

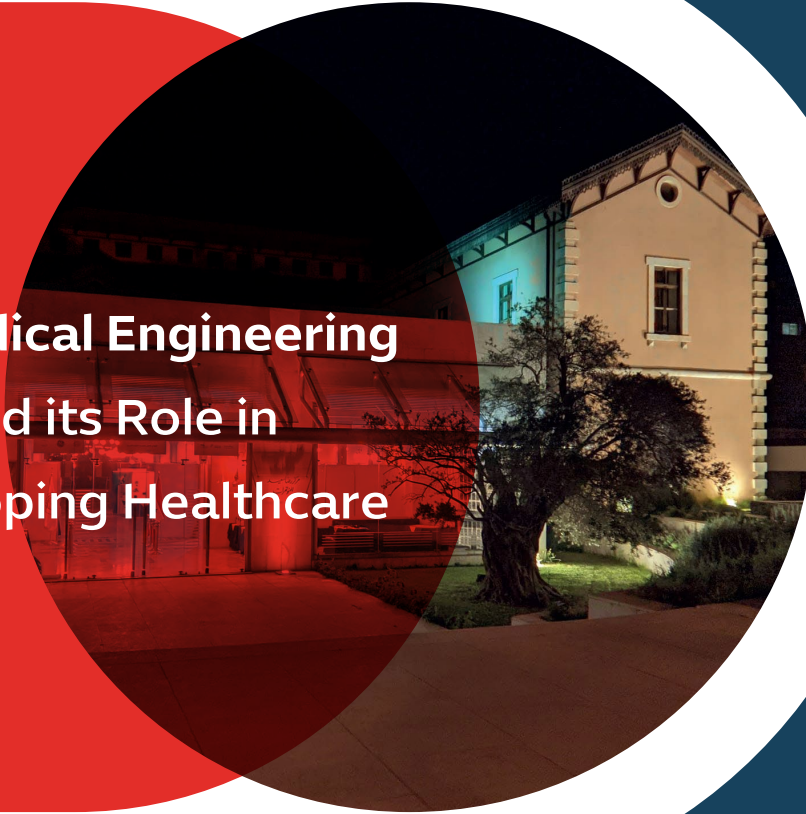


ICBME
ICBME 2023 - Damascus



وزارة التعليم العالي والبحث العلمي
MINISTRY OF HIGHER EDUCATION AND SCIENTIFIC RESEARCH

Biomedical Engineering and its Role in Developing Healthcare



International Conference on Biomedical Engineering

ICBME 2023 - Damascus



May 15-17, 2023



9:00 Am - 5:00 Pm



Damascus university - Reda Saeed Conference center

About The Conference:

Organized by the Mechanical and Electrical Engineering Faculty at Damascus University, **the International Conference** will be held under the patronage of the Minister of Higher Education and Scientific Research.

The conference will take place at the **Damascus University Conference Center (Reda Saeed)** - Damascus University - Damascus - Syria during the period between 15-17 May 2023. Some sessions will also be held virtually. The conference program will include regular, special and other sessions to which specialists are invited. Registration is free and no conference fee is required. Contributions are in English.

In parallel of the conference, a medical equipment exhibition will be held in the same conference venue.

First Conference Statistics

**2700+**

Attendance at the
conference and exhibition

**50+**

Participating
research

**10**

Participating
countries

**19**

Research published in the
Damascus University Journal

**13+**

The topics
presented

**15+**

Participating
companies

The co-chairs of the conference:



**Prof.
MHD Firas Al-Hinnawi**

Vice President of Damascus
University for Postgraduate
Studies and Scientific
Research



**Assoc. prof.
Moustafa Al-mawaldi**

Dean of the Faculty of
Mechanical and Electrical
Engineering at Damascus
University



