



The Second International Conference on The  
Future Sustainable Energy  
**Conference Program**  
20-22/ Feb/ 2024



**Organized By**



**ICFSE 2024**



The Second International Conference on  
the Future Sustainable Energy

(ICFSE 2024)



# The Second International Conference on the Future Sustainable Energy (ICFSE 2024)

## (ICFSE 2024 Programme)

Date	Tuesday 20th February
07:30 – 08:30	Registration
09:00 – 10:00	<ul style="list-style-type: none"> <li>• Welcome Speech and Opening Ceremony</li> <li>• Welcome and Opening address by the President of Al Mustaqbal University.</li> <li>• Address by the Ministry of Higher Education and Scientific Research.</li> <li>• Welcome Remarks by the Conference Chairs.</li> </ul>
TOPIC	Sustainable Energy Development and Climatic Changes Impacts
10:00 – 11:15	PLENARY SPEAKERS
10:00 – 10:15	<p><b>Prof. Talal Yusaf,</b> Executive Dean - Higher Education and Emerging Technologies, Aviation Australia, Queensland Government, Australia, and Professor at Central Queensland University.</p>  <p><b>Prof. Talal Yusaf</b> currently holds the position of Chief Business Development Officer at Aviation Australia, Queensland Government Australia (Aircraft Engineering, Cabin Crew &amp; Pilot Training   Aviation Australia, and Adjunct Professor at Central Queensland University. Professor Yusaf commenced his role as Pro Vice Chancellor, International and Partnership at Federation University Australia in September 2018, and was the Executive Director (International and Research Partnership) at University of Southern Queensland (2008-2018).</p> <p>Professor Yusaf's international university career has included teaching, research and management positions in Southeast Asia, the Middle East, the United Kingdom and in Queensland for the last 30 years.</p> <p>Professor Yusaf holds PhDs in renewable energy and biotechnology and has a strong research background in Alternative Fuel (Biofuel and Hydrogen) and environmental pollution, and mechanical method for water treatment. Professor Yusaf's academic qualifications include BSc (Hons) UoT Baghdad 1987, PhD1 USQ Queensland Australia and PhD2 National Uni UKM Malaysia 1999. Professor Yusaf has supervised over 50 PhD and Postgraduate students and has written and contributed to over 165 journals and 10 books.</p>



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	<p>Professor Yusaf’s professional memberships and affiliations included Deputy Vice Chancellor International Forum (Australia), Australian University International Director Forum AUIDF, Chair of QLD international Director Forum, Director, International Sponsor Engagement and Research Partnerships (ISERP), Bio-Energy Research Group Leader at the National Centre for Engineering in Agriculture Queensland. Professor Yusaf is Associate Editor-in-Chief for Energies Journal, Sustainability Journal, Applied Sciences Journal and Groundwater for Sustainable Development.</p>
<p><b>10:15 – 10:30</b></p>	<p><b>Prof. Dr. Steve Hall,</b> <b>PhD, MAppSc, BSc (Minerals Engineering), MAusIMM Dean - School of Engineering &amp; Technology CQ University Australia.</b></p> <div data-bbox="386 751 669 1083" data-label="Image"></div> <p><b>Prof. Steve Hall</b> is a metallurgical engineer with extensive mining education experience. He has research interests in socio-environmental aspects of mining, including mine closure, and technological innovations across the mining value chain. He has taught and researched in the UK, Canada and Australia. He is a member of the Australasian Institute of Mining and Metallurgy and an Academician of the Russian Academy of Mining Sciences. He is the regional representative for the World Forum of Universities of Resources on Sustainability. Steve has extensive international experience of mining and mining education, including assisting with establishment of a new School of Geology and Mining at The University of Rwanda. Steve devised and developed the first MOOC dedicated to mining in 2014-2015. The “Business of Mining” MOOC has since enrolled more than 15,000 students from over 160 countries. Steve has been more recently involved with the new UNESCO Centre for Competence in Mining Engineering Education, based in St. Petersburg, Russia.</p>
<p><b>10:30 – 10:45</b></p>	<p><b>Dr. WONG Boon Kwei,</b> <b>Shanghai shunben investment management center shanghai.</b></p> <div data-bbox="386 1486 669 1818" data-label="Image"></div> <p><b>Dr. WONG Boon Kwei</b> has earned PhD Artificial Intelligence from University of Sunderland 1992-1996 and PhD Educational Policy Studies from East China Normal University 2016-2020. Acting as an advisor to the Swiss Embassy and local investors to jointly establish the Swiss ASEAN Institute of Technology Dec 2006-Nov 2007 as well Consultant for ProHeat Heat Treatment and Precision Technology Malaysia May 2005-April 2007. He currently holds a position responsible for the establishment of colleges and universities teaching departments; implementations of academic management procedures and administrative department, education teaching and management systems as well as responsible for Academic program development. in Setting Up Shanghai Shunben Investment Management Centre.</p>



