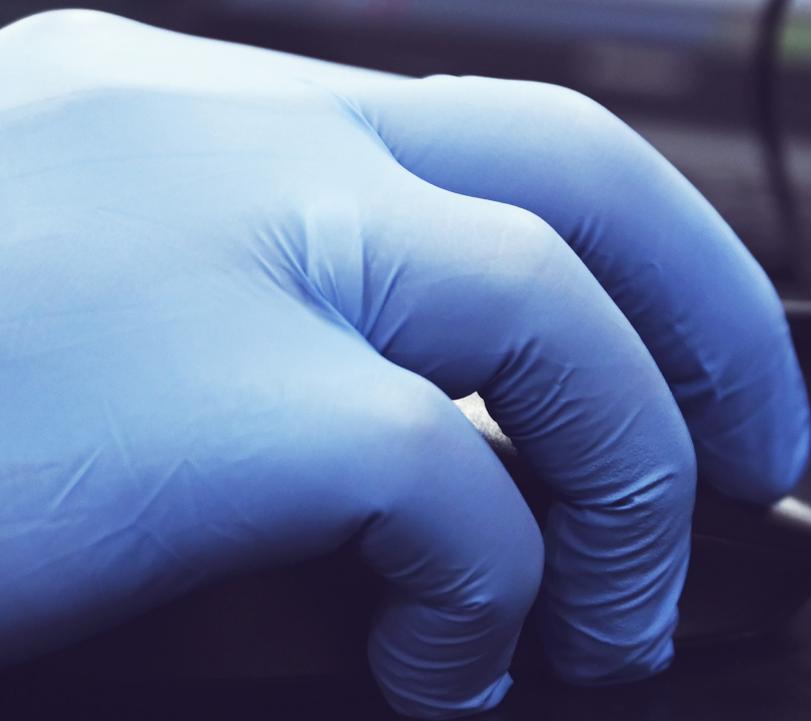


RESEARCH INSTITUTE
OF SCIENCES
& ENGINEERING
(RISE)



TEMPERATURE CONTROLLER

5.0°C



PROG



SET

RUN

HEAT



REMOTE

AM



RISE LABORATORIES

Lab Name	Location
Advanced Materials Research Laboratory	M12-125
Transportation And Pavement Research Laboratory	W12-020
Electrical And Electronics Workshop	W12-103
Multi-Purpose, Multi-Functional Workshop	M12-002
Geographic Information Systems & Remote Sensing Center	Sharjah Academy of Astronomy, Space sciences & Technology
Functional Nanomaterials Synthesis Laboratory	W12-016, W12-013, M12-125
Integrated Analytical Laboratory	M32- DG-47
High Performance Computing Facility	M11 – 221 (IT center – server Room)
Biomass Energy Systems	W12-024C
Professorship Chair, General Civil Aviation Authority, Aviation Center of Excellence	W12-124
Aerospace Center Of Excellence / Unmanned Aircraft System Center	W12-125
Renewable Energy Research Laboratory	W12-305

RISE Lab Staff

#	Name	Lab	Email	Ext.
1	Mohammed Shamir	Advanced Materials Research Laboratory	mshameer@sharjah.ac.ae	2431
2	Mohammed Irshad		mirshad@sharjah.ac.ae	
3	Mohammed Siraj	Electrical And Electronics Workshop	mshikhli@sharjah.ac.ae	2430
4	Aldin Mortega	Multi-Purpose, Multi-Functional Workshop	amortega@sharjah.ac.ae	2443
5	Fahad Faraz	Renewable Energy Research Laboratory	ffahmad@sharjah.ac.ae	3411
6	Mohamed Barakat	Geographic Information Systems & Remote Sensing Center	mbgibril@sharjah.ac.ae	1193
7	Sefeera Sadik	Functional Nanomaterials Synthesis Laboratory	safeeraayyaril@sharjah.ac.ae	??
8	Fahad Hassan		fahad.hassan@sharjah.ac.ae	
9	Muath Khairi Mousa	Environmental Analytical Laboratory	mmousa2@sharjah.ac.ae	7656
10	Yusur Mehdi Almusleh		yalmusleh@sharjah.ac.ae	
11	Padma Pavani	High Performance Computing Facility	ppavani@sharjah.ac.ae	1335

ADVANCED MATERIALS RESEARCH LABORATORY



Location	Lab Staff in Charge	Contacts
M12-125	Mohammed Shamir	065050431
	Mohammed Irshad	

INTRODUCTION

The Advanced Materials Research Laboratory is a general user facility for material synthesis, characterization, and testing. It houses a number of high-end machines for XRD, XRF, and micro-Raman, AFM, and SEM analysis. The lab specializes in dry and non-destructive analysis in areas such as cultural heritage and archaeometry, as well as Nano and micro-scale materials for energy and environmental applications. The lab provides training opportunities for researchers and technicians in different analytical techniques. It also engages the community by providing consultation and training services to municipalities, forensic labs, environmental agencies, museums, and the energy sector, among others.