**Prof.
Rasha Massoud**

Head of the Department
of Biomedical Engineering
at Damascus University

The local scientific committee

Damascus University - Faculty of Mechanical and Electrical Engineering



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Atomic Energy Authority



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Muznah AlKhani

Ministry of Communications and Technology



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Anas Dahabiah

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Russia



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Projects Management &
Product Development.
Montreal ÉTS University
Canada



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CEO and Chief Scientific Officer
Khawaja Medical Technology
GmbH, Germany



Lorenzo Scalisi
Associate Professor
Marche Polytechnic University,
Italy

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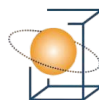
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Themes of the conference

- 01 Biomedical Engineering in Dentistry** 1st/2nd Day
Damascus university auditorium
- 02 Biomechanics** 2nd Day
Damascus university auditorium
- 03 Bioinformatics** 3rd Day
Damascus university auditorium
- 04 Biomedical engineering challenges** 3rd Day
Damascus university auditorium
- 05 Radiology** 1st Day
Reda Saeed Theater
- 06 Biomedical electronics** 1st Day
Reda Saeed Theater
- 07 AI in medicine** 2nd Day
Reda Saeed Theater
- 08 AI for diagnosis** 2nd Day
Reda Saeed Theater
- 09 Robotics and Control in Biomedical Engineering** 3rd Day
Reda Saeed Theater
- 10 Biomedical Engineering and Audiology** 1st Day
Museum hall
- 11 Medical Devices** 2nd Day
Museum hall
- 12 Hospital Engineering** 3rd Day
Museum hall
- 13 Miscellaneous in Biomedical Engineering** 3rd Day
Museum hall

Scientific program of the conference

ICBME - 2023 Opening ceremony programme



May 15, 2023



10:00-11:30 Am



Damascus university auditorium

- **Introductory video** 10:10 Am
- **Speech of Prof. Dr. Mostafa AL-Mawaldi** 10:20 Am
Dean of Faculty of Mechanical and Electrical Engineering
- **Speech of Prof. Dr. Mohammad Firas Al-Hinnawi** 10:30 Am
Vice President of Damascus University for Scientific Affairs
and President of the Conference
- **Speech of Prof. Dr. Mohammad Osama AL-Jabban** 10:40 Am
President of Damascus University
- **Speech of Prof. Dr. Bassam Ibrahim** 10:50 Am
Minister of Higher Education and Scientific Research
- **Introductory video about the MRI lab** 11:00 Am
- **Distribution of memorial shields** 11:10 Am
- **The opening of the exhibition** 11:30 Am

Damascus university auditorium

1st Day



Scope	Time	Title	Speaker	Affiliation
Chairperson: Prof. Mhd Firas Al Hinnawi Moderators: Prof. Khaldoun Darwich, Dr. Laila Khaddour				
	12:30-13:00	Plagiarism in Academic research	Prof. Mhd Firas Al Hinnawi	Damascus University-Syria
Biomedical Engineering in Dentistry	13:00-13:50	computer assisted oral and maxillofacial surgery: concept- workflow - clinical cases	Prof. Khaldoun Darwich, Dr. Mohamad Ayham Darwich, Dr. Khalil Yousof	Damascus University-Syria
	13:50-14:30	Future prospects for digital technologies in dentistry	Dr. Arwa Khair	Syrian Private University- Syria
	14:30-15:10	Conservative treatment with therapeutic medical equipment	Dr. Manal H Al Khayat	Company

