

AI & Emerging Technologies for a Net-Zero Future

The Third International Conference on Environmental Sciences and Engineering for Sustainable Development

EESD 2026



February 2026



Radisson Blu Hotel & Resort, Sohar



Under the patronage of His Highness Sayyid Fahr Bin Fatik Bin Fahr Al Said

Conference Program

Venue: Radisson Blu Hotel & Resort, Sohar

Day 1: 11th February 2026

08:00-9:00 AM	Registration and Socializing Time
Conference Inauguration	
Venue: Omana Ballroom, Radisson Blu Hotel & Resort, Sohar	
09:00 - 9:05 AM	Oman National Anthem
09:05 - 9:10 AM	Holy Quran
09.10 - 9.20 AM	Conference Inaugural Address H.E. Dr. Said Hamed Al Rubaii Vice Chancellor, University of Technology and Applied Sciences, Sultanate of Oman
09.20 - 9.30 AM	Introductory Video
09.30 – 09.50 AM	Keynote Speaker Address 1: The role of mixed convective heat transfer in sustainable engineering Dr Marillze Everts University College London, United Kingdom
09.50 -10:10 AM	Keynote Speaker Address 2: Advanced AI and Global Supply Chain Resilience, Implications for Emerging Economies Prof. Vector Gekara RMIT University, Melbourne
10.10 -10.30 AM	Keynote Speaker Address 3: Design and Performance of Sustainable Composite Materials for Marine and Aerospace Net-Zero Applications Prof. Mohamed Sahbi Loukil Linköping University, Sweden
10.30 – 10.55 AM	Roundtable Discussion Facilitator: Dr. Ali Al Alawi, PDO
10.55 – 11.10 AM	Honoring the Guests and Closing of the Inaugural ceremony
11.10 AM – 12.00 Noon Coffee Break	
12.00 – 01.30 PM Poster Session P1 and 12.30 PM – 02.00 PM Lunch	



Poster Session P1: AI & IoT in Environment & Sustainable Development and Circular Economy
Venue: Omana Ballroom Foyer, Radisson Blu Hotel & Resort, Sohar

Poster Session P1	
Session Chair: Dr Karthikeyan Co-chairs: Dr Vishnu and Mr. Viswan	
Introduction	
12.00 – 01.30 PM	P1008 AI-Driven Indoor Surveillance for Predicting Robbery Behavior: Advancing Oman Vision 2040's Safe Society Goals Mohammed Maqsood
	P1067 Machine Learning based Investigation and Optimization of Electric and Magnetic Field Profiles in Power Distribution Networks Aysha Al Ghaithi, Ali Husain Ali Al-Quteiti, Bedoor Hilal Al Mamari, Feras Yaqoob Al-Balushi, Lina Al Badi, Maan Rashid Ali Al Saadi, Maha Yaqoob Al-Shirawi, Rawan Khudeem Al Amrani, Shaik Saleem
	P1085 Design and Development of a Smart System for Sustainable Agriculture In Oman Saif Ali Saif Al Maqbali, Mohammed Khaled Said Al Fuleiti, Khaled Mohammed Saif Al Risi, Hamed Said Hamed Al Saadi, Ghassan Saleh Salem Al Musallami, Abdallah Said Abdallah Al Shidi, Vishnupriyan Sethumadhavan
	P1088 IoT-Enabled Smart School Bus Monitoring and Notification System Powered by Renewable Energy Shamma Al-sawafi, Al Zahra Abdullah Humaid Al Nofali, Ammar Nasser Dhahi Al Jabri, Said Abdullah Said Salem Al Shukeili, Sheikha Said Salem Al Buraiki
	P1101 Integration of 3D Printing and Arduino in the Fabrication of a Sustainable Plant Irrigation System Alzubair Said Alsalhi, Mudreek Khalifa Albakri, Ibrahim Nasser Albattashi, Abdullah Said Almqbali



