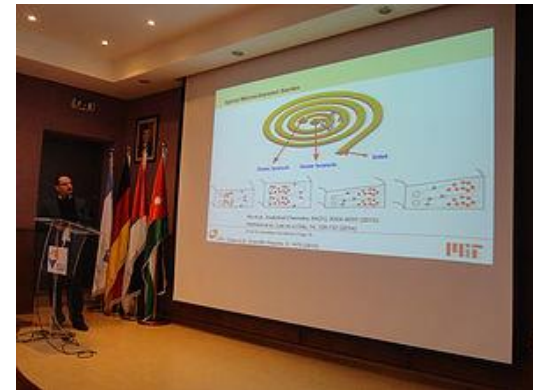
## SKF- Bearing maintenance Workshop



SATS, in collaboration with Modern Hydraulic Systems Company and PRO train academy, organized a workshop about bearing maintenance and technology.

The workshop took place on Thursday, April 28th from 9:00 AM - 2:00 PM in the German Jordanian University main campus, and was delivered by Eng. Samir Kalisse, the regional technical manager of SKF (a leading bearing and seals manufacturing company) in the Middle East. The topics of the session included: fundamentals of bearing technology, loads and lubrication, bearing mounting and dismounting procedures, and other related subjects.

## DAAD funded project at SATS



GJU received a new funded research project from the German Academic Exchange Services (DAAD) through its transformation program: German-Arab Research partnerships with partner universities in Jordan. The project is led by Dr. Ala'aldeen Al-Halhoul from the mechatronics Engineering Department at SATS in partnership with IMT at Technical University Braunschweig (TU BS), Germany. Project title is: This project proposes development of enhanced high through put nanoparticle separation devices working based on inertial focusing utilizing the 3D Femtosecond laser micromachining in glass. The successful development of such techniques would play a key activity in most industrial, biological and medical processes (i.e., purify/ concentrate particles of interest). In addition, the project targets extensive research and training exchange activities between German and Jordanian young researchers and students to be conducted at the Nanolab @ GJU and at IMT, TU BS.

## Lecture about Fusion 360 at GJU



In cooperation with Omniplan, SATS at GJU held a lecture about Fusion 360, on Monday, 8th of March, 2016. Esam Azzam, Autodesk certified instructor and the manager of Building information modeling, stated that Fusion 360™ is available only for use by students and educators, offers a whole new approach to teaching and learning design, and gives students hands-on design experience, from conceptualization to manufacturing. He elaborated that Fusion 360™ is a cloud-based 3D CAD/CAM tool for product development that combines industrial and mechanical design, collaboration, and machining in a single package, and it enables fast and easy exploration of design ideas with an integrated concept-to-production platform. Most importantly, students can get experience across the design process with Autodesk Fusion 360™, as it brings together mechanical and industrial design in a single, easy-to-use tool.

## SATS participation in TOT



Eng. Ala'a Alshubbak, from the Mechatronics engineering department, and Eng. Aya Alofi, from the Industrial engineering department, participated in train the trainer program offered at GJU and funded by DAAD. Through this program,

Eng. Ala'a worked on a project about Real time control of brushless DC-motor by using dSpace and Matlab/Simulink at Helibroon Hochschule. She worked with groups on controlling steering systems for an automobile and hexapond systems. Eng. Aya participated in the International biomedical summer school in Jade Hochschule in Wilhelmshaven. Also, she had the chance to take part in an intercultural outstanding course.

## Dr. Altarazi contribution in IEOM2016



Dr. Safwan Altarazi participated in the 2016 International Conference on Industrial Engineering and Operations Management (IEOM2016), which was held in Kuala Lumpur, Malaysia, March 8-10, 2016. The conference aims to provide a forum for academics, researchers and practitioners to exchange ideas and recent developments in the field of Industrial Engineering and Operations Management. The conference has more than 200 presentations from 40+ countries. The presented research of Dr. Safwan entitled "A Taguchi-Continues Simulation Approach to the Injection Blow Molding Quality Improvement". It is worth mentioning that, Zina Q. karadsheh an IE student and one of the coauthors, did also participated in the conference.