EQUIPMENT AND INSTRUMENTS

- Environmental Scanning Electron Microscopy
- Scanning Electron Microscopy
- Atomic Force Microscopy
- Electrospinning Machine
- Stereo Microscopy
- X-ray Diffraction
- X-ray Fluorescence Spectrometer
- Raman Spectrometer
- Fourier Transform Infrared Spectroscopy
- Thin Film Deposition
- UV-Vis Spectrometry
- Prism Coupling System
- Spin Coater
- Sample Preparation Facilities

-
- Carbon Evaporation System
 - Profilometer
 - Polishing Machine
 - Sputter System
 - SP-200 Potentiostat
 - Planetary Ball Mill PM100
 - Automated Tensiometer Gonimeter
 - Fiber-optic Spectrometer
 - Universal Anti Static Kit with U Electrode

TESTS AND SERVICES

- Elemental analysis (solids, powders, liquids)
- Investigation of chemical composition (dyes, oils, paints)
- Crystallinity measurements (geological samples, cement, building materials)
- Nano and Microscopy (biological samples, metal surfaces, semiconductor devices, ceramics)
- Environmental pollution studies (water, soil, aerosols)

TRANSPORTATION AND PAVEMENT RESEARCH LABORATORY



Location	Lab Staff in Charge	Contacts
W12-020	Helal Ezzat Helal	065053413

INTRODUCTION

The Transportation and Pavement Research Laboratory is being developed as a world-class research facility equipped with advanced testing machines, devices and innovative technology to address transportation Research, pavement performance analysis, design, rehabilitation, and management; advanced material testing and characterization; development of new and sustainable materials; as well as the development and dissemination of sustainable transportation and pavement practices.

EQUIPMENT AND INSTRUMENTS

- Automatic Close System Asphalt Analyzer
- Laser PIV system
- Pressure Aging Vessel (PAV)
- Versatile Flexural Testing Machine
- HM921 ATS Vacuum Degassing Oven
- Rotary Evaporation Apparatus
- Industrial Ultrasonic Path
- Overhead Stirrer
- Wavetronix SmartSensor HD Mounted on a Mobile Trailer Powered by Solar Panels
- Lane Traffic Counters
- Lane Traffic Detectors
- Video Detectors
- Intersection Turning Movement Counters (Digital and Mechanical)
- Traffic Analysis Software
- Speed Radar Guns
- Digital Measuring Wheel

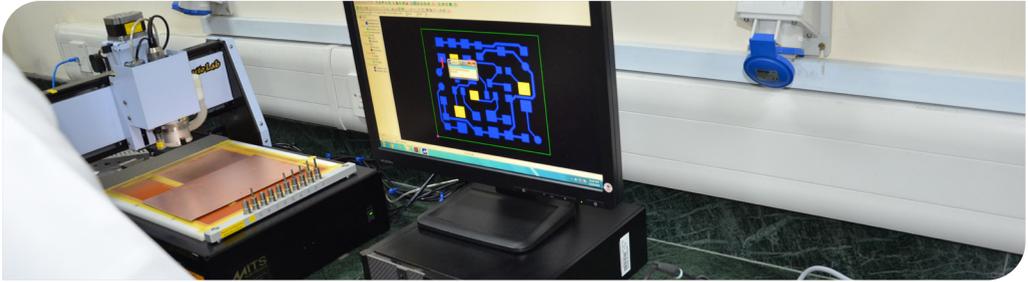
-
- 63X Series Sound Level Meter
 - LVDTs and Accelerometers (Sensors) Software
 - Automated Universal Asphalt Saw
 - Pivot Automatic Penetrometer
 - Ball and ring softening point tester
 - Lab High Shear Mixer
 - Superpave Gyratory Compactor
 - 30 kN Universal Testing Machine (UTM) with Environmental Chamber-20 to 70C
 - Marshall Test Apparatus
 - Digital Measuring Wheel
 - Brookfield Rotational Viscometer
 - Bitumen Automatic Consistency and Penetration
 - Bitumen Content by Ignition Method
 - Dynamic Hybrid Rheometer (DHR)
 - Rolling Thin Film Oven (RTFO)
 - Softening Point Automatic tester
 - Flash point Automatic tester
 - Asphalt equipment and samples washing machine
 - Asphalt mixtures volumetrics setup
 - Ultra-sonic mixer.
 - Sand Equivalent setup.
 - Bending Beam Rheometer.