P1108	AI Enhanced Smart Pen for Real-Time Handwritten Calculation May Abdullah Juma Al Hajri, Noor Alhuda Abdul Rahman Salim Al Abri, Thirumurugan Shanmugam
P1113	Digital Twin Applications in Oil and Gas ICS/OT Infrastructure Khalifa Juma Mohammed Al Balushi, Amira Hamed Khalifa Al-Hosni, Mohamed Sadiq
P1114	Securing Communication Networks in Smart and Connected Critical Infrastructure Systems Khalifa Juma Mohammed Al Balushi, Amira Hamed Khalifa Al-Hosni, Karthikeyan Subramanian
P1116	OWLEDGE-IoT: An Explainable, Low-Power IoT Architecture for Early Detection of Water Losses in Oman Samiya Mohammed, Shatha Waleed, Sara Mariyam Ali, Hiba Abdul Samad
P1132	IoT-Based Electrical Fault Detection for Equipment Located in Remote Areas Saud Salim Marghoud Al-Salti, Yahya Zakariya Khalifa Al-Muharrmi, Khalid Saleh Said Bani-Oraba, Ragavesh Dhandapani,
P1141	Microgrid Master Controller – A Laboratory Model Saja Mohammed Sulaiman Al Hamdani, Tasnim Nadir Jaafar Al Ajmi, Qusai Ahmed Hamed Al Nabhani, Ahmed Hamdan Muhanna ALNofli, Usama Aziz Alsajir Al Aamri, Ahmed Mohammed Nasser Al Mezeini, Shama Salem Abdullah Al Belushi, Sasidharan Sreedharan
P1142	Smart Eco House – A Laboratory Model Sreedharan Sasidharan, Sajan John

P1032	Aerodynamic Performance of Archimedes Spiral Wind Turbines under Different Blade Angles Asma Said Almoqbali,* , Hamad Khalfan Almoqbali , Bader Humoud Alsakeiti , Yassin Adil Alsafie, Shaimaa Khalifa Almasuodi , Abdulrahman Nassser Almoqbali, Saad A. Mutasher AI Implementation of iNav in the Design and Installation of an Unmanned Aerial Vehicle (UAV) for Search and Rescue Missions during Natural i 064
P1061	Food Waste into Energy Using Smart Anaerobic Bacterial Digester (ABD) Sultan Hamood Khalfan Al-Ghaithi*,Ahmed HashelSalem Al-Mufarji,Atheer Abdullah Salem AL-Hosni, Omar Khamis Abdullah AL-Mamari, Al-Shimaa Saeed Al-Qatiti, Abdullah Ahmed Abdullah AL-Amri, K. Baskaran
P1069	Green Conversion of Desalination Reject Water into Value-Added Chemicals Allan Jon, Ashwaq Qasim Mohammed Al Jabri, Maryam Khalifa Abdallah Al Jabri, Amal Said Marhoun Salem Al Maamari, Alazhar Yaqoub Al Rwahi, Hajer ALBadi, Senthilkumar Ramalingham
P1072	Design and Implementation of an Inverter System for a Ducted Archimedes Wind Turbine (DAWT) Mahad Alkalbani, Mosa Saif Al-Shuhoumi, Bedoor Khalifa Al-Maqbali, Mohammed Taleb Al-Harmali, Fatma Almatani, Usama Salem Al-Sideiri, Amjad Ali Al-Saidi, Magdy Saoudi
P1091	Evaluating Lithium-Ion and Vanadium Redox Flow Battery Systems for Peak Shaving in a 500 MW PV Plant: A Techno-Economic Study for Oman's Grid Nuha Al Awaisi
P1096	EVs as Synthetic Inertia Providers: A Review of Control, Degradation, and User Participation Abdulrahman Al Azzawi, Mohammed Al Farsi, Saleh Al Aرامي
P1097	Sustainability Consideration in Green Buildings in Oman: A Review Shakila Javed, Javed Akhtar, Alwaleed Darwish Ahmed Al-Wahaibi, Humaid Hamood Humaid Al-Harhi
P1098	Sustainable Valorization of Spent Coffee Grounds into Activated Carbon for Circular Economy and Net-Zero Strategies Manar Al Attar, Anfal Al Shezawi, Tahereh Jafary, Anteneh Mesfin Yeneneh
P1122	Analysis of Dust Impact on the Output of the PV panels Maher Nisa, Fatema Ismail Abdullah Al Balushi, Azza Saif Al Shibli, Parmal Singh Solanki
P1107	The Accidental Therapist: Evaluating the Viability of Generative AI for Emotional Support Sree Mugh Chandrasekar,Logina El Kazzaz, Ohoud Al-Badi,Thirumurugan Shanmugam

