



Dec 18, 2019
Volume 4; Issue 9



MedEdu Tabuk

Weekly Newsletter

University of Tabuk



Dr. Marai M. Alamri, Dean of Medicine at a workshop on competency based curriculum in the Faculty of Medicine

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MESSAGE FROM THE EDITOR-IN-CHIEF

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Luke Skywalker has hand surgery by a robot in the film Star Wars: A New Hope (Photo credit: IMGUR)



Artificial Intelligence (AI) will have an increasing influence in healthcare. The future is not about "doctors being replaced by AI", but rather **doctors who use AI replacing doctors who do not use AI**. This is the 73rd issue of MedEdu Tabuk, and we hope you continue enjoying our work

What do we publish?

Reports on Health related Faculty Activities

Opinions and commentaries on teaching, learning, student advising and Research

Articles on Health related topics and issues.

Health related topics include Basic and Clinical Science, Preventive Medicine, Technological advancement, Historical articles, health policy, Ethical issues etc.

Announcements and reports of Health related activities, campaigns, Seminars, Workshops

Images, work of art, photos related to health issues

Professional achievements

And many more.....



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<https://www.ut.edu.sa/web/mededu-tabuk/editors>

SEMINAR: SENSORS IN MEDICINE

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Weekly Academic Activity
December 11th, 2019



The objective of the seminar was to provide information and to trigger interest in research areas involving sensors. Various aspects of sensors and sensor networks and their applications in the medical field and related areas have been covered. In order to fully take advantage of the capabilities of sensors, several enabling technologies have been cited including the fifth generation (5G) wireless communication, the internet of things (IoT), and artificial

intelligence (AI) namely artificial neural networks (ANN), genetic algorithms (GA), fuzzy logic (FL), and expert systems (ES). Several specific applications have been mentioned with greater emphasis on those related to urology. The urinary flow meter was covered in some detail along with analysis of selected flow rate and velocity profiles. Emphasis was given to modeling the prostatic urethra. The Bernouli principle and venturi effect have been covered along with their basic equations. Unfortunately, due to time limitation, biological sensors, electronic nose, and emotion sensors have been skipped and will be covered at later date. For questions, clarifications, or visiting SNCS, please feel free to contact Prof. Hadi Aggoune at haggoune.sncs@ut.edu.sa.

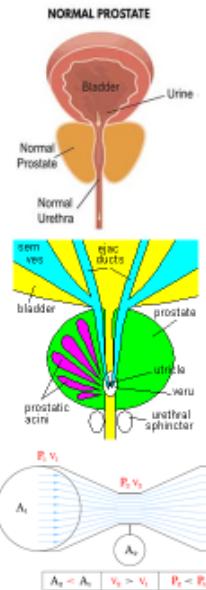
➤ Urethra and the Venturi Effect

Bernoulli's principle states that an increase in the speed of a fluid occurs simultaneously with a decrease in static pressure.

Pressure is the force applied perpendicular to the surface of an object per unit area (Newton per square meter).

Venturi Effect principle states that when flowing through a constricted area of a pipe, a fluid's velocity increases and its static pressure decreases.

Prostatic urethra works as a pump using the Venturi effect in order to drain urine from the acini. The urethral crest and the colliculus seminalis control flow rates and pressures.



➤ Venturi Meter

The venturi meter is used to measure the rate of flow of a fluid in a close conduit (pipe). It consists of a converging portion from 1, to a throat section at 2. The Bernoulli equation for point 1 and 2 can be written as

$$P_1 + \frac{1}{2} \rho v_1^2 = P_2 + \frac{1}{2} \rho v_2^2$$

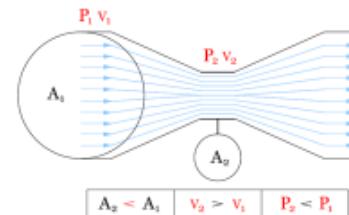
Continuity equation:

$$A_1 v_1 = A_2 v_2$$

When the speed of a fluid increases, the pressure drops. This effect is called "Venturi effect"

