FEDERAL UNIVERSITY OF TECHNOLOGY OWERRI

Executive Master of Science (MSc) Programmes

ACE FUELS

Africa Center of Excellence in Future Energies & Electrochemical Systems

1. INTRODUCTION TO ACE-FUELS @ FUTO

The Africa Centre of Excellence in Future Energies and Electrochemical Systems (ACE-FUELS) was established in 2019 with funding support from the World Bank and French Development Agency (AFD), within the framework of the World Bank Africa Centres of Excellence for Impact (ACE Impact) project. ACE-FUELS is to fill a growing education, skills and information gap in the field of renewable and other clean energy sources within the sub region and in this way address the regional development challenge of poor availability and access to energy. Indeed the sub has an abundance of renewable energy resources (solar, wind, biomass, hydrothermal, clean hydrocarbon). What is lacking is the requisite skilled human resources as well as the technological, educational, physical and economic infrastructures for efficient and inexpensive exploitation of the available resources, to effectively navigate this challenging and complicated transition from the conventional to clean energies. The Centre prioritizes training, research and development, knowledge sharing and dissemination, community education, technical skills and capacity development, stakeholder engagement, industry partnerships, research translation and commercialization as its core functions. The Centre's functionality shall bear a national and regional outlook, which would ultimately facilitate development of local, national and regional capacities and competences.

1.1 Mission of ACE-FUELS

The mission of ACE-FUELS Centre align perfectly with the mission of the Federal University of Technology Owerri; "…..to operate practical and result-oriented programmes and training geared towards transforming the nation's economy from consumer-oriented to production-oriented, with a sound technological base. The initiative satisfies the energy priority of the New Partnership for Africa's Development (NEPAD), to fully utilize the opportunities that promote greenhouse gas mitigation, as well as the National Economic Empowerment and Development Strategies (NEEDS) on the development of power generation infrastructure. Moreover, energy is central to virtually all MDGs, as access to equitable and sustainable energy is a precursor to poverty reduction/eradication, wealth generation, good health services, women empowerment and enhancing literacy.

1.2 Philosophy of ACE-FUELS

The philosophy of the postgraduate programmes of the Africa Centre of Excellence in Future Energies and Electrochemical Systems (ACE-FUELS) at Federal University of Technology Owerri, is to develop highly skilled professionals in Future Energies, Electrochemical Technology, Nanotechnology and Corrosion Technology, who will be able to develop novel technologies and new materials for efficient exploitation of the region's abundant energy resources and in this way address the regional development challenge of poor availability and access to energy.

1.3 Objectives of ACE-FUELS

The primary goal in creating ACE-FUELS is to actively contribute towards the development and deployment of renewable and clean energy technologies in Nigeria and indeed Sub-Saharan Africa. In this way, the regional development challenge of poor availability and access to energy will be addressed. Thus, ACE-FUELS postgraduate programmes are designed to:

(i) Produce graduates of international standard, with appropriate knowledge and skills in their field of study, who will be highly sought after in the employment market and able to employ themselves.

(ii) Provide and expand access to relevant academic programmes that will impact on the local, regional and international communities.

(iii) Develop a critical mass of well-trained researchers to meet requirement of R&D professionals for clean energy and related high technology applications.

(iv) Initiate and support high end research, to extend knowledge beyond the existing practice in the industry.

(v) Promote local content in research and innovations by initiating necessary value-driven industry-academia collaborations.

2. ACE-FUELS PROFESSIONAL EXECUTIVE MSc PROGRAMMES

2.1 PROGRAMME AREAS

ACE-FUELS is now offering, Flexible, part-time Executive MSc programmes based on its fully accredited MSc programme curricula. The programmes currently on offer are:

1. Executive MSc in Future Energies
2. Executive MSc in Corrosion Technology
3. Executive MSc Energy Management and Entrepreneurship

ACE-FUELS Executive MSc programmes are especially designed for professionals and offers necessary flexibility to enable participants effectively combine full-time jobs with academic activities. The programmes provide an efficient mix of training packages in science, technology and innovation, with technology management.

2.2 PROGRAMME DURATION

ACE-FUELS Executive MSc programmes consist of five (5) semesters spread over 24-month. The programme shall ensure on time graduation. The maximum duration of the programme shall be eight (8) semesters.