Technical Sessions T1, T2

Theme	T1: AI and IoT Applications in Environment and Sustainable Development I	T2: Engineering Design to Serve Sustainability Purposes
	Venue: Omana Ballroom 2, Radisson Blu Hotel & Resort, Sohar	Venue: Omana Ballroom 3, Radisson Blu Hotel & Resort, Sohar
	Session Chair: Dr Mohammed Mihoub Co-chairs: Dr. Faizal Hajamohedeen and & Mr Mustafa Al Nabhani	Session Chair: Dr. Saad Al Jabri Co-chairs: Ms. Iman Juma Al Feteisi
	Introduction	Introduction
02.00 PM – 03.45 PM	T1001 An AI big data approach for Fault Prediction and Grid Healing in Smart Microgrid Sasidharan Sreedharan, Parmal Singh Solanki, Magdy Saoudi	T2015 Experimental Evaluation of a Continuous-Flow Photocatalytic Reactor for Azo Dye Degradation Using a Hybrid Nanocomposite of TiO ₂ Nanoparticles and ZnO/Graphene/Fe ₃ O ₄ Mohamed S Mahmoud
	T1010 Design of Green Composite Materials using Artificial Intelligence Based Design and Optimization Govindarajan Lakshmanarao, Khalifa Al-Jabri, Senthilkumar Ramalingham, Saravana Kumar Krishnan, Ashish M Gujrathi	T2104 Design and Development of a Solar-Powered Smart Plastic Waste (PET Bottle) Shredding System for Campus Sustainability Rahila.Begum Gadi, Emanuel O. Rances, Asadahamad S. Dayma

	T1011	Federated Learning Framework for Monitoring Carbon Emissions Toward Oman's Net-Zero 2050 Vision Nadia Alshibli	T2035	Development of a Tailstock-Mounted Die Holder to Enhance Hands-On Learning in Technical and Special-Education Workshops Mustafa Al-Nabhani, Faisal Alqutaiti, Sultan Al Khudhuri
	T1068	Short-Time Load Forecasting for 33/11kV Distribution Substation Using XGBoost Abdul Saleem Shaik, Ahmed Khalifa Khamis Al Sideiri, Ahmed Mohammed Mubarak Al Yahyaai, Marwan Saif Salim Al Fudhaili	T2140	Sustainable fabrication and surface morphological studies of biodegradable nanothin films for food packaging application Sreehari Vellora Madathil, Geetha Devi, S Rajesh
	T1037	A Hybrid IoT–Machine Learning System for Predictive Indoor Air Quality Assessment and Intelligent Environmental Control in Academic Facilities Analene Montesines Nagayo, Mahmood Zayid Al Ajmi, Naga Rama Krishna Guduri, Emanuel Rances, Rolando V. Cabais	T2139	Design and Fabrication of a Die for the Process Equal Channel Angular Extrusion (ECAE) and the Application of ECAE for Aluminum Alloy Electrical Conductors Alyaqthan Allamki

3.30 – 4.00 PM Tea Break

Technical Sessions T3, T4

Theme	T3: AI and IoT Applications in Environment and Sustainable Development II		T4: Renewable Energy & Circular Economy	
	Venue: Omana Ballroom 2, Radisson Blu Hotel & Resort, Sohar		Venue: Omana Ballroom 3, Radisson Blu Hotel & Resort, Sohar	
	Session Chair: Dr. Thirumurugan Shanmugam Co-chair: Dr Solanki		Session Chair: Dr. Magdy Saudi Co-chair: Dr. Shaik	
	Introduction		Introduction	
04.00 PM – 05.30 PM	T3089	Interpretable Deep Learning for Intracranial Hemorrhage Detection: A GradCAM Analysis on CT Images Viswan Vimbi, Karthikeyan Subramanian, Faizal Hajamohideen, Ibrahim Al Shezawi, Noushath Shaffi	T4156	Catalytic Enhancement of Bio-Oil formation in Hydrothermal Liquefaction Interpreted through Shrinking Core Kinetics Thirumalaikumar R, Senthilkumar Ramalingham, V.Jaikumar, Faizal Rashid Al-Marzuqi, Anteneh Yeneneh, K.SaravanaKumar
	T3046	Technological Advancements in Addressing Cyber - Security Measures in Distributed Energy Resource Management Systems and Suggested Solutions with Integration of Artificial Intelligence Sindhu S Nair	T4004	Design, Analysis, and Development of a Plastic Crusher for Recycling Saad A. Mutasher Al Jaberi
	T3050	AI-Driven Multi-Objective Optimization for Performance Optimization of a Blade-Defective Wind Turbine Abdulhamid Al-Hinai, Khadersab Adamsab	T4044	Solar-Powered Green Ammonia Production: Process Simulation and Energy Optimization using DWSIM Uma Reddy, Sivamani Selvaraju, Naveen Prasad