TESTS AND SERVICES

- TRAFFIC AND TRANSPORTATION
 - Highway and Roads Traffic survey
 - Highway and Roads traffic studies
- AGGREGATES
 - Specific Gravity of Coarse Aggregates
 - Specific Gravity of Fine Aggregates
 - Specific Gravity of Mineral Filler
 - Bulk Density of Fine Aggregates
 - Bulk Density of Coarse Aggregates
 - Sand Equivalent Test of Fine Aggregates
 - Elongation and Flakiness Index of Coarse Aggregates
 - Particle Shape of Coarse Aggregates
 - Particle Shape of Fine Aggregates
 - Particle Shape of Mineral Filler

-
- Sieve Analysis of Coarse Aggregates
 - Sieve Analysis of Fine Aggregates
 - Soil Shear Modulus using DHR.
 - ASPHALT CEMENT
 - Specific Gravity of Asphalt
 - Penetration Test
 - Softening Point Test
 - Rotational Viscosity Test
 - Short Term Aging RTFO
 - Long Term Aging PAV
 - Dynamic Shear Modulus Test
 - Fatigue Test
 - Multiple Stress Creep and Recovery Test MSCR
 - Linear Amplitude sweep test
 - Binder performance test
 - Binder low performance grade using BBR.
 - Ignition Oven Test for Binder Extraction
 - Binder Extraction Test by Solvent
 - Binder Recovery Test
 - Binder mass loss using RTFO
 - ASPHALT CONCRETE MIX
 - Theoretical Maximum Specific Gravity Test
 - Bulk Specific Gravity
 - Marshal Mix Design
 - Superpave Gyrotory Compaction
 - Dynamic Modulus Test
 - Resilient Modulus Test of Asphalt Concrete
 - Resilient Modulus Test of Unbounded Materials
 - Triaxial Repeated Load Permanent Deformation (Flow Number) Test
 - Triaxial Static Permanent Deformation (Flow Time) Test
 - Uniaxial Fatigue Test
 - Indirect Tensile Strength Test
 - Triaxial Shear Test
 - Semi-Circle Bending Test
 - C* Fracture Test
 - Moisture Damage Lottman Test

ELECTRICAL AND ELECTRONICS WORKSHOP



Location	Lab Staff in Charge	Contacts
W12-103	Mohammed Siraj	065050430

INTRODUCTION

Electrical and Electronics Workshop is research support facilities/ fabrication workshop for specialized research activities under the Research Institute of Sciences and Engineering (RISE). The Workshop actively contributes to the applied researches in the different fields of electrical and electronics including analog-digital, sustainable-renewable energy, circuits and systems design besides considering scientific consultancy services.

EQUIPMENT AND INSTRUMENTS

- WSD 81i soldering station 230V
- Real time controller NI cRIO-9025
- Programmable DC Power Supply Model 62024P-100-50 Chroma
- DC Electronic Load Module Chroma
- DC Electronic Load 63204 5.2KW/100A/600V Chroma
- PCB prototyping station auto-lab
- Tektronix MDO3104 Mixed Domain Oscilloscope
- Coordinate Measuring Machine
- Planetary Micro Mill Premium Line
- SP-300 Potentiostat

TESTS AND SERVICES

- Group/Program A: Electrical & Electronics Manufacturing:
 - Mechatronics Mechanisims Automation
 - Printed Circuit Board Fabrication (Fab. of PCB)
 - Repairing PCB
 - Satellite Receiver LNB/TVRO receivers
 - Miniature Models and Simulation Solutions