2.3 ENTRY REQUIREMENTS

Eligible candidates should possess any of the following qualifications:

- Masters degree in any science or engineering discipline from a recognized university with at least 3 years of professional experience.
- Bachelors degree from in any science or engineering discipline a recognized university with at least 5 years of professional experience.
  Experience in senior managerial/administrative position will be an added advantage.
- Satisfactory performance at the selection interview conducted by ACE-FUELS.

Admission is on a rolling basis.

2.4 COMMENCEMENT

The Executive MSc programmes shall commence in July of every year.

2.5 FEES STRUCTURE

The cumulative fees for each Executive MSc programme is N3,685,000.00 (Three Million Six Hundred and Eighty-Five Naira). This amount is subject to changes without prior notice.
There is a non-refundable application fee of **N50,000.00 (Fifty Thousand Naira)** for all applicants.

The programme fees cover:

- 540 teaching hours
- Basic literature and documentation

The programme fees do not cover:

- Travel
- Accommodation

Payment plan

ACE-FUELS offers a flexible payment plan, with options of making payments in installments.

2-Installment Payment Plan

1st installment - 60% before commencement of lectures
2nd installment - 40% within 6 months after commencement of lectures

3-Installment Payment Plan
1st installment - 50% before commencement of lectures
2nd installment - 30% within 4 months after commencement of lectures
3rd Installment - 20% within 6 months after commencement of lectures

PLEASE note. Only students who have completed payment of fees will be allowed to write exams.

3 PROGRAMME DESCRIPTION

The ACE-FUELS Executive MSc programmes are designed as 24-month flexible part-time courses. Each Executive MSc programme of study is made up of five (5) essential work packages:
(1) Mandatory Work package
(2) Work package of Specialization
(3) Electives Work package
(4) Project Work package 1: Seminars
(5) Project Work package 2: Research/Consultancy Project

The work packages include lectures, tutorials, tests, mono review assignments, seminars, hands-on sessions as well as guest lectures by industry subject-matter experts. The minimum credit units for the ACE-FUELS Executive MSc programme is 56 units.

3.1 PROGRAMME STRUCTURE

The ACE-FUELS Executive MSc programmes is structured into five (5) work packages, totaling 56 credit units. Each credit unit corresponds to 15 hours of instruction. The work packages are spread across five (5) semesters. Total teaching hours is 540 hours.

SEMESTER 1 = 25 Weeks (Mandatory Work Package)
SEMESTER 2 = 25 Weeks (Work Package of Specialization)
SEMESTER 3 = 8 Weeks (Electives) Research Supervisors Assigned
SEMESTER 4 = 12 Weeks (Project Work Package 1-Seminars)
SEMESTER 5 = 26 Weeks (Project Work Package 2-Research/Consultancy Project)
Total = 96 Weeks = 24 Months

SEMESTER 1: WORK PACKAGE 1:

Name	Credit Units	Duration
Mandatory Work Package	15	25 weeks

The Mandatory Work Package is made up of five (5) carefully designed courses, aimed at providing comprehensive and broad-based education in the general area of the programme. Each course is divided into 5 modules. All the contents of the Mandatory work package for each MSc programme must be taken by all students enrolled in the programme, irrespective of area of interest or specialization.

SEMESTER 2: WORK PACKAGE 2

Name	Credit Units	Duration
Work Package of Specialization	15	25 weeks

The work package of Specialization is more flexible and designed to offer courses that are most suited for each student's area of specialization and research interest. The work package is made up of five (5) fundamental courses in the area of specialization. Each course is divided into 5 modules.

SEMESTER 3: WORK PACKAGE 3

Name	Credit Units	Duration
Electives	6	8 weeks

For the Elective work package, students are required to enroll for any three (3) courses from a list of elective courses. Each course is divided into 4 modules.

SEMESTER 4: WORK PACKAGE 4:

Name	Credit Units	Duration
Project Work Package 1 - Seminars	8	12 weeks

Project work package 1 includes a bouquet of 4-6 seminar sessions (online and on-site). These include:
i. Exploratory Seminar
ii. Case Studies,
iii. Research/Consultancy Project proposal Seminar,
iv. Literature Review Seminar

SEMESTER 5: WORK PACKAGE 5:

Name	Credit Units	Duration
Project Work Package 2: Research/Consultancy Project	12	26 weeks

In the Project Work Package 2, each student will be guided to undertake and complete an in-depth individual experimental, theoretical or computational research project, or a group consultancy project addressing real-life problems and opportunities. Each student will be guided by a principal supervisor and co-supervisors who are academics and experts in the area. An industry-based supervisor may be included where necessary. The team of supervisors shall be assigned at the start of Semester 3 and will work closely with the student all through the study period. Project Work Package 2 includes 2 seminars:

i. Progress Report
ii. Final Report

3.2 COURSE DELIVERY

The Executive MSc programme adopts a blended learning model.