	T3038	Development of a Microbial Fuel Cell–Based IoT Biosensor for Real-Time COD Monitoring in Smart Water Systems Maira Al Qaidi, Tahereh Jafary	T4144	CFD Based Study on Wind Turbine Layout Optimization and Yaw Control for Wake Mitigation in the Dhofar Wind Farm Faisal Alqutati, Mustafa Alnabhani, Alyaqadhan Allamki
	T3103	Explainable Ensemble Machine Learning for Sustainable Predictive Maintenance of Computer Systems Analene Montesines Nagayo, Fred A. Cabas, Emanuel Rances		

Online Session 01: Environmental Sustainability Using Latest Technology

Meeting ID: 342 663 398 761 62

Passcode: ZU72Mp7T

Link: [EESD 2026 Online Session 1 | Meeting-Join | Microsoft Teams](#)



Online Session 01

Venue: Al Anoud Ballroom, Radisson Blu Hotel & Resort, Sohar

Session Chair: Dr. Al Yaqthan Allamki

Co-chair: Ms. Hamida Al Mamari & Mr Faisal Al Qutaiti

Introduction

12.00 PM –
01.30 PM

O1003	Numerical and experimental validation of solidification process enhancement of double coils latent heat storage units Anees Khadom, Aya Mahmood Nsaif
O1007	Simulation of a Variable-Load Cogeneration Plant for an Industrial Ecozone Park: Power and Steam for Industrial Process Gat Laya De Guia, Jaime Honra
O1009	Thermodynamic Analysis and Simulation of a Regenerative Gas Refrigeration System Mc. Luginn Seña, Jaime Honra

O1012	Maize (<i>Zea mays</i> L.) productivity and profitability response to inorganic N-P nutrients, biochar and vermicompost levels in acidic soils of Northwestern Ethiopia Habtamu Belay, Tesfaye Feyisa
O1017	Energy Harvesting from Waste Gokul S Narayanan, Roshin, Mohammed Shadily, Amal Raj N, Muhammed Shahin
O1020	Enhancing Transparency Using Blockchain Technology Implementation in Green Hydrogen Supply Chain Finance Resista Vikaliana, Heru Satria Rukmana, Fika Aryani, Siti Mariam, Eric Hermawan
O1024	GIS-Based Ward-Level Spatial Assessment of Urban Air Quality for Monitoring Sustainable Development Goal Target 11.6.2 Priyanka Kumaravel, Velkennedy
O1025	Development of the Optimal Composition of Concrete Mixes Based on Limestone Shell Rock Waste Kamshat Jumasheva, Zhailkhan Nuradin
O1031	Geo-Epidemiological Analysis of Malaria Cool and Hotspots in the Sahelian Drylands of Nigeria Usman Adamu, Mohammed Baba-Adamu, Modibbo Babagana, Usman Mohammed-Taa, Tijjani Bukar-Lawan, Ahmed Mamman-Adamu
T2016	Condition monitoring of Power transformers Syed Aqeel Ashraf, Aejaz Masood, Parmal Singh Solanki, Ch.Venkateswara Rao, Nurul H. Shaikh



	T1033	AI-Driven Wastewater Treatment Pathways Toward Zero-Liquid-Discharge in Lignocellulosic Biorefineries Rakesh Namdeti
	T1018	Oman's Strategic Leap toward a Resilient Energy Future Integrating AI Venkateswara Rao Chinnapuvvula

End of Day 1 Programs



Day 2: 12th February 2026

Venue: Omana Ballroom, Radisson Blu Hotel & Resort, Sohar

8:30-9:30 AM	Registration and Socializing Time
09.30 – 09.55 AM	Plenary Session 1: Sustainability in Sohar Aluminum: Practices and Experience Sharing Eng. Sultan Al Ressai Sohar Aluminum
09.55 - 10.20 AM	Plenary Session 2: Madayen Towards Sustainable Future: Commitment for Net Zero Carbon Emissions Eng. Ibtisam Al Shanfari Madayen
10.20 – 10.45 AM	Plenary Session 3: Smart Aquaponic Systems for Sustainable Food Production in Oman: A Case Study Ms. Ahlam Sulieman Al Kharusi Marine Science Center, Sultan Qaboos University
10.45 – 11.00 AM	Q&A Session
11.00 – 11.30 AM	Coffee Break
11.00 – 12.30 PM Poster Session P2 and 12.00 – 01.30 PM Lunch	