The speed in the throat section increases, then the pressure drops.

$$\text{The discharge rate, } Q, \quad Q = A_1 v_1 = A_2 v_2 = A_1 A_2 \sqrt{\frac{2(P_1 - P_2)}{\rho (A_1^2 - A_2^2)}}$$



RESEARCH FROM FACULTY OF SCIENCE <https://www.ut.edu.sa/ar/web/faculty-of-science>

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تفاصيل الدراسة



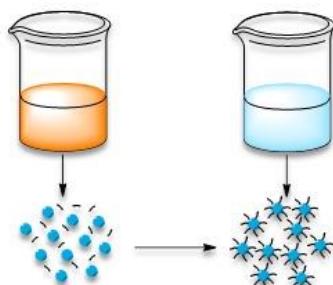
تمتاز المواد النانومترية بأنها مركبات ذات أبعاد صغيرة جداً ومساحة سطح عالية، لها نشاط محضز في التفاعل مع المواد الحيوية

تعتبر المواد العضوية الذائبة في مياه الصرف أحد أهم المشكلات البيئية الناتجة من المصانع وبعض المشبات



تهدف الدراسة إلى اختبار كفاءة عدة مواد نانومترية (10 - 13) نانومتر لإزالة النسب العالية من الملوثات العضوية في مياه الصرف قبل تصريفها في البيئة

نتائج الدراسة



تم بنجاح معالجة مياه ملوثة باستخدام مواد نانومترية مختلفة في المختبر، حيث أظهرت الدراسة أن مركب أكسيد النikel النانومتر له قدرة عالية على ادماص (أو امتصاص) الملوثات العضوية وتنقية المياه



نشرت في Dyes and Pigments <https://doi.org/10.1016/j.dyepig.2018.08.045>
A.A.A. Darwish, M. Rashad, Hatem A. AL-Aoh

كلية العلوم - وحدة العلاقات العامة والاعلام

BLENDED LEARNING PROGRAM PROJECT DAYS

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Projects

One of the aspects that make the IL's Blended Learning Program (BLP) at the University of Tabuk distinguished, is non-summative assessment. Embedded in that, are projects which can carry a weight of between 8 and 10 percent of the student's total grade. For the first semester's 2019/2020 academic year, the projects were conducted in week 13 and 14, so as not to be in the same week as the final English exams.



What Do Students Do?

Within their speciality, students can work as pairs, groups or as individuals to choose a topic related to their field of study. To present an example, those who are studying in the medicine faculties (Medicine, Pharmacy, Applied Medicine), have to choose a topic related to their field, which is medicine in this case. For those in the languages and translation department, they have to choose something related to literature and language.

Over the course of the semester, students have milestones to reach which include brainstorming, researching and various rehearsals in and out of the classroom. They can choose to give a speech, a presentation, participate in a panel discussion or debate. They can also provide a procedural explanation, a scripted scenario or some other form of spoken production.

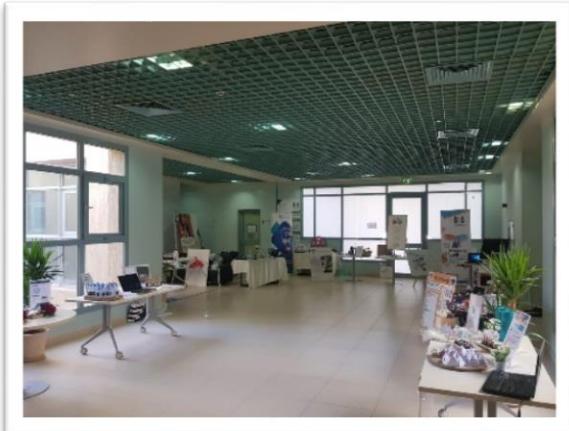
The actual events are conducted on different days so as to allow the guests to attend more than one faculty event. Likewise, the venues differ. The events are conducted in their respective faculties and invitations to members of that faculty are given out. That means that the Dean of the faculty and his team are notified and encouraged to attend be it for only part of the event.