- Coursework and assessments will be delivered online.
- Seminars, conferences, class projects will adopt a blended online and in-person mode.
- Interactions with local and international subject matter experts and networking opportunities available

The Courses will be delivered one after the other. For each course, one (1) module will be taken per week (at weekends 7 – 10 pm). Exams will be taken immediately after each module, in the week following the module delivery.
By this arrangement, each course shall be concluded in 5 weeks, then another course is started. Thus, the five (5) courses in Semester 1 will be concluded in 25 weeks. Same for Semester 2.

EXECUTIVE MSc PROGRAMME IN FUTURE ENERGIES

The Curriculum for the ACE-FUELS MSc Programme in Future Energies received Full Accreditation Status from the National Universities Commission (NUC) in 2022.

Philosophy of the Programme

The philosophy of the Future Energies programme at ACE-FUELS, is to inspire a new generation of highly skilled professionals, who will be able to develop novel technologies and new materials for efficient exploitation of the Africa's abundant energy resources.

Mission/Vision

The ACE-FUELS Future Energies programme provides exceptional multidisciplinary training and research opportunities that will develop energy technologies of the future, integrate them into today's infrastructure, and examine their possible consequences for our society, economy, and environment.

FUTURE ENERGIES PROGRAMME OPTIONS (5 OPTIONS)

This postgraduate programme has five possible areas of specialization and equips students with cutting-edge knowledge and skills in research, development, innovation in clean and renewable energies:

1. Solar Energy Specialization
2. Bioenergy Specialization
3. Clean Hydrocarbon Specialization
4. Geothermal Energy Specialization
5. Hydrogen Energy Specialization

The course takes an immersive approach to learning both the principles and practices of clean energy with much of the material based around examples and practical exercises. Students completing this course will have a firm, broad-based understanding of basic energy concepts, technologies and contemporary energy challenges and acquire knowledge for possible solutions to sustainable clean energy usage. They will develop and demonstrate broad-based expertise in renewable energy technologies, including identification, design, fabrication, characterization and utilization of clean energy technologies in diverse fields.

ACADEMIC CONTENT

SEMESTER 1: WORK PACKAGE 1:

FEM 801: Energy/environmental policy & management
FEM 803: Future Energy Systems I
FEM 805: Future Energy Systems II
FEM 807: Future Energy Systems III
FEM 809: Local Solutions for Energy Access
REM 801: Research Methods & Innovation

SEMESTER 2: WORK PACKAGE 2

There are five (5) areas of specialization in the MSc Future Energies programme:

1. SOLAR ENERGY SPECIALIZATION

FEM 802: Solar thermal conversion systems and application
FEM 804: Photovoltaic solar energy conversion
FEM 806: Advanced photovoltaic systems
FEM 858: Mini-grids: Planning and Design
FEM 852: Appliances for off-grid communities

2. BIOENERGY SPECIALIZATION
FEM 812: Bio-energy systems
FEM 814: Biofuels
FEM 816: Bioenergy & biotechnology
FEM 858: Mini-grids: Planning and Design
FEM 852: Appliances for off-grid communities

3. **CLEAN HYDROCARBON ENERGY SPECIALIZATION**
FEM 822: Introduction to membrane technology
FEM 824: Carbon capture & sequestration technologies
FEM 826: Membrane technologies for renewable energy applications
FEM 858: Mini-grids: Planning and Design
FEM 852: Appliances for off-grid communities

4. **GEOTHERMAL ENERGY SPECIALIZATION**
FEM 832: Geothermal reservoir engineering
FEM 834: Advanced geothermal drilling/completion technology
FEM 836: Geothermal production/power plants
FEM 858: Mini-grids: Planning and Design
FEM 852: Appliances for off-grid communities

5. HYDROGEN ENERGY SPECIALIZATION
FEM 842: Hydrogen Production and Utilization Processes
FEM 844: Electrolyzers and Fuel Cell Technology
FEM 846: Hydrogen Economy
FEM 858: Mini-grids: Planning and Design
FEM 852: Appliances for off-grid communities

SEMESTER 3: WORK PACKAGE 3
For the Elective work package, students are required to enroll for any three (3) courses from a list of elective courses.

