

# ICSET 5<sup>th</sup> International Conference 2024

## The 5<sup>th</sup> International Conference on Sustainable Engineering Techniques (ICSET2024)

Towards:

"Technical and Scientific Solutions for Sustainable Future"

Held by Middle Technical University in Partnership with  
Al-Mustaqbal University and Duhok Polytechnic University



11-12 December 2024

Baghdad-Iraq

# The 5<sup>th</sup> International Conference on Sustainable Engineering Techniques (ICSET24)

برنامج المؤتمر اليوم الاول

## Conference Program 1<sup>st</sup> day

قاعة كوردستان	الجلسة الافتتاحية	الاربعاء 2024/12/11			
		الوقت	ت		
	التسجيل لحضور المؤتمر	8:30 – 9:30	1		
	افتتاح المؤتمر		2		
	النشيد الوطني العراقي	9:30 - 10:15	3		
	نشيد اقليم كوردستان		4		
	تلاوة آيات من القرآن الكريم مع قراءة سورة الفاتحة على أرواح شهداء الوطن		5		
	كلمة السيد رئيس الجامعة التقنية الوسطى – أ. د. وضاح عامر حاتم التميمي		6		
	كلمة ممثل وزارة التعليم العالي والبحث العلمي في الحكومة المركزية		7		
	كلمة وزارة التعليم العالي والبحث العلمي في اقليم كوردستان		8		
	كلمة السيدة رئيسة جامعة دهوك التقنية أ.د. ناري عادل		9		
	كلمة السيد رئيس جامعة المستقبل يليها أ.د. مظفر صادق		10		
	كلمة رئيس اللجنة التحضيرية للمؤتمر – أ.م.د. صفاء محمد حسوني		11		
	مقطع فيديو وثائقي عن الجامعات المشاركة في المؤتمر		12		
	الاستاذ الدكتور محمد عبد الرزاق الشихلي		Keynote Speaker1	10:15- 10:45	13
	الاستاذ الدكتور ازاد نجار		Keynote Speaker2	10:45- 11:15	14
	توزيع الدروع والشهادات التقديرية		11:15 -11:30	15	
	Coffee Break		11:30 -12:00	16	
	أ.د. عاصم علاء عبد الحسين	Keynote Speaker3	12:00 -12:30	17	
	Prof. Dr. Iqbal M. Mujtaba/ UK Online	Keynote Speaker4	12:30 -1:00	18	

حضورى: اليوم الاول

بحوث هندسة الميكانيك-الطاقة المتجددة والميكانيك التطبيقي	
اسم القاعة	القاعة الاولى
رقم الجلسة	حضورى
التاريخ	2024\12\11
رئيس الجلسة	أ.م. د. أياذ يونس
مقرر الجلسة	د. حاتم حسن اسماعيل

Paper ID	Paper title	Authors	Time
68	Towards Sustainability: Evaluation the Mechanical Properties of Hybrid Composite Materials Reinforced with Fibers and Nanoparticles	Mustafa Ahmed Rajab, Mazin Mahmood Yahya, Mudhar A. Al-Obaidi and Khidhair Jasim Mohammed	1:00-1:10
169	Towards Sustainable Thermal Systems: Investigating the Role of Nanofluids in Improving Heat Exchanger Efficiency: A Simulation Study	Bhupratim Roy, Abhijeet Kar, Md Tanvir Sowgath, Mudhar A. Al-Obaidi, Salim H. Jassam, Alanood A. Alsarayreh and Abdulkareem Abdulwahab	1:10-1:20
183	Harnessing The Power of Artificial Intelligence for Sustainable Energy Solutions: An Innovative Backpropagation Neural Network Technique for Precise Prediction of Photovoltaic Output Power	Inass Shahadha Hussein and Noor Abbood Jasim	1:20-1:30
193	Review of sustainable 3D printing criteria using FDM technology and their settings impact on mechanical properties of additively manufactured elements	Nihal D. Salman, Rawabe Fatima Faidallah, Muammel M. Hanon and Qusay Rasheed Al-amir	1:30-1:40