Damascus university auditorium

2nd Day



Scope	Time	Title	Speaker	Affiliation
Chairperson: Prof. Mhd Firas Al Hinnawi Moderators: Dr. Ayman Sabouni, Dr. Ayman Alkayal,				
Biomedical Engineering in Dentistry	9:00-9:40	Implant resistance torques and their relationship to jaw bone density	Dr. Hazem Sawaf	AL-Sham Private University-Syria
	9:40-10:20	Lasers in dentistry	Dr. Bassem Saleem	Al-Andalus University for Medical Sciences-Syria
	10:20-10:40	Finite Element Analysis Application in Dentistry: Biomechanical Performance of Fixed Prosthodontics	Abeer Aljareh, Nabil Alhourri, Mohanad Kadhim, Ayham Darwich	Damascus University- Syria
	10:40-11:20	Applications of bone biomechanics in designing more efficient orthopaedic and dental implants	Prof. Gholamreza Rouhi	Amirkabir University of Technology (AUT)-Iran
Coffee Break	11:20-11:40	Coffee Break		
Chairperson: Prof. Zouheir Marmar Moderators: Dr. Moustafa AL-Mawaldi, Dr. Laila Khaddour				
Biomechanics	11:40-12:20	Movement analysis methods, applications, and future prospects	Dr. Moustafa AL-Mawaldi, Dr. Laila Khaddour, Eng.Rawan Baroudi	Damascus University- Syria
	12:20-12:40	An algorithm for assessing spine distortion during walking	Anagheem Ibrahim, Housam Hasan Bou Issa, Ludmila Smirnova and Zafar Yuldashiv	Saint-Petersburg Electrotechnical University ETU (LETI)-Russia
	12:40-13:00	a 3D numerical testing and Design of intervertebral disc prostheses for patients	Mohamad Ayham Darwich, Maysaa Shash, katreen Ebrahim	University of Tartus-Syria
	13:00-13:20	ANALYTICAL STUDY OF NORMAL SPINE MOVEMENT THROUGH THE GAIT CYCLE	HAIDER MUHI ABOUD ALSAIGH, Sadiq J. Hamandi, Mohammmd saeed mohammad	Al-Nahrain University- Iraq
Coffee Break	13:20-13:40	Coffee Break		

Damascus university auditorium

2nd Day



Chairperson: Prof. Zouheir Marmar Moderators: Dr. Moustafa AL-Mawaldi, Dr. Faten Ajeeb				
Biomechanics	13:40-14:25	Advanced prostheses and the uses of modern suspension system	Majdi Alnajjar	Nawras Medical Company
	14:25-14:45	Improving Range of Motion For hip joint implants: a simulation study	Thouraya g mouhssiena, Jullanar Ali, Hassan Al-Hussein, Haidar Habeb, Hani Amasha, Lamis Kodsi	Damascus University-Syria
	14:45-15:05	IMU-Based knee kinematics during gait of patients with knee osteoarthritis	Azza Tayari, Taysir Rezgui, Kaiss Ghrairi, Med Ali Saafi, Khalil Ben Mansour, Sami Bennour	University of Sousse-Tunisia
	15:05-15:25	Kinematics changes on climbing stairs with wedged high heels	Taysir REZGUI, Khalil BEN MANSOUR, Frederic MARIN	University of Carthage-Tunisia
	15:25-15:45	Severity assessment of spastic cerebral palsy patients using gait cycle and fuzzy logic	Massoud S., Ismaiel E., Massoud R., AL-Mawaldi M.	Damascus University-Syria

Damascus university auditorium

3rd Day



Scope	Time	Title	Speaker	Affiliation
Chairperson: Prof. Marwan Alhalabi Moderators: Prof. Maher Saifo, Prof. Rami Jarjour				
Bioinformatics	9:00-9:40	Advances in stem cells therapy	Prof. Marwan Alhalabi	Damascus University- Syria
	9:40-10:20	Management of breast cancer in the era of precision medicine	Prof. Maher Saifo	Damascus University-Syria
	10:20-11:00	Bioinformatics in the Postgenomic Era	Prof. Rami Jarjour	Atomic Energy Commission-Syria
	11:00-11:40	Big data analytics in Bioinformatics	Dr. Mouhib Alnoukari	Syrian Private University-Syria
Coffee break	11:40-12:10	Coffee Break		

Damascus university auditorium

3rd Day



Chairperson: Prof. Majd Aljamali Moderators: Prof. Rami Jarjour Dr. Mouhib Alnoukari