List of Elective Courses
ETM 801: Basic Electrochemistry
NTM 832: Nanotechnology for Energy Applications
NTM 834: Computational Modeling & Simulation Methods
MGT 801: Project Management Basics
MGT 803: Change Management
MGT 805: Entrepreneurship
EVM 801: Climate Change
MGT 846: Renewable Energy Finance and Management

SEMESTER 4: WORK PACKAGE 4
Project Work Package 1 - Seminars

SEMESTER 5: WORK PACKAGE 5
Project Work Package 2: Research/Consultancy Project

ACADEMIC STAFF LIST FOR FUTURE ENERGIES PROGRAMME

S/N	STAFF NAME	RANK	QUALIFICATIONS	AREA OF SPECIALIZATION
1.	Prof. S.O. Onyekuru	Professor	BSc/MSc/PhD	Petroleum/Sedimentary Geology
2.	Prof. C.A. Madu	Professor	BSc/MSc/PhD	Solid State Physics
3.	Prof. N.V. Ogueke	Professor	BEng/MSc/PhD	Energy and Power/Renewable Energy/Applied Energy
4.	Prof. J.N. Ogbulie	Professor	BSc/MSc/PhD	Environmental Management
5.	Prof. I.E. Achumba	Professor	BEng/MSc/PhD	Electronic/Computer Engineering
6.	Prof. E.E. Oguzie	Professor	BSc/MSc/PhD	Electrochemistry/Materials Science
7.	Prof. E.E. Nkwocha	Professor	BSc/MSc/PhD	Waste Management/Pollution Control
8.	Prof. D.D.O. Eya	Professor	BSc/MSc/PhD	Solid state Physics/Materials Science/Solar Energy
9.	Prof. C.N. Okereke	Professor	BSc/MSc/PhD	Geophysics/Remote Sensing
10	Prof. C.K. Enenebeaku	Professor	BSc/MSc/PhD	Electrochemistry/Materials science
11.	Prof. C. Alisi	Professor	BSc/MSc/PhD	Biochemical Pharmacolog
12	Prof. A.I. Opara	Professor	BSc/MSc/PhD	Environmental/Applied Geophysics
13.	Dr. T.E. Ogbulie	Reader	BSc/MSc/PhD	Environmental Biotechnology
14	Dr. C.O. Ujowundu	Reader	BSc/MSc/PhD	Industrial/Environmental Biochemistry and Toxicology
15.	Dr. Samuel Iwuji	Snr. Lecturer	BSc/MSc/PhD	Biomedical and Environmental Health
16	Dr. S. Nwanonenyi	Snr. Lecturer	BEng/MSc/PhD	Polymer Science
17.	Dr. I.S. Ibeneme	Snr. Lecturer	BSc/MSc/PhD	Geophysics
18	Dr. R. Oze	Snr. Lecturer	BSc/MSc/PhD	Analytical Chemistry
19	Dr. O. Onojo	Snr. Lecturer	BEng/MSc/PhD	Electrical Systems
20	Dr. I.C. Ekeke	Snr. Lecturer	BEng/MSc/PhD	Corrosion Science & Engineering/Simulation
21	Dr. K.L. Oguzie	Snr. Lecturer	BSc/MSc/PhD	Environmental Electrochemistry
22	Dr. K. Ugwu	Snr. Lecturer	BSc/MSc/PhD	Supply chain Management /Entrepreneurship
23	Dr. K. Echendu	Snr. Lecturer	BSc/MSc/PhD	Solid state Physics/Solar Energy/Materials Science
24	Dr. Joe-Uzuegbu	Snr. Lecturer	BEng/MSc/PhD	Electrical Power Systems Engineering
25	Dr. I. Echeme	Snr. Lecturer	BSc/MSc/PhD	Project Management and Technology