-
- Group B/Program B: Technical Solutions:
 - Electronic Circuits
 - Industrial Automation and Control Systems
 - Laser Scanning Modeling
 - Satellite Communication
 - System Integration
 - Simulation and Active Modeling
 - Communication Solution
 - Network Solutions
 - Embedded Systems
 - Instrumentation and Sensors Network
 - Group C/Program C: Training and Knowledge Exchange:
 - Arduino Systems
 - PCB
 - Networks for Integration
 - Applied Electronics
 - Planning and Engineering Management
 - Professional Development

MULTI-PURPOSE, MULTI-FUNCTIONAL WORKSHOP



Location	Lab Staff in Charge	Contacts
M12-002	Aldin Mortega	065050443

INTRODUCTION

The purpose of establishing the workshop is to provide researchers with a facility capable of manufacturing a wide range of experimental setups and small equipment. The workshop has two divisions, a fabrication division and electrical/electronic division. The fabrication division provides researchers who require customized fixtures to contact the dedicated experience technician and use the state-of-the-art machinery. The computer-numerical control (CNC) milling and turning centers are capable of producing parts that are designed on CAD software, which ensures narrow tolerances on all types of conceivable materials. The workshop is also expected to help graduate and undergraduate students with their projects that require specialized machining.

EQUIPMENT AND INSTRUMENTS

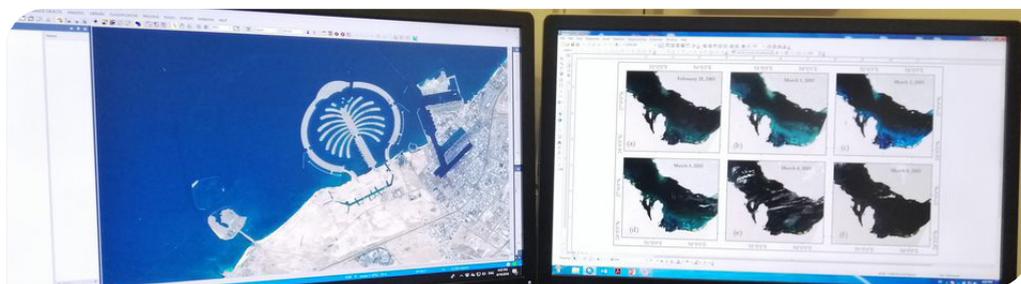
- CNC Milling Machine
- CNC Lathe Machine
- Coordinate Measuring Machine
- 3D Printer – Ultimaker S5
- Semi-automatic Band saw Variable Speed
- Mechanical Cutting Shear
- Pipe and Profile Bending Machine
- Motorized 3-Roll Bending Machine
- Melting Furnace

TESTS AND SERVICES

- Drilling, Cutting, Tapping, Pocketing (wood, aluminum, steel)
- Cutting internal and external cylinder, End surface, taper surface, arc surface, screw thread
- Measuring physical geometrical characteristics of an object
- Printing solid objects

-
- Cut metal & aluminum materials with different shapes and profiles
 - Cut metal sheets
 - Rolling metal tube
 - Rolling sheet metal
 - Melting aluminum and Copper
 - Sheet Metal Forming
 - Pipe Forming
 - Aluminum Casting

GEOGRAPHIC INFORMATION SYSTEMS & REMOTE SENSING CENTER



Location	Lab Staff in Charge	Contacts
Sharjah Academy of Astronomy, Space sciences & Technology	Mohamed Barakat	065051193

INTRODUCTION

The mission of Geographic Information system and Remote Sensing center is to develop a spatial information technology that serves the community and provide interdisciplinary leadership through research, education, and outreach. The center provides spatial knowledge and expertise for multidisciplinary areas related to environmental monitoring, water resources management, transportation, natural hazard and risks management as well as geo-petroleum industry. The center's ambition is to acquire a respectful status within the UAE and the region as a credible research center through developing and spreading scientific knowledge related to satellite images and geospatial technology.

