



**The Nigerian Institution
Of Mechanical Engineers**
(A Division of the Nigerian Society of Engineers)



MARCH 2024

E - NEWSLETTER

Volume 21



NIMEchE MARKS WORLD ENGINEERING DAY

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INDUCTION
INAUGURATUON

NIMechE CELEBRATES WORLD ENGINEERING DAY

The Nigerian Institution of Mechanical Engineers under the Chairmanship of Engr. Alhassan Abdu Mohammed, MNSE, FNIMechE celebrated the World Engineering Day on Monday, 4th of March 2024 via the online zoom platform.

The event with the theme: “Engineering Solutions for a Sustainable World” had two renowned speakers and they are Engr. Richard Oyadina, FNSE and Engr. Prof. Mohammed Dauda, FNSE, FNIMechE.

The event was moderated by the Technical Committee Chairman- Engr. Prof. Ademola Dare, MNSE, FNIMechE and hosted by the National Chairman of NIMechE – Engr. Alhassan Abdu Mohammed, MNSE, FNIMechE.

 **The Nigerian Institution Of Mechanical Engineers**
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WORLD ENGINEERING DAY


ENGINEERING SOLUTIONS FOR A SUSTAINABLE WORLD


MONDAY
MARCH 4
2024


ZOOM
ID: 852 8764 2825
PASSCODE: 163528

4:00PM
TO
6:00PM


ENGR. ALHASSAN ABDU
MOHAMMED, MNSE, FNIMechE
NATIONAL CHAIRMAN
HOST


ENGR. PROF. ADEMOLA
DARE, MNSE, FNIMechE
CHAIRMAN, TECHNICAL COMMITTEE
MODERATOR


ENGR. RICHARD
OYADINA, FNSE
SPEAKER


ENGR. PROF. MOHAMMED
DAUDA, FNSE, FNIMechE
SPEAKER

JOIN LIVE VIA ZOOM



ENGINEERING SOLUTIONS FOR A SUSTAINABLE WORLD

PRESENTED BY ENGR. RICHARD OYADINA

ENGINEERING TO MEET SUSTAINABLE GOALS

- **Engineering solutions are essential for creating a sustainable world by addressing environmental challenges, optimizing resource use, and promoting responsible and ethical development practices.**



ENGINEERING TO MEET SUSTAINABLE GOALS

- **Resource Efficiency**
- **Renewable Energy**
- **Infrastructure Design**
- **Waste Management**
- **Clean Water and Sanitation**



ENGINEERING TO MEET SUSTAINABLE GOALS

- **Smart Technology:**
- **Climate Resilience:**
- **Biodiversity Conservation:**
- **Global Collaboration:**
- **Ethical and Social Considerations:**



ENGINEERING SOLUTIONS

- There are numerous engineering solutions aimed at creating a more sustainable world. These solutions often focus on minimizing environmental impact, reducing resource consumption, and promoting long-term ecological balance.



ENGINEERING SOLUTIONS

- **Renewable Energy Systems:**
 - Solar Power
 - Wind Power
 - Hydropower



ENGINEERING SOLUTIONS

- **Energy Storage Technologies:**
 - Development of advanced energy storage systems, such as high-capacity batteries and innovative storage materials, to store energy generated from renewable sources for later use.



ENGINEERING SOLUTIONS

- **Green Building Design:**
 - Engineers are involved in creating sustainable building designs that incorporate energy-efficient technologies, eco-friendly materials, and smart systems for heating, cooling, and lighting.



ENGINEERING SOLUTIONS

- **Waste Management and Recycling:**
 - Engineering solutions include the design of efficient waste treatment plants, recycling processes, and waste-to-energy technologies to reduce the environmental impact of waste.



ENGINEERING SOLUTIONS

- **Carbon Capture and Storage (CCS):**
 - Engineering efforts focus on developing technologies to capture and store carbon dioxide emissions from industrial processes, preventing them from entering the atmosphere and contributing to climate change.



ENGINEERING SOLUTIONS

- **Sustainable Infrastructure:**

- Designing and constructing infrastructure with a focus on sustainability, including eco-friendly materials, energy-efficient transportation systems, and resilient structures to withstand the impacts of climate change.



ENGINEERING SOLUTIONS

- **Biodegradable Materials:**

- Engineers are working on creating materials that are environmentally friendly and biodegradable, reducing the environmental impact of conventional materials.



ENGINEERING SOLUTIONS

- **Environmental Monitoring Systems:**

- Developing sensor networks and monitoring systems to track environmental parameters, enabling better management of natural resources and early detection of environmental issues.