26	Dr. I. Duru	Snr. Lecturer	BSc/MSc/PhD	Organic/Medicinal Chemistry
27.	Dr. G. Amangabara	Snr. Lecturer	BSc/MSc/PhD	Hydrology and Geomorphology
28	Dr. C. Ikerionwu	Snr. Lecturer	BSc/MSc/PhD	Software Engineering /Artificial Intelligence
29	Dr. C. Iheme	Snr. Lecturer	BSc/MSc/PhD	Natural product/ Nanotechnology
30	Dr. A. Ohajianya	Snr. Lecturer	BSc/MSc/PhD	Solid State Electronics
31.	Dr. A.C. Orga	Snr. Lecturer	BEng/MSc/PhD	Chemical Engineering /Mathematical Modeling
32	Dr. C. Uche	Lecturer 1	BSc/MSc/PhD	Environmental Nanotechnology
33.	Dr. C. Njoku	Lecturer 1	BEng/MSc/PhD	Chemical Engineering/ Materials Science
34	Dr. C. Chijioke	Lecturer 1	BSc/MSc/PhD	Petroleum Chemistry/Petrochemicals

ADJUNCT FACULTY

S/N	STAFF NAME	RANK	QUALIFICATIONS	AREA OF SPECIALIZATION
1.	Prof. F.C. Ezeonu	Professor	BSc/MSc/PhD	Bioenergy/Bioresources Technology
2.	Prof. M. Abdulwahab	Professor	BEng/MSc/PhD	Materials Engineering
3.	Dr. O. Ihugba	Snr. Lecturer	BSc/MSc/PhD	Development Economics
4.	Dr. I. Onyeachu	Snr. Lecturer	BSc/MSc/PhD	Electrochemical Technology
5.	Dr. D. Njoku	Lecturer 1	BSc/MSc/PhD	Material Science

CONSULTANTS/INDUSTRY EXPERTS

S/N	NAME	QUALIFICATION	SECTOR
1.	Dr. C. Ozumba	BSc/MSc/PhD	Environmental Protection
2.	Dr. Emeka Nwankwo	DVM/MBA	Banking/Entrepreneurship
3.	Mrs. Adaeze Otikpa-Uzodimma	BSc/MSc	Development & Policy
4.	Mr. Emma Udensi	BSc/MSc	Manufacturing
5.	Uba Osigwe, Esq.	LLB/BL/LLM	Investment Banking

VISITING PROFESSORS

S/N	NAME	INSTITUTION	SPECIALIZATION
1	Prof. Frank Marken	University of Bath, UK	Electrochemical Technology
2	Prof. Ken Ozoemena	University of Witwatersrand, SA	Electrochemical Technology
3	Prof. Andreas Erbe	Norwegian University of Science and Technology Trondheim, Norway	Electrochemical Technology
4	Prof. David Fermin	University of Bristol, UK	Electrochemical Technology
5	Prof. Asel Sartbaeva	University of Bath, UK	Porous Materials/Zeolites
6	Prof. Adrian Fisher	University of Cambridge, UK	Electrochemical and Micro Engineering
7	Prof. Petra Cameron	University of Bath, UK	Solar cells/Self-Assembled Materials
8	Prof. Sebastian Thomas	Monash University, Australia	Corrosion/Materials Durability
9	Dr. Jure Krolo	University of Split, Croatia	Corrosion/Tribology

EXECUTIVE MSc IN CORROSION TECHNOLOGY

The Curriculum for the ACE-FUELS Programme in Corrosion Technology received Full Accreditation Status from the National Universities Commission (NUC) in 2022.

Philosophy of the Programme

The philosophy of the Corrosion Technology programme of the Africa Centre of Excellence in Future Energies and Electrochemical Systems (ACE-FUELS) at Federal University of Technology Owerri, is to train a new generation of highly skilled professionals, who will be able to develop and demonstrate broad-based expertise in the theory and practice of corrosion monitoring, assessment and control as well as deployment of corrosion protection interventions in diverse fields.

Aim and Objectives

The primary goal in creating ACE-FUELS is to actively contribute towards the development and deployment of renewable and clean energy technologies in Nigeria and indeed Sub-Saharan Africa. In this way, the regional development challenge of poor availability and access to energy will be addressed. Thus, ACE-FUELS Corrosion Technology programme is designed to:

(i) Produce graduates of international standard, with appropriate knowledge and skills in their field of study, who will be highly employable and also able to employ themselves.

(ii) Provide and expand access to relevant academic programmes that will impact on the local, regional and international communities.