EQUIPMENT AND INSTRUMENTS

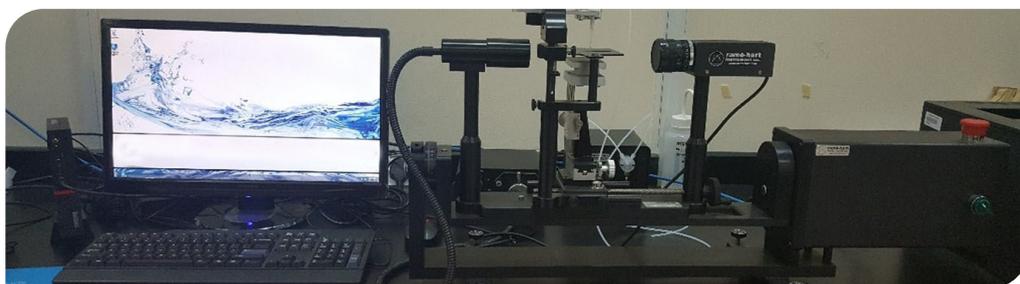
- Integrated GNSS Systems (R10 Trimble) & TRIMBLE TSC3 data controller
- High Accuracy GNSS handhelds/Trimble Geo7 Series
- Field Spectroradiometry
- Fixed-wing drone equipped with multispectral and thermal cameras
- Handheld thermal camera
- Trimble S7 Total Station
- Digital Level
- Digital Camera
- Precision Tower 5810 Workstation
- Designijet Z6200 Photo Production Printer
- HP Laser Jet Enterprise Printer
- Digital A3 Flatbed Scanner

TESTS AND SERVICES

- Establishing ground control points using geodetic global positioning systems.

-
- Collecting ground-truth data using various spectral and survey equipment
 - Acquiring very high resolution drone-based images and digital surface models
 - Processing satellite, aerial and drone-based images for various earth-related applications
 - Establishing geospatial data from multiple geospatial sources
 - Performing advanced spatial and multi-criteria analysis
 - Applying and developing advanced artificial intelligence approaches to support various earth-related studies
 - Producing thematic maps

FUNCTIONAL NANOMATERIALS SYNTHESIS LABORATORY



Location	Lab Staff in Charge	Contacts
W12-016 W12-013 M12-125	Fahad Hassan	0507304696

INTRODUCTION

The laboratory mission is to support the diverse and vigorous research interests in materials, specifically those of the Nano size, and to help broaden international collaboration in this growing research field. The laboratory caters to the needs of researchers involved in discovery of nanoparticles science and real-world applications in the various science, engineering, environmental, health and medical fields. Overall, the laboratory is comprehensive in synthesis and characterization of Nano materials, including nanofibers, nanocomposites and Nano films.

EQUIPMENT AND INSTRUMENTS

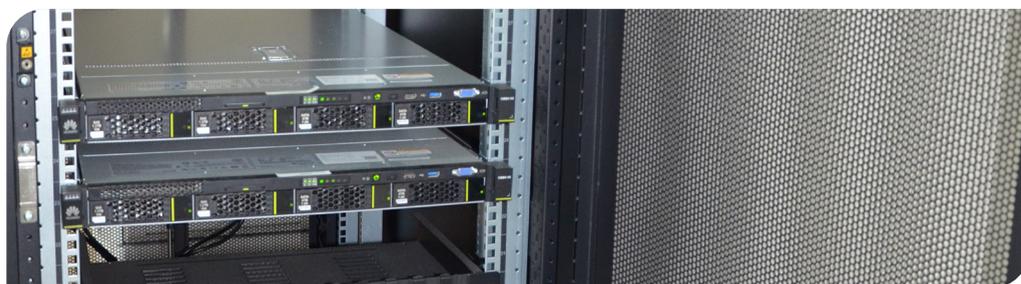
- Scanning Electrochemical Microscope
- Nanofiber Electrospinning Unit
- Rolling-ball Viscometer
- Refrigerated Centrifuge
- Glove box
- NANOTRAC WAVE II
- Spray Mate
- Contact Angle Goniometer and Tensiometer
- Fluorescence Lifetime Spectrometer
- Differential Scanning Calorimeter TA DSC25
- Spin Coater – Midas
- BET
- DLS LITESIZER 500
- Thermal conductivity meter
- Xenon Photocatalytic reactor

-
- Elementar
 - Viscosity meter

TESTS AND SERVICES

- CV and local electrochemical activity of sample in solution
- Nanofiber synthesis
- Contact angle and surface tension
- Heat capacity and melting point
- Surface area and pore size analysis
- Zeta potential and particle size
- Thermal conductivity for nanofluids
- Visible light photocatalytic activity

HIGH PERFORMANCE COMPUTING FACILITY



Location	Lab Staff in Charge	Contacts
M11-221	Padma Pavani	065050355

INTRODUCTION

Delivering the best possible service, starting with a stable, reliable, sustainable and efficient computing resources and services to facilitate the use of high performance computing that meets the computational research demands of the research community in the university. Including expert system administration. HPC Facility aims to develop solutions that maximize shared computational resources.