SUMMARY



SOLUTIONS

- | | |
|-------------------------------------|--------------------------------------------|
| • Resource Efficiency: | • Smart Technology: |
| • Renewable Energy | • Climate Resilience: |
| • Infrastructure Design: | • Biodiversity Conservation: |
| • Waste Management: | • Global Collaboration: |
| • Clean Water and Sanitation | • Ethical and Social Considerations |



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The Nigerian Institution Of Mechanical Engineers (NIMechE)



WorldEngineeringDay
4th March, 2024

ENGINEERING SOLUTIONS FOR A SUSTAINABLE WORLD: ROLE OF MECHANICAL ENGINEERING IN BALANCING ECONOMIC GROWTH AND ENVIRONMENTAL RESPONSIBILITY

By



Prof. Mohammed Dauda *FNSE, FNIMechE*

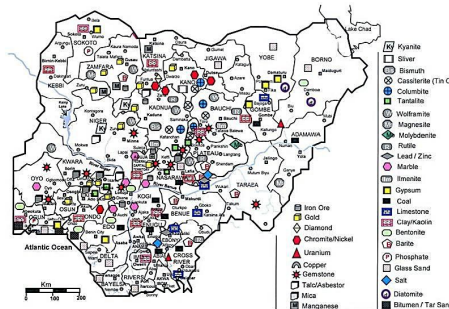
Director

Centre for Entrepreneurship and Enterprise Development (CEED)
UNIVERSITY OF MAIDUGURI



MAP OF RESOURCES

~ opportunity or curse? ~



CHALLENGES: Poverty, Inequality, Unemployment, Infrastructure and service delivery, Inclusive health, Water and food security, etc.

**FLOOD! EROSION!!
DEFORESTATION & DESERTIFICATION!!!**



GLOBAL DRIVERS OF CHANGE

1. Climate Change
2. Converging New Technologies
3. Demographics
4. Energy
5. Water Shortages
6. Poverty
7. Pollution
8. Wastes
9. World Economic Power Shifts
10. Mobility
11. Health and Well being
12. Values and People

But WHY? HOW? Nature? Ignorance? Selfishness? Arrogance?

Solution: Return to Innocence?



SUSTAINABLE DEVELOPMENT

SUSTAINABLE DEVELOPMENT GOALS



Is it possible to achieve the above Agenda by 2030?

The 21st century presents an unprecedented development opportunities to the world. For the world to take advantage of those opportunities, it is imperative to **use new technologies** to drive the development of the new economy.

Large developing economies adopts the new technologies to grow!

DEFINITIONS OF SUSTAINABLE DEVELOPMENT (SD)

Former UN Secretary General, **Kofi Annan**, in his Millennium Report to the General Assembly, defined Sustainability as:

**“Freedom from want,
freedom from fear, and
the freedom of future generations to sustain their lives on this planet.
These are the 3 grand global challenges for the 21st Century.**

Sustainable Development

- “Development that meets the needs of the present without compromising the ability of future generations to meet their own needs” UN - <http://www.un.org/esa/sustdev/>



SD is development that meets the needs of the present without compromising the ability of future generations to meet their own needs.

A sustainable society is one that can persist over generations, one of that is far-seeing enough, flexible enough, and wise enough not to undermine either its physical or its social systems of support.

Sustainable is an economic state ... where you leave the world better than you found it, take no more than you need, try not to harm life or the environment.

MECHANICAL ENGINEERING PLAYS A CRUCIAL ROLE IN DRIVING THE COUNTRY TOWARDS A SUSTAINABLE FUTURE

Mechanical engineers are developing innovative solutions to address pressing environmental challenges and create a more responsible and eco-friendly world.

SOME KEY AREAS WHERE MECHANICAL ENGINEERS ARE MAKING SIGNIFICANT CONTRIBUTIONS:

1. RENEWABLE ENERGY SYSTEMS
2. ENERGY EFFICIENCY IN MANUFACTURING
3. SUSTAINABLE TRANSPORTATION
4. WASTE REDUCTION AND RECYCLING
5. COLLABORATION AND INNOVATION

1. RENEWABLE ENERGY SYSTEMS

- **Designing and implementing** systems that utilize renewable resources like **solar, wind, and hydropower**. This can help reduce dependence on fossil fuels and decrease greenhouse gas emissions.
- **Optimizing existing systems** for better efficiency, leading to increased power generation with less environmental impact.

2. ENERGY EFFICIENCY IN MANUFACTURING

- **Designing and developing energy-efficient machinery and processes** in various industries. This can involve **using lighter materials, minimizing friction, and employing advanced control systems**.
- **Designing and building sustainable infrastructure**, such as **energy-efficient buildings, water-saving irrigation systems, and sustainable waste disposal facilities**.
- **Retrofitting existing factories** with **energy-saving technologies**, leading to significant reductions in energy consumption and related environmental costs.