(iii) Create a critical mass of well-trained researchers to meet requirements of R&D professionals for design and development of novel technologies, strategies and practices to manage corrosion and its associated consequences and risks.

(iv) Initiate and support high end research, to extend knowledge beyond the existing practice in the industry.

(v) Promote local content in research and innovations by initiating necessary value-driven industry-academia collaborations.

Mission/Vision

This postgraduate programme in Corrosion Technology provides unique and comprehensive training on the theory and practice of corrosion and corrosion control interventions in varied environments. By means of an innovative blended-learning approach involving classroom teaching and practical hands-on sessions, the students will receive fundamental training on corrosion appreciation and monitoring as well as diagnosing corrosion problems and choosing appropriate corrosion control technologies to solve diverse corrosion-associated problems. The ACE-FUELS Corrosion Technology programme provides an exceptional opportunity for bright students from Nigeria and Sub-Saharan Africa to develop and diversify their skill set and ultimately enhance their employability across a broad spectrum of national, regional and multinational companies.

ACADEMIC CONTENT

SEMESTER 1: WORK PACKAGE 1:

CTM 801: Corrosion Basics
CTM 803: Selected Corrosion Control Techniques
CTM 805: Corrosion in the Energy Sector
CTM 807: Corrosion and Environmental Management
REM 801: Research Methods & Innovation

SEMESTER 2: WORK PACKAGE 2

CTM 802: Anticorrosion coatings technology
CTM 804: Corrosion inhibition/inhibitors
CTM 806: Microbial induced corrosion

CTM 808: Cathodic protection
CTM 810: Corrosion in reinforced concrete

SEMESTER 3: WORK PACKAGE 3
For the Elective work package, students are required to enroll for any three (3) courses from a list of elective courses.

List of Elective Courses
ETM 801: Basic Electrochemistry
NTM 832: Nanotechnology for Energy Applications
NTM 834: Computational Modeling & Simulation Methods
MGT 801: Project Management Basics
MGT 803: Change Management
MGT 805: Entrepreneurship
EVM 801: Climate Change
FEM 854: Exergy Analysis

SEMESTER 4: WORK PACKAGE 4
Project Work Package 1 - Seminars

SEMESTER 5: WORK PACKAGE 5
Project Work Package 2: Research/Consultancy Project

ACADEMIC STAFF LIST FOR CORROSION TECHNOLOGY PROGRAMME

S/N	STAFF NAME	RANK	QUALIFICATION	AREA OF SPECIALIZATION
1.	Prof. E.E. Oguzie	Professor	BSc/MSc/PhD	Electrochemistry/Materials Science
2.	Prof. C.K. Enenebeaku	Professor	BSc/MSc/PhD	Electrochemistry/Materials Science
3.	Prof. E.E. Nkwocha	Professor	BSc/MSc/PhD	Pollution Control
4.	Dr. N.P. Ohia	Reader	BEng/MSc/PhD	Petroleum/Well Engineering
5.	Dr. I. Nwachukwu	Reader	BSc/MSc/PhD	Microbial Corrosion
6.	Dr. K. Okeoma	Reader	BSc/MSc/PhD	Electrochemical Materials Science
7.	Dr. C.O. Ujowundu	Reader	BSc/MSc/PhD	Industrial/Environmental Biochemistry and Toxicology
8.	Dr. Samuel Iwuji	Snr. Lecturer	BSc/MSc/PhD	Human Physiology (Biomedical and Environmental Health)
9.	Dr. S. Nwanonenyi	Snr. Lecturer	BEng/MSc/PhD	Corrosion Technology/Polymer Science and Engineering
10.	Dr. I.O. Arukalam	Snr. Lecturer	BEng/MSc/PhD	Corrosion Technology/Polymer Science and Engineering
11.	Dr. I.C. Ekeke	Snr. Lecturer	BEng/MSc/PhD	Corrosion Science & Engineering/Simulation
12.	Dr. K.L. Oguzie	Snr. Lecturer	BSc/MSc/PhD	Environmental Electrochemistry
13.	Dr. C. Ikerionwu	Snr. Lecturer	BSc/MSc/PhD	Software Engineering/Artificial Intelligence
14.	Dr. Rita Oze	Snr. Lecturer	BSc/MSc/PhD	Analytical Chemistry/Adsorption
15.	Dr. C.O. Akalezi	Snr. Lecturer	BSc/MSc/PhD	Physical/Industrial Chemistry
16.	Dr. I. Duru	Snr. Lecturer	BSc/MSc/PhD	Organic/Medicinal Chemistry
17.	Dr. C.A. Maduabuchi	Lecturer 1	BSc/MSc/PhD	Corrosion Science
18.	Dr. C. Njoku	Lecturer 1	BEng/MSc/PhD	Corrosion Technology