Bioinformatics	12:10-12:30	In silico analysis of cancer antigens of non-small cell lung cancer (NSCLC) for dendritic cell-based immune-gene therapy application	Hend Allaw, Lama Youssef, Majd Aljamali	Syrian Virtual University-Syria
	12:30-12:50	Identification of Hub Genes and Key Pathways Associated with Human Cell Carcinoma Based on Gene Expression Papillomavirus Status in Cervical Squamous Profiling via Integrated Bioinformatics	Marah Massoud , Majd Aljamali, Lama Youssef	Syrian Virtual University-Syria

Coffee Break

12:50-13:20

Coffee Break

Chairperson: Prof. Mhd Firas Al Hinnawi Moderators: Prof. Zouheir Marmar, Dr. Moustafa AL-Mawaldi

Biomedical engineering challenges	13:20-14:00	Health 4.0: new challenges of biomedical engineering	Prof. Laura Burattini	Marche Polytechnic University-Italy
	14:00-14:40	The march of medical engineering between academic and commercial work	Nibras Abo Alzahab, Ali Kanjo Alarja	Marche Polytechnic University-Italy
	14:40-15:10	importance of following international Norms to avoid mistakes in installation and commissioning of Medical gas systems.	Eng. Abdulkader Al-kudsi	Wisam Corporation Ltd.
	15:10-15:40	regulatory Law of the biomedical engineering profession	Mhd Firas Al Hinnawi, Moustafa AL-Mawaldi, Nashwan Azzawi	Engineers Syndicate, branch Damascus-Syria

Reda Sae'ed Theater

1st Day



Scope	Time	Title	Speaker	Affiliation
Chairperson: Prof. Nikola Abo Issa, Moderators: prof. Yahia Lahfi, Dr. Ghada Saad				
Radiology	12:30-13:10	Recent trends in diagnostic radiography systems	Prof. Yahia Lahfi	Atomic Energy Commission-Syria
	13:10-13:50	Magnetic resonance imaging of the neonatal brain	Prof. Bassem Hiba	Lyon University-France
	13:50-14:10	Calculation of the absorbed radiation dose in important organs in the adult human body when computerized imaging using OSL and MCNP methods.	Aysha Al-Ali Al-Jewar, Hani Ammasha, Nicola Abo Issa, Barra Noman, Rana Al-Halak, Egorkina Svetana	Damascus University- Syria
	14:10-14:30	The Use of Image Processing Techniques in Diagnosing Chest Disease	Mohammad Issa, Ghada Saad, Aous Mohammad, Noman Dali, Arwa Ahmad	Al-Andalus University for Medical Science-Syria
Coffee Break	14:30-14:50	Coffee Break		
Chairperson: Dr. Hani Amasha, Moderators: Dr. Bassam Lala, Dr. Lamis Kodsí				
Biomedical electronics	14:50-15:10	Sleep Apnoea Detection Methods: A Review	Abbas I. salman, Dr.Dunia T. Al-Aridhi, Asst.Prof. Dr. Auns q. Al-Neami	University of Al-Nahrain Iraq
	15:10-15:30	Transcutaneous Electrical Nerve Stimulation Unit for Therapeutic Purposes	Auns Q. H. Al-Neami, Hadeer M. Mohammed and Qussay Abdulateef Hammoodi	University of Al-Nahrain Iraq
	15:30-15:50	Modified CMOS Rectifier Circuits for Far-Field Wireless Power Transfer System for Implantable Medical Devices	Ranya Azzam, Sahar Sowdagar, Soliman Mahmoud	University of Sharjah- UAE
	15:50-16:10	Force Myography Responses to Varied Perceived Exertion Levels During Power Grip: An In-Depth Analysis	Souha Baklouti, Taysir Rezgui, Abdelbadiâ Chaker, Safa Mefteh, Khalil Ben Mansour, Anis Sahbani, Sami Bennour	University of Sousse- Tunisia
	16:10-16:50	The story of EEG processing - Editorial	Nibras Abo Alzahab	Marche Polytechnic University- Italy