## University Industry Collaboration Workshop at GJU: Cooperation Opportunities and Challenges



Under the patronage of HE Mr. Adnan Abu Al Ragheb, Chairman of Jordan Chamber of Industry, the German Jordanian University organized a workshop entitled: " University - Industry Collaboration: Cooperation Opportunities and Challenges" on Wednesday, June 1, 2016

The aim of this workshop was to discuss the areas of cooperation between the university and its partners from the industry. This is considered as one of the most important goals that the university is seeking to achieve in the near future. This is because such cooperation will link the outputs of the university with the needs of the labor market, industry and community.

The exhibition was followed by ten parallel workshops among them is SATS workshop: "From Engineering to Industry". This very important event allowed SATS faculty to present selected successful stories with industry and to introduce their capabilities and competencies in several topics such as Planning, Operations Management, Quality Management, Manufacturing Processes, Materials Processing and Characterizations, Ergonomics and Human factors, Energy Efficiency & Management, Structural Mechanics, Simulation in Engineering, Instrumentation, Control and Automation and Robotics. After that, an open discussion with the industrial participants was conducted to discuss ways to enhance academia – industry cooperation.

## SATS Little Professors: Kids Learning Science and Having Fun



The School of Applied Technical Sciences is conducting a 10-day electronics workshop for children of its faculty and staff between 6 and 16'th of June 2016. The young participants are enjoying learning about how to connect light bulbs, motors, etc. while their parents watch over them. The workshop is taught by Eng. Mohammad Ayyash, a Research and Teaching Assistant at SATS from 10am to 1pm each day. At the end the workshop, the kids will present their individual projects and receive participation certificates. The goals of this workshop include introducing young kids to science and engineering, offer them a chance to socialize with other children and see to the university where their parents and relatives work. The activities include a book reading competition, a family day, and a group Iftar."

## Issue Interview

### From GJU to UBC: a young engineer to develop a new technology in materials science

My name is Doa Ahmad, I studied Energy Engineering at GJU and graduated last semester, March 2016. I am currently working as a part time researcher in the Nano lab at GJU. I have got the opportunity to go on a research internship at the University of British Columbia (UBC) in the Materials Engineering department this summer and I am really looking forward to it.

#### How did you learn about this opportunity?

I learned about this opportunity through my Materials Science professor, Dr. Nidal Alshwawreh who is an Alumnus of UBC. His supervisor Dr. Matthias Militzer a Faculty member at UBC made a visit last year to the GJU, and while doing so he agreed upon having a student from GJU to join a summer internship/ master's degrees funded program at UBC. Dr. Nidal has recommended me for this exchange program after I had finished the materials science course last semester.