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<p><b>10:45 – 11:00</b></p>	<p><b>Prof. Ts. Ir. Dr. Kumaran Kadirgama,</b> CEng(Uk) MiMechE,ACPE Universiti Malaysia Pahang.</p>  <p><b>Prof. Ts. Ir. Dr. Kumaran Kadirgama</b> is a Professor and research fellow of Advanced Nano Coolant Lubricant Laboratory (ANCoL), UMP. He is a Professional Engineer registered under the Board of Engineers Malaysia (BEM); and a Chartered Engineer (UK) under the Institution of Mechanical Engineers (IMechE). He also a Professional Technologist (P.Tech) of Malaysia Board of Technologists (MBOT). Up to date, he has 18 years of experience in teaching and research activities in Universiti Malaysia Pahang (UMP) and University Tenaga Nasional (UNITEN). He also published and presented various technical papers and journals at an international and national level. He has an h-index of 31 with a citation of 4312. He has received grants totalling RM 6.02 million from various agencies and institutions. He has won a Gold medal in International Invention, Innovation &amp; Technology Exhibition (ITEX), Seoul International Invention Fair, Korea (SIFF), and British Invention Show (BIS). He also included in top scientist 2% in the world for 2021 and 2022 in individual and career long achievement.</p>
<p><b>11:00 – 11:15</b></p>	<p><b>Prof. Ir. Dr. Johnny Koh Siaw Paw,</b> Department of Electrical &amp; Electronic Engineering, Universiti Tenaga Nasional.</p>  <p><b>Prof. Ir. Dr. Johnny Koh Siaw Paw</b>, received the bachelor's (Hons.), M.Sc., and Ph.D. degrees in electrical and electronic engineering from Universiti Putra Malaysia, in 2000, 2002, and 2008, respectively. He is currently a Professor with the Institute of Sustainable Energy, Universiti Tenaga Nasional. His research interests include machine intelligence, automation technology, and renewable energy.</p>
<p><b>11:15 – 11:30</b></p>	<p><b>Certificates Keynotes</b></p>
<p><b>11:30 – 11:45</b></p>	<p><b>Coffee Break</b></p>



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Date	Wednesday 21th February
08:00 – 09:00	Registration
09:00 – 09:45	PLENARY SPEAKERS
09:00 – 09:15	<p><b>Dr. Ala Hasan,</b> Principal Scientist, VTT Technical Research Centre of Finland.</p> <p><b>TOPIC: Renewable Energy in Finland.</b></p> <div data-bbox="407 846 643 1115" data-label="Image"></div> <p><b>Dr. Ala Hasan</b> Is a Principal Scientist, Smart Energy and Built Environment, VTT Technical Research Centre of Finland, Finland since 2013. Doctoral degree in Mechanical Engineering, Helsinki University of Technology, Finland 2005. 14 years in Universities in Finland: 2010-2013 Aalto University &amp; 1998-2010 Helsinki University of Technology. International Recognition Within the 2% top most cited scientist in the world in my field according to classification by Elsevier BV and Stanford University, USA <a href="https://data.mendeley.com/datasets/btchxktzyw/2">https://data.mendeley.com/datasets/btchxktzyw/2</a> Excellence in research in the field of Energy in Buildings and Communities, management of research projects, winner of research funding, supervision of doctoral-degree students, teaching, leadership, service in the international scientific community and high quality publications. <b>Publications:</b> More than 120 publications in peer review international journals, international conferences, reports and books.</p>
09:15 – 09:30	<p><b>Prof. Dr. Hussein A Kazem,</b> Faculty of Engineering, Sohar University, Sohar, Oman.</p> <p><b>TOPIC: Historical Perspectives and New Horizons: The Influence of Dust on Solar Photovoltaic Module Performance.</b></p> <div data-bbox="391 1665 613 1940" data-label="Image"></div> <p><b>Prof. Dr. Hussein A. Kazem</b> holds a BSc and MSc in electrical engineering from the University of Technology (UOT), Baghdad-Iraq, and a PhD from Newcastle University (NCL), United Kingdom. From 1997 to 2002, he served as a Program Coordinator at the Faculty of Engineering, Al Tahady University, Libya. Since 2002, Hussein has been a Professor at Sohar</p>