Reda Sae'ed Theater

2nd Day



Scope	Time	Title	Speaker	Affiliation
Chairperson: Dr. Hani Amasha Moderators: Dr. Nisreen Sulayman, Dr. Mohammed Abdulkarem Daear				
AI in medicine	9:00-9:40	Applications of artificial intelligence in digestive endoscopy	Prof. Raed Abu Harb	Damascus University-Syria
	9:40-10:20	Why Do We Need Artificial Intelligence in Diagnostic radiology?	prof. Khalid Esmat Allam	Ain Shams University - Egypt
	10:20-11:00	Autism Spectrum Disorder Classification Using Machine Learning and Deep Learning.	Dr. Hichem Felouat	Graduate University for Advanced Studies, Tokyo, Japan
	11:00-11:40	Applications of artificial intelligence in medical imaging	Dr. Nader Aldoj	Aignostics- UK
Coffee break	11:40-12:10	Coffee break		
Chairperson: Dr. Hani Amasha Moderators: Dr. Anas Dahabiah, Dr. Ghada Saad				
AI for diagnosis	12:10-12:50	AI-based method for biomedical engineering	Dr. Agnese Sbröllini, Eng. Mhd Jafar Mortada, Eng. Haidar Anbar	Marche Polytechnic University- Italy
	12:50-13:30	Design of clinical decision support systems in the field of diabetes prevention and management	Dr. Micaela Morettini	Marche Polytechnic University- Italy
	13:30-13:50	Using AI to detect Leukemia: Random Forest Classifier Provides Hope for Improved Patient Outcomes	Assel Alshoraihy, Housam Hasan Bou Issa, Anagheem Ibrahim	Saint-Petersburg Electrotechnical University

Reda Sae'ed Theater

2nd Day



AI for diagnosis	13:50-14:10	Classification of Covid-19 Vaccination Using Ensemble Methods with BERT Models	Rabia Bounaama, Mohamed El Amine Abderrahim	Tlemcen University-Algeria
Coffee break	14:10-14:30	Coffee break		
Chairperson: Dr. Abdulkareem Assalem Moderators: Dr. Anas Dahabiah, Dr. Mohammed Hayyan Alsibai				
AI for diagnosis	14:30-15:00	Ethics of Artificial Intelligence	Prof. Fawaz Saleh	Damascus University- Syria
	15:00-15:20	Comparing and Improving Common Image Segmentation Algorithms for Brain Tumor Detection and Size Estimation	Saad Alkentar, Abdulkareem Assalem	Al Baath University- Syria
	15:20-15:40	Diagnosing Polycystic Ovary Syndrome (PCOS) Using an Enhanced Transfer Learning Model	Seyed Youssef Heydari, Mohammed Hayyan Alsibai	International University of Science and Technology (IUST)- Syria
	15:40-16:00	The effect of used biomarkers on the efficiency of breast cancer detection using the Coimbra dataset and neural networks	Essa H.A., Alhinnawi M.F.	Damascus University- Syria
	16:00-16:20	Detection of Acute Lymphoblastic Leukemia (ALL) Using Deep Learning and Transfer Learning	Thouraya G Mouhssiena, Diana T Karbouj, Rasha N Mayhoub, Taghrid Haddad	Damascus University- Syria