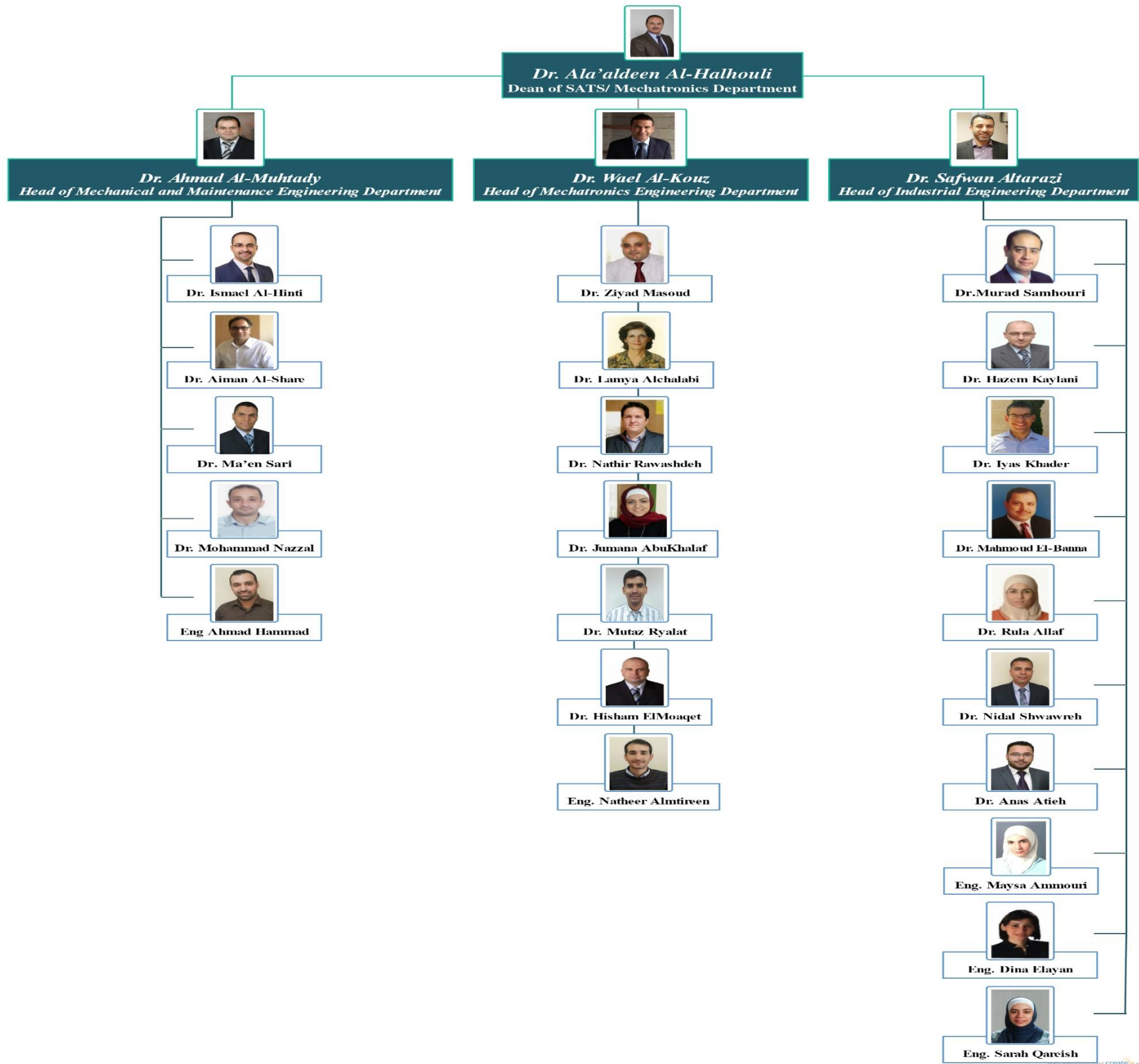
#### What will the subject of the research be?

The research will be held at the Department of Materials Engineering under the supervision of Professor Matthias Militzer on Laser Ultrasonics, a technique of recording in-situ microstructure evolution during thermo-mechanical processing of metals and alloys. It is an important and new technology for knowing and understanding exactly what happens in a material at the microscopic/ nanoscopic level. When doing so, it helps with determining a lot of physical and chemical properties that contribute to the materials structure and composition. Consequently this gives the ability to utilize and gain control over the processing of a material to make it exhibit certain needed properties for any application desired.

#### What are you hoping to gain out from this research?

I am hoping to gain a lot of hands on research work and know-how by getting myself into the research world. I am willing to harness all the skills I have gained throughout my studies here at GJU and in Germany, as well as muster new ones by using the time to benefit the most from the technologies available and learn new engineering techniques. Additionally to become more accustomed with experimental methods, synthesis, and report writing. I am hoping for future cooperation between UBC and GJU and believe that this would act as a gate for a continuous exchange program between the two universities. Finally and most importantly I am hoping for a great experience through gaining a brilliant insight into the materials science and engineering.