**Poster Session P2: Application of Engineering Design, Materials Sciences,
Renewable Energy to Achieve Serve Sustainability & Circular Economy**

Venue: Omana Ballroom Foyer, Radisson Blu Hotel & Resort, Sohar

11.00 AM – 12.30 PM	Poster Session P2	
	Session Chair: Dr Afaf	
	Co-chairs: Dr. Abdul Karim & Ms Salwa Al Maamri	
	Introduction	
	P2084	Facile Synthesis of Iron oxide Nanoparticles from Omani Alovera leaf extracts for Oily Wastewater Treatment Asil Dawood Al Ajmi * , Arwa Hamed Al Rubaie , Noor Khalifa Al Hatmi , Geetha Devi
	P2119	Utilization of Lime Purge Waste from Desalination Plants for Sustainable Carbon Capture Using a Solar-Driven Spray Reaction System Raytha Fadhil Al-mamari , Fatma Abdullah Al-ghaithi , Sharifa Talib Al-balushi , Fadwa Abdulaziz Al-masoudi , Roqaya Said Al-fathi , Mohamed S Mohamoud
P2014	Functionalize Activated Carbon for Efficient Adsorptive Removal of Methyl Orange from Aqueous Solution Yaqeen Sulaiman Al Akhzami , Amirah Yahya Al Battashi , Bayan Ali Al Shahi , Mahrah Khamis Abdullah Abdul Baqi	
P2022	RO membrane recycling to UF for industrial uses Asma Nasser Al Saadi , Alanood Nasser Al Hamadani , Mitha Saleh Al Mamaari , Johaina Ahmed Al Mamaari , Aya Hamed Al Maqbali , Asma Al Kharusi	
P2026	Computational Approaches To Hydrogen Storage In High-entropy Alloys Asma AL-hattali , Nouf AL-Rajhi , Wejdan AL-Isaee , Waad Al-Saadi , Eman AL-Mamari , Afaf Qais Abadi Ahmed	

	P2074	Design and Development of a Solar-Powered Wireless Charging Station for Electric Vehicles Esra Alhinai, Ibrahim Anas Al-Abdulslam, Abdullah Jamal Alshehhi, Ishraq Abdulrahman Alshezawi, Mohammed Khalifa Alhatmi
	P2078	Enhanced Infiltration Capacity of Cementitious Materials for Stormwater Management Lujain Alrahbi, Althuraiya Badar Nasser Alhasni
	P2079	Implementation of iNav in the Design and Installation of an Unmanned Aerial Vehicle for rescue missions during natural disasters Abduljalil Al Fahdi
	P2087	Design and Fabrication of an Automated Machine for Preparing Traditional Omani Arsiya Abdulla Said Al Maqbali , Mohammed Salem Al Hamadani , Hatem Ahmed Al Balushi, Ishaq Saif Aldhabouni , Mohammed Said AlMufarji, Bassam Khalid Al Naab, Mustafa Sulaiman Al Nabhani
	P2092	A Simulation-Based Assessment of Courtyard Shading and Thermal Comfort Informing A 'Daylightophilia' Sustainable Design Concept at The University of Nizwa New Campus Noof Al Asri Al Dhaani, Mohammed Faisal Al Kaze
	P2093	Condition Monitoring of Distribution Transformer at Local Utility using Gasses Liberated from Transformer Oil Anaam Al-Mamari*, Aryam Al-Mezeini, Zamzam Al-Kalbani, Israa Al-Sakeiti, Al Yaqdhan Al-Adawi, Said Al-Khaldi, Al Muntaser Billh Al-Subh, Parmal Singh Solanki
	P2095	Simulation-Based Design of Plantation Shading Strategies for Heat Mitigation in Campus Parking Areas: A Case Study of Nizwa University Lamyaa Amur Saif AL Jahwari*, Mohammed Faisal Ghazi AL Kaze
	P2124	Design, Mixing Performance, and Mass-Transfer Evaluation of a Thermophilic Bioreactor System Raghad Khamis Salim Juma Al Zahibi, Aisha Almarzouqi, Aayah Mohammed Ahmed Al-Shibli, Kawther Khamis Rashid Al Abri, Najya Mohammed Khalfan Al Jahwari, Tarteel Khalid Yahya Al-Naabiya, Saravana Kumar Krishnan
	P2149	AI-Driven Specimen Classification and Measurement System Ragavesh Dhandapani, Malak Salim