206	Fortifying Sustainability: Enhancing the Impact Strength of Polylactic Acid (PLA) Plastic Products	Sameer Hashim Ameen, Rasool R. K. Al-Arkawazi, Mudhar A. Al-Obaidi, Raad Abdul Ameer Saeed and Teeb Basim Abbas	<b>1:40-1:50</b>
337	Simulation and Analysis of Multiphase Flow in Pipelines Utilising ANSYS Fluent	Layth Abdulameer, Farhan Lafta Rashid, Emad Qasem Hussein, Mudhar A. Al- Obaidi and Saleem Jasim Abbas	<b>1:50-2:00</b>
338	A Proposed Network Monitoring System for Software Defined Networking	Haeeder Munther Noman, Ali Abdulwahhab Abdulrazzaq, Suhad Hassan Rhaif, Mudhar A. Al-Obaidi and Ali Al-Mahmood	<b>2:00-2:10</b>
4	Homogeneous and Stratified Combustion Characteristics Affected by Injection and Spark Timings Trade-off in Dual Ethanol SI Engine	Nizar F. O. Al-Muhsen, Guang Hong, Firas Basim Ismail, Salim Hrez Jassam, Safaa Mahdi Hasan BAAME, Salah Mahdi Khaleel, Hussein A. Kazem and Miqdam T. Chaichan	<b>2:10-2:20</b>
غلق الجلسة الساعة 2:30 مساء			
<b>Lunch Time</b>			<b>2:30</b>

اليوم الاول: حضوري

بحوث الهندسة المدنية، البيئة والاستدامة	
اسم القاعة	القاعة الثانية
رقم الجلسة	حضوري
التاريخ	2024\12\11
رئيس الجلسة	ا.م.د. زيرك عزيزخان
مقرر الجلسة	م.د. مظفر حميد

Paper ID	Paper title	Authors	Time
	Multifunctional Silicone Nanocomposites for Sustainable Electrical and Medical Applications: Adjusting Thermal Conductivity, Electrical Resistivity, and Antimicrobial features	Hayder Abdulmeer Abbas, Salim H. Jassam, Mudhar A. Al-Obaidi, Ahed Hameed Jaaz and Ban Mohammad Hassan	1:00- 1:10
	Protective Vital Information: A Multi-layered Cryptographic Framework for Digital Image Security	Sabeeha Hassoun Abdulla, Adnan H. Ali, Raed Kh. Ibrahim, Saad Mutashar, Hind Q. Mohammed Monir and Noor M. Noori	1:10-1:20
	Design, Analysis and Optimization of High-Efficiency Wind Turbines for Sustainable Power Generation Using Tubercles Wind Turbine Design	Firas Basim Ismail, N. Ahmad Adlan, Salim Hrez Jassam, Nizar F. O. Al-Muhsen, Salah Mahdi Khaleel, Hussein A. Kazem and Miqdam T. Chaichan	1:20-1:30
	Green Fabrication of NiO Nanoparticles Utilizing Extract of Lemon Peel: Characterization and Antibacterial Activity Evaluation	Shams A. Ismael, Thura Alyasiri, Raghda Makia, Raghda Alsayed, Mohammed Kadhom and Emad Yousif	1:30-1:40
	Numerical Simulation of Two-Phase (Gas-Oil) Flow in Gas-Liquid Cylindrical Cyclone Separator	Dheiaa Alfarge, Farhan Lafta Rashid, Mudhar A. Al-Obaidi, Zainab Kadhim Fanons, Zeinab Abdel	1:40-1:50

	Estimation of crop water requirement for wheat and barley crops in Al-Musayab District, Iraq	Haitham Y. Bahlol, Salim H. Jassam, Ibraheem Ahmed Hadi Al-Obadui, Mudhar A. Al-Obaidi and	<b>1:50-2:00</b>
	A Numerical study of the Hydrodynamic Behavior of Extruded Air Through Heavy Fuel Oil Residue Bubble Column Reactor Using Multiple Nozzles	Hussein Reda Muhammad Ali Al-Naqqash, Mohammed Alhwayzee, Farhan Lafta Rashid, Mudhar A. Al-Obaidi, Salim H. Jassam and Bayan Mahdi Sabbar	<b>2:00-2:10</b>
	Hydrochemical characterization and suitability of groundwater for irrigation in a part of Mahmoudiyah district, Baghdad Governorate, Iraq	Muntasir A. Shareef, Shahla Abdulqader Nassrullah, Alyaa SH. Oleiwi, Ghanim S. Hassan, Mudhaffar S. Al-Zuhairy, Musaab K. Rashed and Alhassan H. Ismail	<b>2:10-2:20</b>
<b>غلق الجلسة الساعة 2:30 مساء</b>			
<b>Lunch Time</b>			<b>2:30</b>

**اليوم الاول: حضوري**

بحوث محور العلوم التطبيقية والهندسة الكيميائية	
القاعة الثالثة	اسم القاعة
حضوري	رقم الجلسة
2024\12\11	التاريخ
أ.م.د. ژيار محمد	رئيس الجلسة
م. سردار عبدالله	مقرر الجلسة

Paper ID	Paper title	Authors	Time
	Design and Operation of a Novel Process for Regeneration of Consumed Vanadium Pentoxide Based on Water Electrolysis Cell	Safaa Nayyef Abdul Jabbar, Mudhar A. Al-Obaidi, Mishal W. Ibrahim, Farhan Lafta Rashid and Azher M Abed	<b>12:30- 12:40</b>