ADJUNCT STAFF

S/No	STAFF NAME	RANK	QUALIFICATION	AREA OF SPECIALIZATION
1.	Prof. M. Abdulwahab	Professor	BEng/MSc/PhD	Process Metallurgy, Corrosion and Materials Engineering
2.	Prof. K.K. Alaneme	Professor	BEng/MSc/PhD	Materials/Metallurgical Engineering
3.	Dr. S. Ulaeto	Snr. Lecturer	BSc/MSc/PhD	Electrochemistry/Material Science
4.	Dr. O. Ihugba	Snr. Lecturer	BSc/MSc/PhD	Development Economics
5.	Dr. I. Nnabuk	Snr. Lecturer	BSc/MSc/PhD	Microbial Corrosion/Materials Science
6.	Dr. B. Onyeachu	Snr. Lecturer	BSc/MSc/PhD	Corrosion Technology
7.	Dr. D.I. Njoku	Lecturer 1	BSc/MSc/PhD	Corrosion Technology

CONSULTANTS/INDUSTRY EXPERTS

S/N	NAME	GENDER	QUALIFICATION	SECTOR
1.	Dr. C. Ozumba	F	BSc/MSc/PhD	Environmental Protection
2.	Dr. Emeka Nwankwo	M	DVM/MBA	Banking/Entrepreneurship
3.	Mrs. Adaeze Otikpa- Uzodimma	F	BSc/MSc	Development & Policy
4.	Mr. Emma Udensi	M	BSc/MSc	Manufacturing
5.	Uba Osigwe, Esq.	M	LLB/BL/LLM	Investment Banking

VISITING PROFESSORS

S/N	NAME	INSTITUTION	SPECIALIZATION
1	Prof. Frank Marken	University of Bath, UK	Electrochemistry
2	Prof. Ken Ozoemena	University of Witwatersrand, SA	Electrochemical Technology
3	Prof. Andreas Erbe	Norwegian University of Science and Technology Trondheim, Norway	Energy/Electrochemistry
4	Prof. David Fermin	University of Bristol, UK	Electrochemistry
5	Prof. Asel Sartbaeva	University of Bath, UK	Porous Materials/Zeolites
6	Prof. Adrian Fisher	University of Cambridge, UK	Electrochemical and Micro Engineering
7	Prof. Petra Cameron	University of Bath, UK	Solar cells/Self-Assembled Materials
8	Prof. Sebastian Thomas	Monash University, Australia	Corrosion/Materials Durability
9	Dr. Jure Krolo	University of Split, Croatia	Corrosion/Tribology

EXECUTIVE MSc IN ENERGY MANAGEMENT AND ENTREPRENEUSHIP

Philosophy of the Programme

The ACE-FUELS MSc programme in Energy Management and Entrepreneurship provides students with a panoramic view of the energy business environment, from economic, policy and technological perspectives. Our technical background, coupled with the intuitive blend of management and energy expertise provides deep insights into renewable energy innovations, energy business and emerging markets, while the entrepreneurship dimension ensures that our students acquire strategic administrative skillset to excel in wide variety of careers, both the corporate world and in business.

Aim and Objectives

The primary goal in creating ACE-FUELS is to actively contribute towards the development and deployment of renewable and clean energy technologies in Nigeria and indeed Sub-Saharan Africa. In this way, the regional development challenge of poor availability and access to energy will be addressed. Thus, ACE-FUELS Energy Management and Entrepreneurship programme is designed to:

1. Produce graduates with broad-based expertise in conceptualizing, starting, managing, and growing successful energy ventures.
2. Equip students to critically analyze the relationship between demand and supply of energy and generate innovative ideas towards real energy projects.
3. Enable students understand and appreciate the importance of creativity and innovation to energy business, stakeholders, the wider economy and society.
4. Instill competence in carrying out research critically analyzing data, and managing research projects independently.