P2030	Use of Additive to Study the Physical Properties of Cohesion Soil Safa Said Mohammed aladawi, Alaa Said Nasser alkindi
P2137	A Comprehensive Review of the Design and Fabrication of Polymeric Nano/Micro Composites: Foaming Processes and Their Impact on Material Performance Said Al Mufarraj, Farooq Al Jahwari, Tasneem Pervez, Moosa Salim Al Kharusi
P2006	Sustainability Comparison of Petrol Vehicles (ICEVs), Electric Vehicles (EVs), And Hydrogen Fuel Cell Vehicles (HFCVs) Using the Analytic Hierarchy Process (AHP) Jaber Al Maawali, Ayad Yaqoob Al Siyabi, Alyaman Mohammed Al Salmi, Hamza Darwish Al Mahrouqi
P2110	Phase-Specific Dynamics and Transformation of Microplastics During Windrow Composting in Arid Environments Abrar Al Aamri, Zeinab Yavari, Mohammad Reza Nikoo, Mohammed Al-abri
P2100	Autonomous waste detection and classification for nuclear environments using YOLOv4 deep learning algorithm Salim Al Hamdani
P2071	AI-Enabled Robotic System for Date Palm Harvesting and Pest Detection Sumaya Ali Al-Maktoumi*, Moza Al- Kathiri, Al Batul Al-Buloshi, Khulood Al-Abri, Hassan Alyahyai, Hawra Alajmi, Saud Albahri
P2135	Secure Edge Gateway for IoT Data Integrity and Real-Time Anomaly Detection Ali Al-Balushi, Ali Ibrahim Al Maaini, Shihab Hussain Al Balushi, Thirumurugan Shanmugam,
P2041	Testing the Efficiency of Natural Coagulants in Turbid Water Fathima Faizal, Saraah Khan, Hana Damudi, Sabira Seni

Technical Sessions T5, T6

Theme	T5: AI and IoT Applications in Environment and Sustainable Development III	T6: Materials Science & its Applications for Sustainability
	Venue: Omana Ballroom 2, Radisson Blu Hotel & Resort, Sohar	Venue: Omana Ballroom 3, Radisson Blu Hotel & Resort, Sohar
	Session Chair: Dr Yasmeen Al Sehhi Co-chair: Dr. Rasha & Dr Ilyes	Session Chair: Dr Mohamed Salah Co-chairs: Dr Shihab & Ms Asmaa AL Kharusi
11.00 AM – 12.30 PM	Introduction	Introduction
	T5106 Machine Learning-Based Prediction of Extremely Low Frequency Electromagnetic Fields from 220 kV Transmission Lines: A Data-Driven Approach for Safety Compliance in Oman Abdul Saleem Shaik	T6013 Performance Studies on Sustainable Roofing System Manjunath S Amalkar, Niyanth G V, Somanath M Basutkar, K Madhavi, Javed Akhtar, M V Renuka Devi
	T5109 Deep Learning Across Image and Tabular modalities for sustainable development applications Thirumurugan Shanmugam, Keshika Subhashini Thirumurugan, Viswan Vimbi	T6154 Material Degradation of Stainless Steel under Simulated Algal HTL Conditions Thirumalaikumar R
	T5121 Development of Wavelet Neural Network Denoising Model for MEMS INS/GNSS Integrated System and Application to LiDAR Mobile Mapping Mohammed El-Diasty, Nasir Al-Shereiqi, Ghazi Al-Rawas	T6043 AI-Driven Hydro-Geomechanical Water Quality Prediction Using AFSO-Optimized LSTM for Assessing Micro–Macro Impacts on Geomaterials Divyajyothi M G, Rachappa Jopate

T5123	An Explainable Deep Learning Framework for Intelligent Fish Feeding Systems Nazih Aloui, Shihab AL-Hasni	T6055	Green Nanotechnology mediated Antimicrobial Activity of Copper oxide Nanoparticles synthesized from Omani Curcas bean Leaf extract Geetha Devi, Mallak Mohammed Sarahan Al Mazroui, Anwar Mohammed Ali Hamed Al Abdali, Sultan Majid Khalfan Al Alawi
T5146	Prediction of e-Waste in Oman based on Exponential growth model with solutions in AI Prince William, Fadlemoula Baloul, Ahmed Al-Amayreh. Jaffar Ali, Senthilkumar Ramalingham	T6062	Development of Sustainable Anti-corrosive Smart Composite Coating on External surface of Carbon Steel Pipeline Geetha Devi, Thekra Said AL Mufarji, Maathir Said AL Qamshouai, Safyia Mohhamed AL Rubaie, Alya Ghalib Al Jabri
T5151	A Systematic Review of Machine Learning Techniques for Downscaling GRACE-derived Groundwater Storage Mohammed Al Nadabi, Mohammed El-Diasty, Talal Etri, Mohammad Reza Nikoo	T6117	Capacitance and Dielectric properties of cerium phosphoarsinate glasses Ehab Abdelhamed