EQUIPMENT AND INSTRUMENTS

FAHAD CLUSTER:

- One storage/head node with two Intel Xeon Gold 5120 CPU @ 14Cores- 2.20GHz each, 128 GB RAM and 60 TB Storage.
- One login node with two Intel Xeon Silver 4110 CPU @ 8Cores- 2.10GHz each and 96 GB RAM.
- 12 compute nodes with 2 Intel Xeon Gold 6140 CPU @ 18Cores – 2.3GHz each and 192 GB RAM.
- Each compute node and login node has 240 GB SATA HDD.
- Mellanox ConnectX-4 Mezzanine card with one EDR/100Gbps Port.
- Centos – 7.8 operating system and Qlustar-11.0 for cluster management.

SAQR CLUSTER:

- One master node and 4 compute nodes (CNs)
- Two Intel Xeon E5 Processors (16 core, 2.3 GHz) per CN for a total of 32 CPU-core/CN
- 8 NVidia K80 GPU cards per CN for a total of 20,000 GPU-core/CN
- 96 GB of GPU memory and 256 GB of system memory per CN
- 1 TB of local SSD storage per CN
- 54 TB of secondary SAN storage.
- 56 Gbp/s Infiniband switch, 16 Gbp/s FC switch and 1G Ethernet switch.

-
- Ubuntu 16.04 operating system and Bright Computing- 8.1 for cluster management.

MAHA CLUSTER:

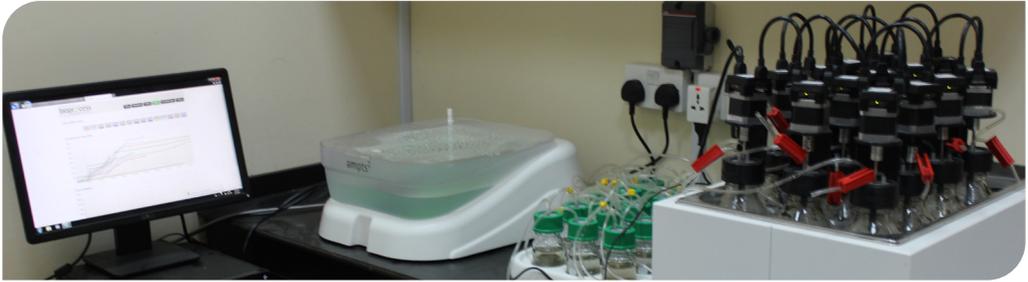
- Four HP Z840 workstations
- Two Intel Xeon E5 processors (12-core, 2.6GHz) per node
- 480 GB of total system memory.
- 10 TB of NAS storage
- 10 Gbp/s Ethernet switch.

TESTS AND SERVICES

A number of high-end applications are installed on Fahad, Saqr and Maha to support the needs of the research community at the University of Sharjah:

- Lammps
- Vasp
- Matlab
- Ansys,
- Abinit
- Gaussian
- Tensor flow
- darknet
- Intel compilers
- Origin
- Quantum Espresso
- ROOT
- Gromacs
- NAG
- Nvidia- cuda and FHI-AIMS.

BIOMASS ENERGY SYSTEMS LABORATORY



Location	Lab Staff in Charge	Contacts
W12-024C	Fahad Faraz Ahmad	065053411

INTRODUCTION

Biomass Energy Systems Laboratory is a testing and supporting facility for research and development activities related to biomass such as bioenergy and biofuels – hydrogen, biogas, syngas, bio-oil, and biodiesel. This Laboratory is actively handling collaborative research projects between academia, government agencies and industry in the Biomass Energy Systems.