Theoretical Analysis of Photovoltaic Panel Power Enhancement Using Evaporative Cooling and Underground Water	Deyaa M. N. Mahmood, Issam M. Ali Aljubury and Mudhar A. Al-Obaidi	<b>12:40-12:50</b>
Catalytic studies of new transition metal modified poly (vinyl chloride) Schiff's base complexes	Hanan Ibraheem, Dina Ahmed, Mohammed Kadhom, Musaab K. Rashed, Tayser Sumer Gaaz and Emad Yousif	<b>12:50-1:00</b>
Revolutionizing Remote Healthcare: A Secure, Lightweight Blockchain and Fog-Enabled Patient Monitoring System Review	Omer Sameer Khalis, Adnan Hussein Ali and Saleem Latteef Mohammed	<b>1:00-1:10</b>
Diagnosis and classification pneumonia by using deep convolution neural network as model classification and engineering features extraction two level discrete wavelet transform	Tania aljoboury, Ahmed Aldhahab and Hanaa M. Al Abboodi	<b>1:10-1:20</b>
Design a Flexible Machine for Wire Bending with Closed Loop Control System and Geometric Codes Integration	Mohammed O. Farhan, Mohammed M. H. Alkhafaji and Mohannad Qusay Abbood	<b>1:20-1:30</b>
Recovery of Rare Earth Elements from The Leaching Solutions of Spent Neodymium Magnets	Huwaidah Ibrahim Ahmed, Ali Abadi ALjubouri and Hanaa A. ALKasiy	<b>1:30-1:40</b>
Enhancing Energy Management in Hybrid Renewable Energy Systems with Model Predictive Control Techniques	Ahmed Karwan Abdullah and Hanan Mikhael D. Habbi	<b>1:40-1:50</b>
<b>غلق الجلسة الساعة 2:00 مساء</b>		

## The 5<sup>th</sup> International Conference on Sustainable Engineering Techniques (ICSET24)

### برنامج المؤتمر اليوم الثاني Conference Program 2<sup>nd</sup> day

اليوم الثاني: الجلسة الحضورية

اسم القاعة	قاعة كوردستان
رقم الجلسة	حضورية
التاريخ	2024\12\12
رئيس الجلسة	ا. م. د. مزكين سيسن احمد
مقرر الجلسة	م. د. مند كمال عسكر

Paper ID	Paper title	Authors	Time
48	Giza Pyramids Construction Optimization Algorithm for Sustainable and Efficient Software Cost Estimation	Huda A. Abbood, Dunya Sh. Wais and Zainab S. Jameel	9:00- 9:10
7	Optimized Lattice- Based SCMA Codebook Design and Performance Analysis	Hawraa A. Jasiem and Hikmat N. Abdullah	9:10-9:20
186	Analyzing Contaminants in the Soil of an Industrial District Using CF-LIBS in Al-Najaf Governorate, Iraq	Ekhlas Jabir Mahmood and Mithaq M. Mehdy Al-Sultani	9:20-9:30
24	Surveying Security Challenges and Sustainable Solutions for the Web of Things	Suhaila B. Abdul Abbas and Haider K. Hoomod	9:30-9:40
64	Synthesis Of Pyrazoline Derivatives and Evaluation of Their Antimicrobial Activity	Haya Ahmed, Ahmed Ahmed and Ahmed Al-Ani	9:40-9:50
37	A Standby Financing Method to Reduce Late Progress Payment Disputes and Maintain Sustainable Payments and Relationships in the Iraqi Construction Industry	Abbas Amer Ghaleb and Mohammed Neamah Ahmed	9:50-10:00