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University (SU), Oman. He also holds the position of a visiting Professor at UKM and UNITEN - Malaysia, and Newcastle University-UK.

He serves as a member, researcher, editor, and reviewer several publishers. Hussein has organized and participated in numerous conferences, symposiums, and workshops. His scholarly contributions include more than 260 published papers in scientific journals and conferences, 60 invited talks, nine chapters, and eight books. Recognizing his exceptional research, Hussein has been honored with the SU Vice-Chancellor Award for Research, as well as national and international accolades such as the "Golden Medal Award" at Pecipta'13 in Malaysia, "The Outstanding Renewable Energy Lab Award" at the World Renewable Energy Congress 2014 in UK, "Renewable & Sustainable Energy Pioneer Award" at the World Renewable Energy Congress 2016 in Indonesia, and "Special Award of Excellence in Renewable Energy Research" at the World Renewable Energy Congress 2018 in Kingston-UK. In addition, he has received the IEEE Best Paper Award in 2021, Golden Medal Award on Malaysia Technology Expo (MTE) 2023 and holds two patents as an inventor and co-inventor. Hussein has successfully supervised and guided the graduation of more than 60 BSc, 8 MSc, and 7 PhD students.

Notably, Hussein serves as the chairman of the Renewable Energy & Sustainable Technology Research Group and leads the Generation & Storage task force in the Oman Renewable Energy Strategic Program. Furthermore, he holds the position of Associate Editor-in-Chief for the journal of Renewable Energy & Environmental Sustainability.

**Dr. Firas Basim Ismail Alnaimi,**  
**Ph.D. in Mechanical Engineering, Universiti Tenaga Nasional.**

**TOPIC: Smart Power Generation.**

**09:30 – 09:45**



**Dr. Firas Basim Ismail Alnaimi** is an Associate Professor and the driving force behind the Smart Power Generation Research Center at University Tenaga Nasional, Malaysia. With a remarkable 17+ years in academia, his expertise extends across Thermo-Fluid, Energy, and cutting-edge domains like Deep Learning Condition Monitoring and Big Data Analysis. His contributions have been pivotal in optimizing Power Plant Performance, pioneering Renewable-Smart Power Generation, and crafting innovative solutions for the Oil and Gas Industries. He has secured \$1.5M in research grants, earned 53 international awards, and successfully directed 25 impactful projects. His prolific authorship of over 150 papers in top-tier journals and influential roles in esteemed editorial boards showcase his commitment to advancing knowledge. As a Chartered Engineer with IMechE, UK, Dr. Ismail's influence extends globally, with a footprint spanning Europe, Australia, Malaysia, and the Middle East. His collaborative approach has forged meaningful alliances with consultancies, organizations, and universities. In essence, Dr. Firas Basim Ismail's journey is a testament to dedication, versatility, and global



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	impact, his research interests center around digital twin technology and digital transformation, aligning seamlessly with his enthusiasm for technological innovation and sustainable solutions.
<b>09:45 – 10:00</b>	<b>Certificates (Keynotes and Chair Committees, Researchers)</b>
<b>10:00 – 10:30</b>	<b>Poster and Innovation in the energy field</b>
<b>10:30 – 10:45</b>	<b>Coffee Break</b>
<b>10:45 – 14:00</b>	<b>Parallel Sessions</b>