Reda Sae'ed Theater

3rd Day



Scope	Time	Title	Speaker	Affiliation
Chairperson: Dr. Hani Amasha Moderators: Prof. Rasha Massoud, Dr. Jomana Diab				
Robotics and Control in Biomedical Engineering	9:00-9:40	Movement analysis methods, applications, and future prospects	Prof. Mohammad Osman Tokhi	London South Bank University-UK
	9:40-10:20	Robotic applications and new technologies in health service	Dr Sami Bennour	University of Sousse- Tunisia
	10:20-11:00	Engineering Innovation for Assisted Living and the Importance of Technology Transformation in Healthcare	Dr. Khaled Goher	University of Nottingham- UK
	11:00-11:20	Design of Brain Emotional Learning-Based Intelligent Controller to Solve Packet Loss Control in Surgical Robot Manipulator in Real-Time	Bashar M., Joumana D.	Al-Baath University- Syria
Coffee Break	11:20-11:40	Coffee Break		
Chairperson: Dr. Hani Amasha Moderators: Prof. Rasha Massoud, Dr. Jomana Diab				
	11:40-12:25	The Syrian Company for Medical Services, and the working principles of its devices	SMS company	
Robotics and Control in Biomedical Engineering	12:25-12:45	Time Delay Compensation for Dialysate Preparing Process Using Immune-LQI Controller	Jomana Mahmoud Diab, Sahar Alali	Al Andalus University for Medical Sciences- Syria
	12:45-13:05	Heart rate control using fuzzy tuning of fractional order PD controller and particles swarm optimization	Jolaha O. , Eissa A.	Tishreen University- Syria
	13:05-13:25	Dynamic Balance Gait Planning for Lower Limb Exoskeleton Robot using COP criterion and IMU sensor	Habib Mohamad, Sadjaad Ozgoli, Fadi Motawej, Ghada Saad	Tarbiat Modares University, Tehran, Iran

Museum hall

1st Day



Scope	Time	Title	Speaker	Affiliation
Chairperson: Prof. Zouheir Marmar, Moderators: Dr. Samer Mohsen, Dr. Fatmah Tarrab				
Biomedical Engineering and Audiology	12:30-13:10	The role of signal processing in the auditory response recording of the cerebral cortex	Dr. Samer Mohsen	Damascus University-Syria
	13:10-13:50	Hearing aids - Styles and its benefits for kids	Dr. Fatmah Tarrab	Damascus University-Syria Al-Andalus University for Medical Science- Syria
	13:50-14:10	Prevalence of Hearing Loss in Babies (1-18 month) old and its relation to known risk factors In Audiology Clinic of Al-Mawasat Hospital	Abdalmajeed Yousfan , Fatmah Tarrab	Damascus University-Syria
coffee break	14:10-14:30	Coffee Break		
Chairperson: Prof. Zouheir Marmar, Moderators: Dr. Samer Mohsen, Dr. Fatmah Tarrab				
	14:30-14:50	New deterministic model for the control of epidemic	Prof. Imad Fattash	Damascus University-Syria
Biomedical Engineering and Audiology	14:50-15:10	Hearing Evaluation of Children after Cochlear Implant by Electric Auditory Brainstem Response (E-ABR) Test	Alaa Daoud, Mamdouh Monif	Damascus University-Syria
	15:10-15:30	Analysis of Acoustic Map in a Neonatal Intensive Care Unit (NICU)	Kinana Nabil Ali, Hanan Mahmoud Mukhaiber	Damascus University-Syria
	15:30-15:50	Conception and realization of a medical audiometer	Sidi.Ahmed Taouli	University Aboubekr-Belkaid -Algeria