# SATS Staff

## Mechanical Engineering



Eng. Ohoud Aljaloudi



Eng. Mohsen Diraneyya

## Industrial Engineering



Eng. Ahmad Al-Kousheh



Eng. Heider Mashalah



Eng. Haneen Aboud



Eng. Amani Bdour



Eng. Aya Alofi



Khader Amro



Laith Freh



Mohieb Saeed



Yousef Jumah



Mohammad AL Jayousi



Bahjat Abu Shaerah



Samer Kasht



Nader Qatuni

## Mechatronics Engineering



Eng. Ala'a Alshubbak



Eng. Mohammad Futian



Eng. Obada Idhoun



Eng. Shahenaz Alrajfi



Eng. Mohanad Batarseh



Eng. Qamar Al-Tarawneh



Eng. Marwa Faouri



Eng. Mohammad Ayyash



Eng. Faisal Matar



Eng. Haneen Saadeh

## Secretaries



Suha Shehab



Waed Al-Shahwan



# School Publications and Projects

## A. Publications

### A. Journal Publications

1. Matar M., Al-Halhouli A.T., Dietzel A., and Büttgenbach S (2016) Experimental and numerical investigations on the magnetic field flux density of the synchronous micropump microcoils, *Microsystem technologies*.
2. Al-Halhouli A.T., Qitouqa H., Malkosh N., Shubbak A., Al-Gharabli S, Hamad E (2016) LEGO Mindstorms NXT for Elderly and Visually Impaired People In-need: A Platform. *Technology and Health Care*.
3. Al-Halhouli A.T., Demming S., Dietzel A., and Büttgenbach S (2016) Design, Fabrication and Characterization of a Constant Flow Micropump System, *Journal of Thermal Science and Engineering Applications*.
4. Al-Halhouli A.T., Abu Rumman M., Zgoul M (2015) Design and Testing of a Meso-Scale Pneumatic Actuated Electrical Power Generator. *Int. J. of Thermal & Environmental Engineering*, 10 (1), 63-67.
5. Al-Halhouli A.T., Alshare A., Mohsen M., Matar M., Dietzel A. and Büttgenbach S (2015). Passive Micromixers using Interlocking Semi-Circle and Omega Shaped Modules: Experiments and Simulations. *Micromachines*, 6(7), 953-968.
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7. Al-Kouz W., Alshare A., Kiwan S., Alkhalidi A (2016) Two Dimensional Analysis of Low Pressure Flows in The Annulus Region Between Two Concentric Cylinders ,Springer Plus. DOI: 10.1186/s40064-016-2140-6.
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13. Abu Hamed T., Ismail L., Alshare A (2015) the potential of using olive cake in power generation in Palestinian territories, International Journal of Sustainable Energy. DOI:10.1080/14786451.2015.1018265
14. Raga R., Khader I., Chlup Z., Kailer A (2016) Damage initiation and evolution in silicon nitride under non-conforming lubricated hybrid rolling contact, Wear, accepted. doi:10.1016/j.wear.2016.05.005
15. Renz A., Khader I., Kailer A (2016) Tribochemical wear of cutting-tool ceramics in sliding contact against a nickel-base alloy, Journal of the European Ceramic Society 36 705-717.
16. Ruck J., Othmani Y., Lube T., Khader I., Kailer A., Böhlke T (2015) Macroscopic damage modeling for silicon nitride, Proceedings in Applied Mathematics and Mechanics PAMM 15, 147–148 / DOI 10.1002/pamm.201510064.
17. Khraisat W., Rawashdeh W., L. Nyborg (2015) Visualizing shear bands in 3-D using axisymmetric sample: An experimental study, Journal of King Saud University-Engineering Sciences, DOI: 10.1016/j.jksues.2015.10.006, 2015.
18. Rawashdeh N., Rawashdeh O., Sababha B (2015) Vision-based sensing of UAV attitude and altitude from downward in-flight images, Journal of Vibration and Control,1-15, doi: 10.1177/1077546315586492, SAGE Publications, London, England, July 2015.