3. SUSTAINABLE TRANSPORTATION

- **Designing fuel-efficient vehicles** by focusing on **lightweight materials, aerodynamic design, and efficient engine technologies**.
- **Developing alternative fuel options** like **biofuels and electric vehicles**, contributing to a cleaner transportation sector.
- **Improving public transport systems** through **efficient infrastructure design and promoting non-motorized transportation options like cycling and walking**.

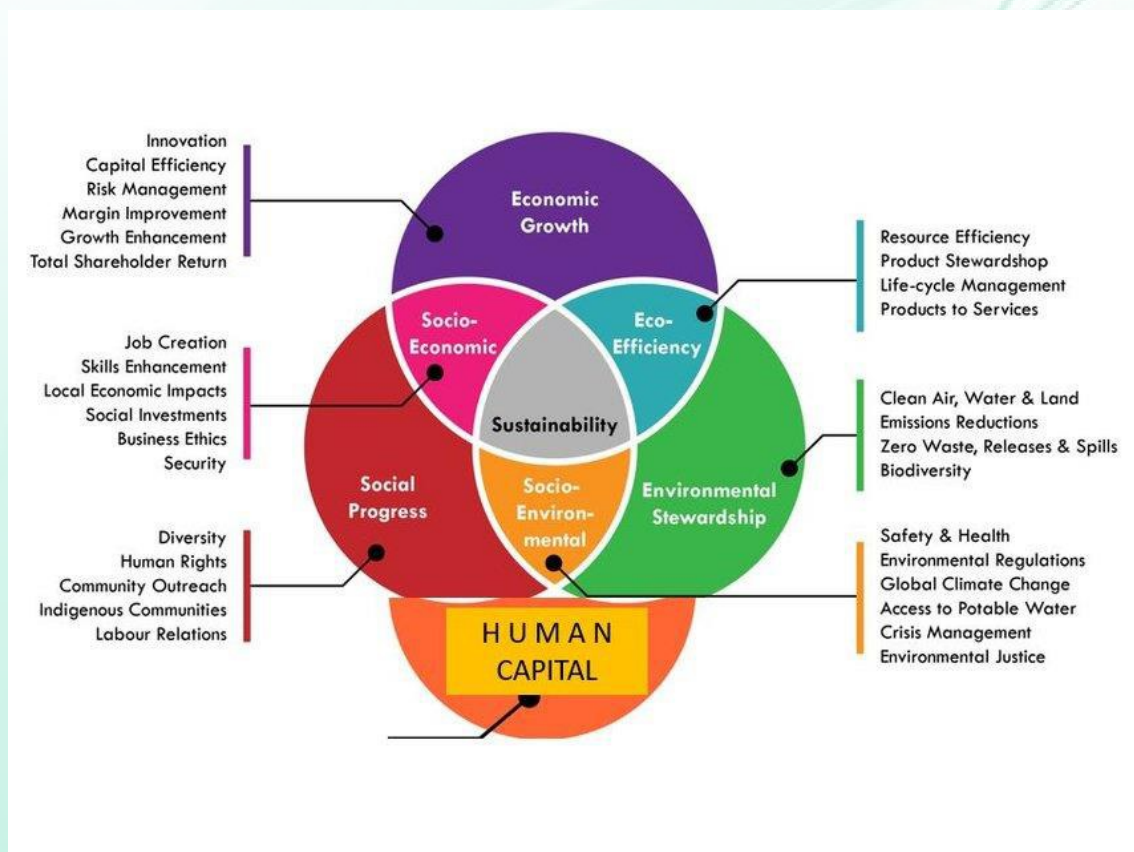
4. WASTE REDUCTION AND RECYCLING

- **Promoting practices** like [material recycling](#), [component reusability](#), and [responsible disposal of end-of-life products](#). This not only reduces environmental pollution but also conserves resources and fosters a circular economy.
- **Designing and developing waste management systems** that are efficient, sustainable, and minimize environmental impact.

5. COLLABORATION AND INNOVATION

- **Working with other disciplines** like [environmental engineers](#), [architects](#), and [policymakers](#) to develop comprehensive solutions for sustainable development.
- **Engaging in research and development** to [create innovative technologies and solutions](#) that address specific sustainability challenges faced by Nigeria.

These are just a few examples of how mechanical engineering is contributing to a more sustainable future in Nigeria. As the country continues to develop, the role of mechanical engineers in finding innovative solutions to environmental challenges will become even more critical.