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Date	Wednesday 21th February						
Time	10:45 – 13:30						
Session	#1	#2	#3	#4	#5	#6	#7
Room	No. 005	No. 006	No. 007	No. 008	No. 009	No. 010	No. 011
Track	A	B	C	D	E	F	J
Session Chair	Prof. Dr. Mohammed Hamzah Daham	Prof. Dr. Zuhair Jabbar Abdulameer	Prof. Majid Hameed Majeed	Prof. Dr. Salwan Obaid Waheed	Assist. Prof. Ahmed Sahib Ahmed	Prof. Dr. Khaled Al-Farhany	Dr. Abdulhadi Meteab Hasan Alsaadi
Session Co-chair	Assist. Prof. Tayser Sumer Gaaz	Assist. Prof. Dr. Muslim Muhsin Ali	Assist. prof. Dr. Sundus Sameer Jumaah	Dr. Mujtaba A. Flayyih	Assist. Prof. Mohammed J. Alshukri	Prof. Dr. Mohamed F Al-Dawody	Dr. Mohammed Lateef Hussein

Track name	
<b>A</b>	<b>Applications of Nanotechnology and Innovative Materials I</b>
<b>B</b>	<b>Applications of Nanotechnology and Innovative Materials II</b>
<b>C</b>	<b>Energy Conversion and Management</b>
<b>D</b>	<b>Latest Research in Applied Mechanics</b>
<b>E</b>	<b>Role of Energy in Sustainable Development I</b>
<b>F</b>	<b>Role of Energy in Sustainable Development II</b>
<b>J</b>	<b>Green House, Buildings Construction and Sustainable Cities</b>





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**Day #2 (21/2/2024)**

**Session #1**

**Room No. 005**

**Session Chair: Prof. Dr. Mohammed Hamzah Daham**

**Session Co-chair: Assistant Prof. Tayser Sumer Gaaz**

Time	Paper Title	Authors
10:45 – 11:00	The Role of Ceramic Materials in Surface Modification of Cutting Tools A- Review Paper	Wurood Asaad M, Shaimaa J. Kareem, Haydar Al-Ethari
11:00 – 11:15	Optimization of Antibacterial properties of 316 Austenitic Stainless Steel	Alaa Mohammed Hussein Wais, Abdul Raheem K.AbidAli, Ahlam Hamid Jasim, Hasan Shakir Majdi
11:15 – 11:30	Study the Structure and Properties of Tio <sub>2</sub> /HAP coating onto Ti-6Al-4V alloy using Electrophoretic Deposition	Alaa Mohammed Hussein Wais, Abdul Raheem K.AbidAli and Hasan Shakir Majdi
11:30 – 11:45	A Practical Analysis of Wire Drawing Operation Effects on The Die and Product Behaviors	Wisam Imad Adnan, Mohammed Ali Nasser and Haidar Akram Hussein
11:45 – 12:00	Surface Modification of Inert Ceramic for Orthopedics and Dentistry	Sarah Shafi Kizar and Israa K.Sabree

**Day #2 (21/2/2024)**

**Session #2**

**Room No. 006**

**Session Chair: Prof. Dr. Zuhair Jabbar Abdulameer**

**Session Co-chair: Assist. Prof. Dr. Muslim Muhsin Ali**

Time	Paper Title	Authors
10:45 – 11:00	The Effect of Adding Yttrium Oxide Nanoparticles on the Wear Resistance of Aluminum Alloy (5083)	Abdullah Dhayea Assi, Salman Hussien Omran
11:00 – 11:15	The Effect of Adding Fe <sub>2</sub> O <sub>3</sub> Nanocomposites upon Mechanical Properties, Corrosion Wear, and Estimated Fatigue Life of AA7075-T6	Salman H. Omran, Abdullah D. Assi, Nasr S. M., Ahmed A Shandookh, Azher M. Abed
11:15 – 11:30	The Structural, Magnetic, Electrochemical Properties of Composite PAni/Co <sub>0.2</sub> Mn <sub>0.8</sub> Fe <sub>2</sub> O <sub>4</sub>	Sura. Raad, Mukhlis M. Ismail, Isam M. Ibrahim
11:30 – 11:45	Enhancement of Vapor Compression Refrigeration System by Adding Different Nanofluids: A Review	Dalya Shaker Qaid