Project Day(s) AY 2019/2020

Of course, both male and female students are required to participate on the day of their event. Attendance and successful participation make up 60% of their grade for the project. This year's events began with the Medical Faculty on the 27th of November 2019 and the guests included the Dr. Marai' Al-Amri, Dr Abdullah Al-Wabaari and representatives from the Institute of Languages. Students on both sides of the faculty gave wonderful presentations on diseases, medical conditions, medical equipment and procedural explanations.

On Sunday, December the 1st, the Pharmacy and Applied medicine had their events and among the attendees, were Dr. Abdurahman Alfahadi, Dr. Haifa Abu Shail and Dr. Osama Al-Amir. From the beginning, it was clear that much practice had gone into ensuring that the spoken production would be a success. The languages and translation department had their project day on Thursday the 5th of December and it was another successful event which showed good improvement in the language skills of the participants.



ARTICLES THAT CHANGED PRACTICE SINCE 2000: DRAZEN'S DOZEN

PART 2

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Part 1:
Volume 4, Issue 7
[Click Here](#)

"Here, we present Drazen's Dozen: My curated choice of practice-changing and lifesaving papers from the past 19 years. All present actionable information that you can use right now with your patients to address some of the most common diseases". **Jeffrey M. Drazen M.D. Editor-in-Chief, The New England Journal of Medicine**

STUDY NUMBER 7: A Novel Coronavirus Associated with Severe Acute Respiratory Syndrome

Conclusions: A novel coronavirus is associated with this outbreak, and the evidence indicates that this virus has an etiologic role in SARS. Because of the death of Dr. Carlo Urbani, we propose that our first isolate be named the Urbani strain of SARS-associated coronavirus.

Read full article at NEJM: <https://www.nejm.org/doi/full/10.1056/NEJMoa030781>

STUDY NUMBER 8: Quadrivalent Vaccine against Human Papillomavirus to Prevent High-Grade Cervical Lesions

Conclusions: In young women who had not been previously infected with HPV-16 or HPV-18, those in the vaccine group had a significantly lower occurrence of high-grade cervical intraepithelial neoplasia related to HPV-16 or HPV-18 than did those in the placebo group.

Read full article at NEJM: <https://www.nejm.org/doi/full/10.1056/NEJMoa061741>

STUDY NUMBER 9: A Randomized Trial of Intraarterial Treatment for Acute Ischemic Stroke

Conclusions: In patients with acute ischemic stroke caused by a proximal intracranial occlusion of the anterior circulation, intraarterial treatment administered within 6 hours after stroke onset was effective and safe.

Read full article at NEJM: <https://www.nejm.org/doi/full/10.1056/NEJMoa1411587>

STUDY NUMBER 10: A randomized trial comparing radical prostatectomy with watchful waiting in early prostate cancer

Conclusions: In this randomized trial, radical prostatectomy significantly reduced disease specific mortality, but there was no significant difference between surgery and watchful waiting in terms of overall survival

Read full article at NEJM: <https://www.nejm.org/doi/full/10.1056/NEJMoa012794>

STUDY NUMBER 11: Twenty-year follow-up of a randomized study comparing breast-conserving surgery with radical mastectomy for early breast cancer

Conclusions: The long-term survival rate among women who undergo breast-conserving surgery is the same as that among women who undergo radical mastectomy. Breast-conserving surgery is therefore the treatment of choice for women with relatively small breast cancers.

Read full article at NEJM: <https://www.nejm.org/doi/full/10.1056/NEJMoa020989>

STUDY NUMBER 12: Labor Induction versus Expectant Management in Low-Risk Nulliparous Women

Conclusions: Induction of labor at 39 weeks in low-risk nulliparous women did not result in a significantly lower frequency of a composite adverse perinatal outcome, but it did result in a significantly lower frequency of cesarean delivery.

Read full article at NEJM: <https://www.nejm.org/doi/full/10.1056/NEJMoa1800566>