52	Optical Wireless Broadband Efficiency Enhancement Using Asymmetrically Clipped O-OFDM (ACO-OFDM)	Raya Majid Alsharfa, Mohammed Aboud Kadhim, Majid Hameed Majeed and Abd-ulhussein Harija	<b>10:00-10:10</b>
72	Innovative Photodiode Amplifier Solutions for Future-Ready Communication Networks	Mohammed Aboud Kadhim, Sadeer Rasheed Ahmed, Kamal Y. Kamal and Abd-ulhussein Harija	<b>10:10-10:20</b>
223	A New Approach for Binary Classification Using Logistic Regression, Decision Trees, and Neural Networks: Evaluation and Comparative Analysis	Ali Abdulhussein khraibet, Mohammed Aboud Kadhim, Ahmad Ghandour and Khaleel J. Hammadi	<b>10:20-10:30</b>
272	Innovative Approaches in Machine Learning and Artificial Intelligence for Future-Ready Data Analytics Systems	Ali Abdulhussein Khraibet, Mohammed Aboud Kadhim, Ahmad Ghandour and Khaleel J. Hammadi	<b>10:30-10:40</b>
<b>Break ½ hour</b>			
	Assessment of Urban Greenery Spaces According to Sustainability Smart Cities	Hiba A. Abdul Kareem Al-Yozbakee	<b>11:10- 11:20</b>
	Biogeometry of Geometric Shapes in Architecture (Mosques as a Case Study)	Batool Adnan Abd Al-Ameer Al-hussainy, Ibrahim Kadum Al-youseif, and Abdullah Saadon Al-Mamoory	<b>11:20- 11:30</b>
	Morphological and Chemical Study of Exotic Plants belonging to the Plant Family: Malvaceae in Iraq	Zahraa Hadi Hilal and Zainab Abid Aun Ali	<b>11:30- 11:40</b>
	Evaluation of Microstructure and Hardness in Low-Alloy Steel/Copper Joints Brazed with Silver-Based Fillers	Jehan Shakr Abdalamer Al-shukur and Muhaed Alali	<b>11:40-11:50</b>

	Towards sustainable authentication an offline Handwriting Signature Verification using Deep Learning Models	Jihad Majeed Nori and Asim Majeed Murshid	<b>11:50-12:00</b>
	Inverter and Winding Fault Diagnosis of Brushless DC Motor Based on Dynamic Neural Networks	Malek Ali Mezeal, Wathiq Rafa Abed, and Ali Nasser Hussain	<b>12:00-12:10</b>
	Separation Control and Efficiency Improvement in a2D Diffuser by Experimental Method	Muthana M. Ali, Qusay Jihad and Ali L. Ekaid	<b>12:10-12:20</b>
	Open Radio Access Network Operator Weighting Optimization	Raad S. Alhumaima, Wisam Hasan Ali and Mokhalad Abdulameer Kadhim Alsaedi	<b>12:20-12:30</b>
	Enhancing Road Safety and Reducing Traffic Congestion in Peshawar City, Pakistan: A Comprehensive Analysis of Driver Behaviour	Arsalaan Khan Yousafzai, Al-Baraa Abdulrahman Al-Mekhlafi, Rania Al-Nawasir, Nasir Khan, Ahmed Wajeh Hamza Mushtaha, Ossama Yehia Gouda Ahmed Ghonim and Zahraa Hassan Hussein	<b>12:30-12:40</b>
	Analysis of the Characteristics of Various Modified SEPIC Converters: A Review Study	Rawia Moaazer Esmail, Ahmed Rashid Ajel and Mahdi Ferhan Bonnya	<b>12:40-12:50</b>
	Analysis of Node Mobility Patterns and Fisheye State Routing (FSR) Protocol in Dynamic Networks: A Review Paper	Tuhfa Sabry Mahmood and Manar Younis Ahmed	<b>12:50-1:00</b>
	Failure Mechanism of Enlarged Base Pile Subjected to Uplift Load in Partially Saturated Soil	Zaid H. Ghalib and Mahmood R. Mahmood	<b>1:00-1:10</b>
	Extraction Of Calcium and Magnesium from Iraqi Injana Formation in Karbala Governorate	Saja W. Hameed, Muna K. Abbass and Amjad I. Fadel	<b>1:10-1:20</b>
	An Electronic Health Record Structure Based on Internet of Wearable Things: A Review	Siham Adnan Kadhim and	<b>1:20-1:30</b>

		Muhammed Salah Sadiq Al-Kafaji	
	A Survey on Utilizing Open Data and Cloud Platforms to Support Sustainable Energy and Green Economy Initiatives	Yasmin Makki Mohialden, Nadia Mahmood Hussien and Ethar Abdul Wahhab Hachim	<b>1:30-1:40</b>
	Estimation of the mixture reliability function (Exponential-Weibull) using three methods; A comparative study	Iftikhar Ali Hussein, Hagazy Zahar and Naglaa Ragaa Saied	<b>1:40-1:50</b>
غلق الجلسة الساعة 2:00 مساء			

The 5<sup>th</sup> International Conference on Sustainable Engineering  
Techniques (ICSET24)

Conference Program 2<sup>nd</sup> day

		الخميس 2024/12/12	
قاعة كوردستان	الجلسة الختامية	الوقت	ت
	كلمة رئيسة جامعة دهوك التقنية الاستاذة الدكتورة ناري عادل	2:00 – 2:10	1
	توزيع الدروع والشهادات التقديرية	2:10 – 2:30	2
	صور جماعية	2:30 – 2-45	3
	Lunch Break	3:00	4