Museum hall

2nd Day



Scope	Time	Title	Speaker	Affiliation
Chairperson: Dr. Mamdouh mounif Moderators: Dr. Antoun Khawaja, Eng. Mohamed Shamout				
Medical Devices	9:00-9:40	Map of Capital medical equipment in Syria	Dr. Mamdouh mounif	Damascus University
	9:40-10:20	Advanced Medical Software Development Using Model-Based Design Approach	Dr. Antoun Khawaja	Khawaja Medical Technology GmbH
	10:20-11:00	Obstacles facing qualitative medical devices	Eng. Mohammed Shammout	Director of Biomedical Engineering - Ministry of Health
	11:00-11:40	Intellectual property protection in medical devices and equipment	inventor Issam Hamdi	
Coffee Break	11:40-12:10	Coffee Break		
Chairperson: Dr. Mamdouh mounif Moderators: Dr. Antoun Khawaja, Eng. Mohamed Shamout				
Medical Devices	12:10-12:50	Quality control for medical devices development	Dr. Moutaz Hamdan	LumiraDx, Hospitals and Health Care, UK
	12:50-13:10	Smart Helmet for Electric Scooter Users	Dr. Lama Bou Farah	Lebanese German University (LGU)
	13:10-13:50	Digital Health and Trending Service methodology in the market	Eng. Ayham Daher	
Coffee Break	13:50-14:10	Coffee Break		
Chairperson: Dr. Ayman Sabouni Moderators: Dr. Lamis Kods, Dr. Safa sarakbi				
Medical Devices	14:10-14:55	Development of modern teaching techniques in biomedical engineering	Edibon company spain	
	14:55-15:40	The Syrian Company for Medical Services, and the working principles of its devices	SMS company	
Coffee Break	15:40-16:00	Coffee Break		
Chairperson: Dr. Ayman Sabouni Moderators: Dr. Lamis Kods, Dr. Safa sarakbi				
Medical Devices	16:00-16:20	Measurement of ammonia in exhaled breath for healthy individuals and patients with chronic kidney disease using laser spectroscopy	Youssef Y., Dallah M., Salloum A.	Higher Institute for Applied Sciences and Technology (HIAST)- Syria
	16:20-16:40	Sterilization device using silver nanoparticles	Yoseph M. Kanjarawy , Ghadeer A. Khaddour, Waseem S. Darwish , Ghada M. Saad, Hani M. Amasha	Tishreen University-Syria

Museum hall

3rd Day



Scope	Time	Title	Speaker	Affiliation
Chairperson: Dr. Hanan Mukaiber Moderators: Prof. Imad Fattash , Dr. Rajwa Jubaili				
Hospital Engineering	9:00-9:40	Quality implementation in hospitals	Prof. Rajwa Jubaili	AL-Sham Private University
	9:40-10:20	The biomedical engineer's role in hospital engineering	Dr. Hanan mukhaiber	Damascus University
	10:20-10:40	Design of an automatic fire extinguishing system in a local operations department	Alaa Rahhal, Hanan Mukaiber	Al-Andalus University for Medical Sciences- Damascus University - Syria
	10:40-11:20	Using information systems to improve hospital performance	Dr. Ghada Saad+ Dr. Nidal Issa	Tishreen University- Syria
Coffee Break	11:20-11:40	Coffee Break		
Chairperson: Dr. Hanan Mukaiber Moderators: Prof. Imad Fattash , Dr. Rajwa Jubaili				
Hospital Engineering	11:40-12:25	The difference between medical oxygen And 93% oxygen (production, validity, purity)		Syrian Natural Resources Company
	12:25-12:55	Hospital information management system	Dr. Yasser KHADRA	Ministry of higher education and scientific research
	12:55-13:15	Observing the malfunctions of the dental units in private dental clinics and analyzing the factors affecting them	Dr. Ayman Alkayal	Al-Andalus University for Medical Sciences- Syria
	13:15-13:35	Access control model to the electronic health records based on ontology	Asma BELAIDI, Mohammed El Amine ABDERRAHIM	University of Tlemcen- Algeria
	13:35-13:55	Improving Bacterial Detection Processes using Nano-Fiber Nonwoven Fabrics: A Preliminary Study	Majdy Fahd Madanyyah, Hani Amasha, Basel Yones, Baraa Noman	University of Tishreen- Syria



ICBME

International Conference
of Biomedical Engineering

Organized by the Mechanical and Electrical Engineering Faculty at Damascus University, **the International Conference** will be held under the patronage of the Minister of Higher Education and Scientific Research.

Supporting entities



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