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<b>11:45 – 12:00</b>	Fabrication and Evaluation of Mechanical and Tribological Properties of Al-Foam Produced by Powder Metallurgy Route	Amir Ali Mohammed and Haidar Akram Hussein
<b>12:00 – 12:15</b>	Effect of Sustainable Materials on some Properties of Modified Reactive Powder Concrete	Rusul Hussein Saeed and Nada Mahdi Aljalawi

**Day #2 (21/2/2024)**

**Session #3**

**Room No. 007**

**Session Chair: Prof. Majid Hameed Majeed**

**Session Co-chair: Assist. prof. Dr. Sundus Sameer Jumaah**

<b>Time</b>	<b>Paper Title</b>	<b>Authors</b>
<b>10:45 – 11:00</b>	Numerical study of the effect of rotation on backward-facing step	Ghaidaa K.Rahi and Dhafer A.Hamzah
<b>11:00 – 11:15</b>	A review study on modifying vortex generators to improve thermal performance in single- and two-phase flow in circular tubes	Fawzi Sh. Alnasur and Riyadh S. Alturaihi
<b>11:15 – 11:30</b>	Assessing Indoor Air Quality Indices and Airborne Contaminant Exposure in Isolation Rooms with Protected Zone Ventilation Systems: A Comprehensive Review	Elaf Sadeq Barrak, Hasanain M. Hussain and Laith J. Habeeb
<b>11:30 – 11:45</b>	Numerical Analysis of Thermally Developing and Fully Developed Flow in Different Configurations of Microchannels	Ghufran Kadhim and Ahmed Al-Saadi
<b>11:45 – 12:00</b>	Thermal Stratification Efficiency in Solar Water Storage Tanks through Inlet Port Diffuser Optimization during Charge and Discharge Processes	Authors: Elaf Sadeq Barrak, Karrar A. Hammoodi and Ahmed Mouthanna
<b>12:00 – 13:00</b>	An Investigation of the Effect of Split and Timing Injection Techniques on the RCCI (reactivity-controlled Compression Ignition) Engine Fueled by Diesel and Biodiesel	Nhad K. Frhan Al-Abboodi, Alaa R. Al-Badri and Ali A. Abdulsaeed



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**Day #2 (21/2/2024)**

**Session #4**

**Room No. 008**

**Session Chair: Prof. Dr. Salwan Obaid Waheed**

**Session Co-chair: Dr. Mujtaba A. Flayyih**

Time	Paper Title	Authors
10:45 – 11:00	An Investigation of the Design Mechanical Performance of Belleville Spring	Noor Alhuda Hayder Ali, Mohammed Ali Nasser and Khudhayer J. jadee
11:00 – 11:15	A Numerical Assessment of the Belleville Spring Strength Behaviour	Nour Alhuda Hayder Ali, Mohammed Ali Nasser, Khudaiyer Jawell Judaa
11:30 – 11:45	Enhancement Thermal Transmission for Cross-Flow Heat Exchanger by Using Triangular Fins Experimentally	Shatha Ali Merdan, Zena Khalefa Kadhim, Ali Arkan Alwan
11:45 – 12:00	A New Main Matrix to Find the Principal Stresses, Strains and the Max. Shear Stress, Strain by MATLAB Simulation	Abdullah Dhayea Assi
12:00 – 12:15	Preparation of electrospun Styrofoam membranes for hydrogen fuel cells	Noor M. Jalal, D.Zainab.abdali and Roaa S. Mahmood
12:15 – 12:30	Sustainable Design of Concrete Channel under Turbulence Flow and Abrupt Change of Bed Roughness	Riyadh Alsultani, Ahmed Ashor Al-Saadi, Omran issa Mohammed, Jaafar S. Maatooq, Najah M. L. Al Maimuri

**Day #2 (21/2/2024)**

**Session #5**

**Room No. 009**

**Session Chair: Assist. Prof. Sahib Ahmed**

**Session Co-chair: Assist. Prof. Mohammed J. Alshukri**

Time	Paper Title	Authors
10:45 – 11:00	Design a Hybrid Energy Harvesting System for a Wireless Sensor Network	Hassanin Falah Abdul Hassan and Issa Ahmed Abed
11:00 – 11:15	Design and Development of Natural Lighting System in Modern Malaysian Building	Firas Basim Ismail, Muhammad Faizul Izzuan, Abdulkareem Abdulwahab, Hussein A. Kazem, Miqdam T. Chaichan, Muhammad Aqil Afham Rahmat
11:15 – 11:30	Defect and Thickness Optimization of Perovskite for High Efficiency Solar Cells	Murtadha Jameel Edam, Samir Mahdi AbdulMohsin, Hawraa Mohammed Khadier, Baraa Hadi Auad and Dhuha Emad Tarek