EQUIPMENT AND INSTRUMENTS

- 6400 Automatic Isoperibol Calorimeter
- Computer Controlled Biogas Process Unit- EBGC
- Distek Model 2500 Dissolution Test System
- Infracal 2 Biodiesel Blend Analyzer
- Automatic Methane Potential Test System (AMPTS II)
- 3000 Micro Gc Gas Analyzer (INFICON)
- KD-2 Pro Thermal Properties Analyzer
- LC 100 Spectrocolorimeter
- Sonorex Digiplus Ultrasonic Bath For Aqueous Fluids
- Brookfield Viscometer DV2T
- Haake Viscotester IQ
- Portable Density / Specific Gravity Meter
- Highland Portable Balance
- Super Critical Fluid Extractor
- Digital Rotary Evaporator
- Heating Mantle
- Digital Muffle Furnace
- Portable Data Acquisition Logger (TITAN S8)
- Power Pallet- PP20 (GEK GASIFIER KIT)

-
- Dymomite Pro Small Engine Reaction Test Kit
 - Ems Portable Exhaust Gas Analyzer

EXPERIMENTS

- Heat of combustion measurement
- Biogas production and analysis
- Biodiesel production and analysis
- Bio-oil production and analysis
- Biodiesel blend analysis
- Pyrolysis and gasification of material
- Dissolution tests
- Syngas production and analysis
- Biogas (biochemical methane) potential (BMP) test through anaerobic digestion
- Rapid analysis of gas streams (Fixed Gases and Light hydrocarbons)
- Measurement of thermal properties of a material: thermal conductivity, thermal resistivity, volumetric specific heat capacity, and thermal diffusivity.
- Measurement of spectral reflectance, transmittance, or relative irradiance of a color sample
- Sonication of aqueous fluids.
- Measurement of viscosity, shear rate, and shear stress of fluid and semi-solid materials.
- Measurement of density and specific gravity of liquid
- Precision weighing up to readability of 0.01 g
- Extraction of bioactive compounds from food products
- Extraction of oil compounds from food products and herbs
- Distillation of solvents, Condensation of solution and suspension
- Ash-determination, Enameling, Fusion and Ignition.
- Determining the power characteristics of a machine
- Engine performance test and exhaust gas analysis

TESTS AND SERVICES

- Testing and analyses of physical and chemical properties of biomass.
- Studying the potential energy content of biomass.
- Converting biomass into clean energy (biofuels: i.e. biodiesel, biogas, syngas, bio-oil).
- Design and Consultancy Services

**PROFESSORSHIP CHAIR, GENERAL CIVIL AVIATION AUTHORITY
AVIATION CENTER OF EXCELLENCE**



Location	Lab Staff in Charge	Contacts
W12-124	- Prof. Qassim Nasir - Dr. Manar Abu Talib - Dr. Ali Bou Nassif - Dr. Sohail Abbas	065052410

INTRODUCTION

The OpenUAE Research & Development Group is the first of its kind in the country, providing new research opportunities related to the successful adoption of Open-Source Software (OSS) in the region. The group will engage students (undergraduate and graduate at universities and other interested parties) to conduct research on the deployment of OSS in many sectors to serve multiple purposes i.e., Blockchain, Artificial Intelligence cyber security, smart cities, Internet of Things, ...etc. The group provides the necessary training, develops ICT solutions based on OSS, evaluates and assesses these solutions and provides consultancy services to enable government-wide, as well as private sector access, to OSS. The group initiative is aligned with the mission of the University of Sharjah as well as the economic vision of the UAE 2021.

EQUIPMENT AND INSTRUMENTS

- High Computational Machines.
- Internet of Things Products.
- Microcontrollers
- Routers and servers.

EXPERIMENTS

- Breast Wearable Biosensors Intelligent System for Early Detection of COVID-19 using Data Science Techniques.
- Locational Management for Healthcare Facilities during COVID-19 Pandemic: An Artificial Intelligence Approach.

-
- Breast Cancer Detection Using Statistical and Deep Learning Techniques.
 - Data-Driven False Data Injection Attacks Detection in Smart Grid using state estimation.
 - Digital Twin for Building Energy Consumption Forecasting using Deep Learning.
 - Blockchain Networks for Building Integrated Microgrids and Solar PV Electric Vehicles Charging Station to Support and Foster Clean Energy Transition.
 - Disaster recovery in smart cities.
 - Design and Implement Inter Blockchain Communication between Heterogeneous Blockchain Networks.
 - IoT Security Testbed
 - Blockchain Performance Evaluation.