Technical Sessions T7, T8

Technical Sessions T7, T8				
Theme	T7: Carbon Neutrality, Pollution & Carbon Emission Management I		T8: Carbon Neutrality, Pollution & Carbon Emission Management II	
01.30 PM – 03.15 PM	Venue: Omana Ballroom, Radisson Blu Hotel & Resort, Sohar		Venue: Omana Ballroom, Radisson Blu Hotel & Resort, Sohar	
	Session Chair: Dr Kumar Co-chair: Dr Ehab Abdel Hameed		Session Chair: Dr Rajan Co-chair: Dr Sasi	
	Introduction		Introduction	
	T7027	Intensified removal of Methylene orange dye using cost-effective Dhofar based tree leaves (<i>Anogeissus dhofarica</i>) using Bio-sorption Nachiappan Senthilnathan, Noor Qahoo, Ahlam Adel, Alzahra Anwar Shaikh Al Dhahab, Hana Bakhit Said Ghafram Al Shahri, Radina oammed Ahmed Ba Qaweer, Jayakaran Pachiyappan	T8127	Toward Sustainable 2D Materials: Transforming CO ₂ into Graphene via Advanced Catalyst Design Prema Binnal
T7120	Monitoring the Thermal Condition of Organic PCM Solar Panels in Oman with a Parrot Anafi Drone Karimulla Syed*, Khadija al Farsi, Ahmed Al Lawati, Al Anoud Al Saidi, Nabhan Al Saidi	T8136	Evolutionary Optimization of the Industrial Carbon Capture Process towards Carbon Neutrality Swaprabha P. Patel, Ashish M Gujrathi, Piyush B. Vanzara	

	T7036	Path forward to Oman net zero 2050 Maan Hayyan	T8153	A Comparative Analysis of the Performance and Cost of Bentonite-Water and Silica Gel-Water Working Pairs for Adsorption Cooling and Desalination Applications in Oman. Shihab Alhasni, Abdullah Ahmed Bawazir, Khadija Murshid ALBalushi
	T7049	Advancements in Renewable Energy Technologies and Data Augmentation Strategies for Developing Carbon Neutrality Pathways Khadersab Adamsab, Abdulhamid Al-Hinai	T8150	A Deep Learning-Based System for Multi-Lane, Vehicle-Type Traffic Counting using Real-Time Video Analysis Ragavesh,Ulla Al Jabri, Shuhd Al Busaidiya, Bader Alasali
	T7075	Bridging Adaptation and Mitigation in the Built Environment Wilbur Wilson	T8023	AI and Human Behavior in Sustainable Construction: Driving Societal Change Toward a Net-Zero Oman Future Gerry Manglicmot
			T8073	Development of a Sustainable and Cost-effective Produced Water treatment in the Lekhwair Field water injection system at Petroleum Development Oman Ebrahim Alsiyabi



Online Session 02: Environmental Sustainability Using Latest Technology

Meeting ID: 398 971 623 941 39

Passcode: 53yv7Z3o

Link: [EESD 2026 Online Session 2 | Meeting-Join | Microsoft Teams](#)



11.00 AM – 01.00 PM	Online Session 02	
	Venue: Anoud Ballroom, Radisson Blu Hotel Session Chair: Dr Baskaran Co Chair: Ms Ahoud Al Hamadani.	
	Introduction	
	O2052	A Scalable Biogas-to-Electricity System for Campus food Waste Management Renuka T K, Mohammed Nasim K, Mohammed Sahal K P, Fathima Shafila K, Kadeeja Feba U, Maya G
O2059	Designing Next-Generation Hydrogen Storage Materials: A Computational Exploration of High Entropy Alloy Nihad Omer Hassan	