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<b>11:30 – 11:45</b>	Malaysian rainwater harvesting system for in-house power generation	Firas Basim Ismail, Muhammad Idzmir Fahmy, Azher M. Abed, Hussein A. Kazem, Miqdam T. Chaichan, Muhammad Aqil Afham Rahmat
<b>11:45 – 12:00</b>	Estimating Monthly Average Daily Solar Irradiance on a Horizontal Surface in Malaysia using Photovoltaic Cells	Tayser Sumer Gaaz, Ahed Hameed Jaz and Ahmed A. Alamiery

**Day #2 (21/2/2024)**

**Session #6**

**Room No. 010**

**Session Chair: Prof. Dr. Khaled Al-Farhany**

**Session Co-chair: Prof. Dr. Mohamed F Al-Dawody**

Time	Paper Title	Authors
<b>10:45 – 11:00</b>	Navigation for Mobile Robot Using Optimization Algorithms with Static and Dynamic Obstacle Avoidance	Shahad M. Majeed, Issa Ahmed Abed, Alaa A. Al-Saffar, Azher M. Abed
<b>11:00 – 11:15</b>	Design of Solar System Using Gorilla Troop's Optimization Algorithm Based-PID Controller	Kadhim Sabah Rahimah, Issa Ahmed Abed, Azher M. Abed
<b>11:15 – 11:30</b>	Employing clean energies in the design of contemporary buildings	Maysaa Mofteq Alobaidi, Luma Mohemmed Yahya
<b>11:30 – 11:45</b>	Sustainable Development Dimensions of Renewable Energy Production in Iraq for the Period 2004-2022	Shatha Salem Dily, Haidar Ali Al Dulaimi and Munaf marza neama
<b>11:45 – 12:00</b>	Experimental Study and Performance Analysis of Thermoelectric Cooler Using Solar Photovoltaic Energy	Noor Al-huda A.T. and Ali A. F. Al-Hamadani
<b>12:00 – 12:15</b>	Enhancing Efficiency of Rural Cooking Stove: Numerical and Experimental Validation of Design and Development	Firas Basim Ismail, Kareena Balan, Abdulkareem Abdulwahab, Hussain A. Kazem, Miqdam T. Chaichan, Muhammad Aqil Afham Rahmat



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**Day #2 (21/2/2024)**

**Session #7**

**Room No. 011**

**Session Chair: Dr. Abdulhadi Meteab Hasan Alsaadi**

**Session Co-chair: Dr. Mohammed Lateef Hussein**

<b>Time</b>	<b>Paper Title</b>	<b>Authors</b>
<b>10:45 – 11:00</b>	Behavior of Reactive powder concrete covering quartz powder strengthened by electrical waste copper wire fiber	Saif Ibrahim Hendi and Nada Mahdi Aljalawi
<b>11:00 – 11:15</b>	Effect of sustainable fibres on properties of structural perlite concrete containing local, sustainable materials	Ahmed Jasim Qasim and Nada Mahdi Fawzi
<b>11:15 – 11:30</b>	Effect of Carbon Fibers on Some Properties of Pervious Concrete Containing Brick Waste	Demoa Jawad Kazem and Nada Mahdi Aljalawi
<b>11:30 – 11:45</b>	Performance of Beams Incorporating Geopolymer and FRP Bars: A review	Ahlam Jebur Kadhim and Othman Hameed Zinkaah
<b>11:45 – 12:00</b>	Exploring Sustainable Building Practices: Utilizing Olive Stone Waste and Crushed Glass in concrete Mixtures	Mais A. Abdulkarem, Dalia Adil Rasool and Baydaa Jabber Nabhan
<b>12:00 – 13:00</b>	The Impact of Energy Production and Climate Change on the Sustainability of Infrastructure:	Riyadh Alsultani; Ahmed Ashoor; Ibtisam R. Karim; Saleh I. Khasaf