TESTS AND SERVICES

- Research
- Training & Workshops
- Development and Solutions
- Awareness & Seminars
- Consultancy

AEROSPACE CENTER OF EXCELLENCE (UNMANNED AIRCRAFT SYSTEM CENTER)



Location	Lab Staff in Charge	Contacts
W12-125	<ul style="list-style-type: none"> - Prof. Qassim Nasir - Dr. Manar AbuTalib - Dr. Raouf Fareh - Dr. Sofiane Khadraoui - Sally Idhis - Mahmoud Elbeltagy - Khawla Hassan 	NA

INTRODUCTION

The Aerospace Center of Excellence (ACoE) was established in January 2020 by the General Civil Aviation Authority (GCAA) at the University of Sharjah. The center promotes the Unmanned Aerial Vehicle (UAV) technology in UAE and modernizes the regulatory framework governing the operation and certification of UAVs to strengthen the position of UAE as a global contributor in the establishment of standards and recommended practices at the international level. This center aims to improve the future of aviation by developing anti-drone systems and a safety reporting system.

EQUIPMENT AND INSTRUMENTS

- Fleet of Drones
- FPGA
- VR Table
- Servers
- Software-Defined Radios (SDRs)
- Antennas

EXPERIMENTS

- SDR-Radar for UAV detection and Localization
- ROSI Dashboard
- Blockchain with drones

-
- Path planning and control of quadcopters

TESTS AND SERVICES

- Research
- Training Wrokshops
- Development and Solutions
- Awareness Seminars
- Consultancy

RENEWABLE ENERGY RESEARCH LABORATORY



Location	Lab Staff in Charge	Contacts
W12-305	Fahad Faraz	065053411

INTRODUCTION

The Renewable Energy Research Laboratory (RERL) is a supporting facility for renewable energy and energy efficiency research and development activities specialized in future energy technologies (clean, innovative, sustainable, smart, reliable and cost effective energy systems): Renewable Energy: solar (solar PV, solar thermal, bifacial solar PV), wind, biomass (bioenergy and biofuels – hydrogen, biogas, syngas, bio-oil, and biodiesel), geothermal, hydro, and ocean; Energy Efficiency (Buildings, industrial applications and transportation), Energy Management and control, Energy Modeling and Simulation, and Energy Forecasting using AI and ML. The RERL is actively serving as a testing facility for collaborative research projects between academia, government agencies and industry in the energy field. It provides training opportunities for students and researchers. RERL is also serving the community at the local and regional levels by its design and consultation services for innovative and sustainable energy solutions and the development of international energy research collaboration.

EQUIPMENT AND INSTRUMENTS

- Profitest Photovoltaic Panel Analyzer
- Hot Wire Anemometer (PEC-009)
- HIOKI Wireless Logging Station (LR8410-20)
- Pyranometer: Infrared and Full Spectrum Sensor (PMA 2144 Class II)
- Data Logging Radiometer/Photometer PMA 2100
- Programmable Ac/Dc Electronic Load (Chroma 63804)
- DustIQ (Kipp & Zonen)
- Logbox SE Data Logger (Kipp & Zonen)
- Power & Energy Meter (PEL-103)
- Allied Vision Prosilica Ge 1650 Camera
- Multiple Wavelength Portable Specular Reflectometer

-
- Infrared Thermometer (Fluke 62 Max)
 - Humidity & Temperature Data logger (Extech-RTH20)
 - Building Energy Monitor (WEM2)
 - PEM Water Electrolysis Cell
 - Soldering Station
 - Cole-Parmer G2 Heavy-Duty Turbine Flowmeter/Totalizer (S05t), 3/4"
 - 7 Inch Dual Axis Combined Slew Drive Worm Gear For Sun Energy
 - 3 Inch Slew Worm Gear Box With 12v / 24v Dc Motor
 - Eco-Worthy Single Axis Solar Panel Tracker, 340lbs, 12 Volt Dc, With 12" Solar Tracker Multi-Purpose Linear Actuator

EXPERIMENTS

- IV Characteristics Curve testing of PV Panels
- Measurement of relative humidity, air velocity and temperature
- Data logging from different sensors
- Solar Irradiance measurement
- Measurement of the specular reflectivity
- Power and energy measurement
- Electrolysis and hydrogen production
- AC/DC Programmable Electronic load simulation
- Transmission Loss and Soiling ratio measurement
- Non-contact temperature measurements
- Liquid flow rate measurement

TESTS AND SERVICES

- Testing and supporting facility for renewable energy and energy efficiency research
- Modeling and Simulation of Energy Systems
- Energy Forecasting (Supply and Demand)
- Energy Planning and Climate Change Mitigation Assessment
- Design and Consultancy Services