	O2060	Supercapacitor/Battery Hybrid Powered Electric Bicycle via BLDC Drive for Sustainable Transportation Karthick V, Nesihath M K, Aseem Akthar, Fathima Sahla TP, Adhithyan ET, Muhammed Valeed
	O2065	Solar Powered Agricultural AI Robot Jishnu A, Nishada K
	O2066	Self-Supported molybdenum sulphoselenide catalyst for high-Performance electrochemical hydrogen production Ranjith Bose, Sathiyamoorthy Manickkam, Nicky Rahmana Putra, Sara Mohamed Abdulla Saeed Almarzooqi, Aysha Ajlan Mohamed Dhaiban Almansoori, Maitha Al Mazrouie, Reem Rashed Ahmed Saeed Almansoori, Shaikha Sultan Mohamed Aldhahak Almansoori
	O2082	Intelligent network management with the presence of batteries and electric vehicle charging stations and considering charging and discharging Wedad Al Shibli, Hossein Askarian-Abyaneh
	O2083	Management of distributed production resources in the smart grid to reduce power outages Wedad Al Shibli, Hossein Askarian-Abyaneh
	O2090	Simulation and Performance Analysis of Balance of Plant (BoP) Components in a Solar PV System for Enhanced Efficiency Sonal Sonal
	T6028	Sustainable Bio-Cellulose from Food-Waste: Advanced Composites for Environmental and Biomedical Applications Mazhar Ul-Islam, Fay Mohsin Almasahli, Abdullah Khamis Al Saidi

	O2105	Balance of Plant (BoP) and its Performance Analysis for Solar Photovoltaic (PV) System to Achieve Enhanced Efficiency Florence Gnana Poovathy John, Sonal
	T4039	Optimizing Hydrogen Production from Waste Metals for Fuel cells: An Evaluation of Different Alkali Activation Methods Kanakasabai P, Rajasekaran, R, Abdullah AL-Mashani, Ali Mohammed Aslam AL-Shahri, Fahad Salim Ali Tabook, Sara Mohammed Ahmed Al Maashani
	T4040	Sustainable Valorization of Local Animal Waste for Biomethanation and Efficient Waste Management Kanakasabai P, Noor Qahoo, Duaa Salim Musallam Al-Kathiri, Saikat Banerjee, Sivamani Selvaraju, Said Bakhit Said Kashoob
	T4064	Sustainable Production of Bioplastics from Waste Milk Fas an eco-friendly and Renewable Resource for Circular Economy Geetha Devi



Online Session 03: Pollution Reduction and Use of Renewable Resources for Environmental Sustainability

Meeting ID: 313 573 274 053 68

Passcode: vw9HB3A8

Link: [EESD 2026 Online Session 3 | Meeting-Join | Microsoft Teams](#)



01.30 PM – 03.15 PM		Online Session 03	
		Venue: Anoud Ballroom, Radisson Blu Hotel & Resort, Sohar Session Chair: Dr Nadir Al Shibli Co-chair: : Dr Saravana Kumar	
		Introduction	
	O3112	The Uneven Impact of Digital Development on Economic Performance: Quantile Evidence from Malaysia Jarita Duasa, Dimas Wiranatakusuma, Persyarikatan Muhammadiyah	
	O3125	Building Resilience and Sustainability in Spices Supply Chain Through the Convergence of Digital Twins, Blockchain, and Artificial Intelligence (AI): An Insight from Indonesia Resista Vikaliana, Raja Zuraidah Raja Mohd Rasi, Harits Nu'man, Sandi Noorzaman, Siti Mariam, Eric Hermawan	
	O3143	Stakeholder Dynamics in Smart Street Lighting PPP: Social and Political Influences on Environmental Sustainability in Madiun Regency Ida Yulian, Rizal Z. Tamin, Iris Mahani	

	O3145	Exergy analysis of a dual recuperative dual expansion s-CO ₂ energy system for utilizing industrial waste heat Manavalla Sreekanth, Feroskhan M, Joseph Daniel
	O3148	Impact of Sugar Reduction in Biscuits and its Antimicrobial and Antioxidant Properties Supria Sree Narayanan, M. Masilamani Selvam
	O3157	Manufacturing, and Testing of High-Performance CNT coated/ CF reinforcement polymer composite Dhief Chameseddine, Mohamed Sahbi Loukil , ilyes Jedidi, Mattias Calmunger, Makki Abdmouleh
	T7094	From Mining Waste to Construction Resource: A Sustainable Approach for Copper Tailings Reuse in Oman Lakhayar Al-Amri

03.15 PM – 04.00 PM Refreshments

4.00 PM – 4.30 PM Closing remarks

End of Day 2 & Conference