## B. Conferences Publications

1. Al-Kouz A., Kiwan S., Alshare A., Alkhalidi A (2016) Flow and Heat Characteristics of Low Pressure Flows in the Annulus Region between Two Concentric Horizontal Cylinders, 9th International Conference on Thermal Engineering: Theory and Applications.
2. Alkhalidi A., Kiwan S., Al-Kouz W., Alshare A (2016) Conjugate heat transfer in rarefied gas in enclosed cavities, Elsevier.
3. Al-Halhouli A. T., Rawashdeh N. A., Sanna M., Büttgenbach S., Dietzel A. (2015) Development of a Novel Electromagnetic Double Action Meso-scale Pump, The 16th International Conference on Research and Education in Mechatronics REM2015, Bochum, Germany.
4. Al-Halhouli A. T., Düring L., Alahmad L., Demming S., Llobera A., Dietzel A., Büttgenbach S. (2015) Fabrication and Testing of a photonic Ethanol Biosensor, The 16th International Conference on Research and Education in Mechatronics REM2015, Bochum, Germany.
5. Al-Halhouli A. T., Kloub H., Büttgenbach S. (2015) Low Resonance Frequency Magnetic Energy Harvester, ICYS2015, Jordan.
6. Sari M., Qawasmeh B (2015) Free and Forced Vibration Analysis of Non-Local Euler-Bernoulli Beam Resting on Nonlinear Foundation, ASME 2015 Conference on Smart Materials, Adaptive Structures and Intelligent Systems, Colorado Springs, Colorado, USA, September 21–23, 2015.

## B. Projects and Grants

- A. Experimental and Computational Investigation of Subsonic and Supersonic Mixture of Gas Flows into Nanochannel at Atmospheric and Sub-Atmospheric Pressure, PI: Dr. Wael Al-Kouz, Co-I: Dr. Aiman Alshare, Dr. Dia Zeidan, and Dr. Ma'en Sari, Funding agency: GJU Seed grant - 30,000 JD.
- B. Development of Novel Microfluidic-based Platforms for CTCs Isolation from Whole Blood, PI: Dr. Ala'aldeen Al-Halhouli, Funding agency: GJU Seed grant - 30,000 JD.
- C. Use of Nano-Particles for Future Energy, PI: Dr. Ala'aldeen Al-Halhouli, Funded by Office of Naval Research Global (ONRG) in collaboration with Masdar University, UAE - \$US 450,000.

- D. Fabrication and Characterization of Autonomous Microrobots for Cancer Detection and Treatment, PI: Dr. Ala'aldeen Al-Halhouli, Funded by Scientific Research and Support Foundation, 2015, Jordan - 150,000 JD.
- E. Inertial focusing for continuous nanoparticles separation in femtosecond laser 3D micromachined curved channels, PI: Dr. Ala'aldeen Al-Halhouli, Funded by German Exchange and Academic Services, 2015, Germany - 130,000 EUR.
- F. Improving Thermal Efficiency of Industrial Plants via Conversion of Waste Heat to Electricity in collaboration with University of Jordan, PI: Dr. Sa'ed Mismar, CO-I: Dr. Ala'aldeen Al-Halhouli, Funded by Scientific Research and Support Foundation, 2015, Jordan – About 92,000 JD.
- G. Utilization of Lab on a Chip Technology for the Colorimetric Determination of Chemical Compounds, PI: Dr. Ala'aldeen Al-Halhouli, CO-I: Dr. Mohammad Khanfar, Funded by Abdul Hameed Shoman Foundation. 2015, Jordan - 15,000JD.
- H. The Design and Development of Wearable Stretchable Pulse Oximeter Biosensors Using a Novel Printing technology of conductive Nanoparticles for Physiological Monitoring, PI: Dr. Ala'aldeen Al-Halhouli, CO-I: Dr. Jumana Abu Khalaf, Funded by Scientific Research and Support Foundation, 2014, Jordan –181,000 JD
- I. CICTI, Cooperation to Improve the Connection of the Technical Universities with the Industry, PI: Dr. Iyas Khader, Funded by DAAD – 101,858 EUR.
- J. Utilizing hyperspectral imaging techniques to evaluate key surface water quality parameters, CO-I: Dr. Nathir Rawashdeh, Funded by The Higher Council for Science and Technology, STRD II - US\$ 23000.

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