Mission/Vision

The ACE-FUELS Future Energies programme provides exceptional multidisciplinary training and research opportunities that will develop energy technologies of the future, integrate them into today's infrastructure, and examine their possible consequences for our society, economy, and environment.

ACADEMIC CONTENT

SEMESTER 1: WORK PACKAGE 1:

EEM 801: Renewable Energy Fundamentals
EEM 803: Energy Economics
EEM 805: Renewable Energy Storage Management
FEM 801: Energy/Environmental Policy & Management
FEM 809: Local Solutions for Energy Access
REM 801: Research Methods & Innovation

SEMESTER 2: WORK PACKAGE 2

EEM 802: New Energy Venture Creation
EEM 804: Energy Enterprise Innovation and Management
EEM 806: Energy Law, Policy and Planning
EEM 808: Energy Procurement and Supply Chain Management
EEM 810: Energy Transition Management
EEM 812 Artificial Intelligence in the Energy Sector

SEMESTER 3: WORK PACKAGE 3
For the Elective work package, students are required to enroll for any three (3) courses from a list of elective courses.

MGT 852: Corporate Sustainability
EVM 852: Climate Change Adaptation
FEM 844: Mini-grids: Planning and Design
FEM 852: Appliances for off-grid communities
NTM 832: Nanotechnology for Energy Applications
MGT 801: Project Management Basics
MGT 803: Change Management
MGT 846: Renewable Energy Finance and Management

SEMESTER 4: WORK PACKAGE 4
Project Work Package 1 - Seminars

SEMESTER 5: WORK PACKAGE 5
Project Work Package 2: Research/Consultancy Project

ACADEMIC STAFF LIST FOR ENERGY MANAGEMENT AND ENTREPRENEURSHIP PROGRAMME

Name	Qualifications	Rank
Madu, Chinyere A.	BSc, MSc, PhD	Professor
Nkwocha, Edmund E.	BSc, MSc, PhD	Professor
Ogoke, Iheanyi J.	BSc, MSc, PhD	Professor
Oguzie, Emeka E	BSc, MSc, PhD	Professor
Ebiringa, Ofoeregbulam. T.	BSc, MSc, PhD	Professor
Asiegbu, Baldwin C.	BSc, MSc, PhD	Professor
Okereke, Chikwendu N.	BSc, MSc, PhD	Professor
Onyekuru, Samuel O.	BSc, MSc, PhD	Professor
Ike, Innocent S.	BSc, MSc, PhD	Reader
Ndikom, Obed B.	BSc, MSc, PhD	Reader
Nze, I. C.	BSc, MSc, PhD	Reader
Ejem, E. A.	BSc, MSc, PhD	Reader
Echeme, Ibeawuchi I.	BSc, MSc, PhD	Senior Lecturer
Iheme, Callistus I.	BSc, MSc, PhD	Senior Lecturer
Ihugba, Okezie A.	BSc, MSc, PhD	Senior Lecturer
Ikerionwu, Charles	BSc, MSc, PhD	Senior Lecturer
Oguzie, Kanayo L.	BSc, MSc, PhD	Senior Lecturer
Ugwu, Kelechi E.	BSc, MSc, PhD	Senior Lecturer
Ayogu, Ignatius I.	BSc, MSc, PhD	Lecturer 1
Chijioke, Chinonye F.	BSc, MSc, PhD	Lecturer 1
Dr. E.E. Amadi	BSc, MSc, PhD	Lecturer 1
Nwadike, Chijioke E.	BSc, MSc, PhD	Lecturer 1
Duru, E. E.	BSc, MSc, PhD	Lecturer 1
Chukwu, O. E.	BSc, MSc, PhD	Lecturer 1

Okpara, Joy	LLB, LLM, PhD	Lecturer 1

CONSULTANTS/INDUSTRY EXPERTS

S/N	NAME	GENDER	QUALIFICATION	SECTOR
1.	Dr. C. Ozumba	F	BSc/MSc/PhD	Environmental Protection
2.	Dr. Emeka Nwankwo	M	DVM/MBA	Banking/Entrepreneurship
3.	Engr. C. Nzuruba	M	BSc/MSc	Corrosion Control
4.	Mrs. Adaeze Otikpa- Uzodimma	F	BSc/MSc	Development & Policy
5.	Mr. Emma Udensi	M	BSc/MSc	Manufacturing
6.	Uba Osigwe, Esq.	M	LLB/BL/LLM	Investment Banking