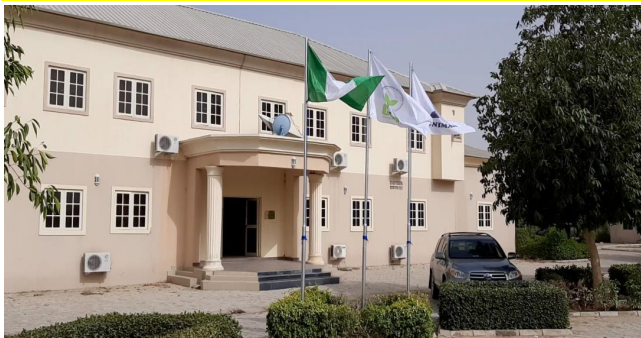


5. COLLABORATION AND INNOVATION

- **Working with other disciplines** like environmental engineers, architects, and policymakers to develop comprehensive solutions for sustainable development.
- **Engaging in research and development** to **create innovative technologies and solutions** that address specific sustainability challenges faced by Nigeria.

CENTRE FOR ENTREPRENEURSHIP AND ENTERPRISE DEVELOPMENT (CEED)

motto: helping entrepreneurs grow



It was established as an entrepreneurial facility for spreading the spirit of entrepreneurship and enterprise development through **teaching, training, research and collaboration** using both innovative and interdisciplinary approaches.

ESTABLISHED: 2011 - OPERATIONS STARTED IN 2013

Born out of a deliberate interventionist national policy directive by the **NUC**

UNIMAID's position:

- panacea for the growing youth unemployment in the country
- a specific policy prescription that could help in productively engaging the youth in the North-East sub-region to curb their vulnerability to being conscripted into insurgency



STORY OF FARMERS ASSOCIATION AND THEIR PREFERRED SOLUTION



Shettima unveils BUA's N1bn innovation centre donated to UNIMAID

● As VP, Shehu, Rabiun bag honorary doctorate degrees

From Hamisu Kabir Matazu, Maiduguri

Vice President Kashim Shettima has unveiled the N1billion International Centre for Innovation and Entrepreneurship donated to the University of Maiduguri by the Abdul Samad Rabiun Africa Initiative.

Unveiling the edifice situated

in the heart of the university yesterday, Shettima, who represented Tinubu, described the donation as "service to humanity."

The centre has 150 auditoriums, artisans and handcraft section, fabrication machine laboratory, training zone, coding and app development laboratory, robotics, drones and mechatronics, laboratory and incubation spaces, among others.

In his remark, the vice chancellor of the university,

Professor Aliyu Shugaba, expressed optimism that the centre would foster a thriving innovation and entrepreneurial ecosystem that encourages creativity, collaboration and experimentation.

"It will provide a platform for individuals and other stakeholders launch and grow new ventures, creating a social and economic impact in the process. In future, products of the centre will be capable of creating enterprises for

self-employment," he said.

The commissioning of the project heralded line up of programmes that include graduation and presentation of certificates to 33,429 graduates and 1,698 postgraduates who have successfully completed their various courses of study in the university since 2018 to date.

Also, Vice President Shettima, Shehu of Borno, Abubakar Ibn Umar Garbai, the owner of BUA, Abdul Samad Rabiun, and the

former registrar of the university, Dahiru Bobbo, were conferred with honorary doctorate degrees.

Among those that graced the occasion were the chancellor of the university; Emir of Lafia, Justice Sidi Bage Muhammad, Vice President Shettima; Governor Babagana Umara Zulum; Governor Mai Mala Buni of Yobe; a philanthropist, Alhaji Muhammad Indimi; National Assembly members; traditional rulers, among others.

ONSA, UN, Germany seal pact on police reforms in Nigeria

By Idowu Isamotu

The Office of the National Security Adviser (ONSA) has entered into a partnership with the United Nations Development Programme (UNDP) and the German Embassy for a comprehensive police reform initiative in Nigeria.

The pact was sealed at a meeting between the National Security Adviser (NSA), Nuhu Ribadu with the UNDP Resident Representative, Mohamed Yahya and the German Ambassador to Nigeria, Annett Gunther in Abuja.

This was contained in a statement issued by the Head of Strategic Communications in the Office of the National Security Adviser, Zakari Mijinyawa on Saturday.

Mijinyawa explained that the agreement was expected to support the work of the Special Committee on Police Reform constituted by President Bola Tinubu during the last National Police Council meeting.

He said that during the meeting, the NSA reiterated Tinubu's commitment to lead a comprehensive police reform process anchored on trust, human rights, rule of law and efficient public service.

The ONSA's spokesman noted that Ribadu acknowledged



■ Vice President, Kashim Shettima (4th L) Borno State Governor, Babagana Zulum (5th L) and other dignitaries during the unveiling of BUA's N1bn innovation centre donated to UNIMAID in Maiduguri yesterday. Photo: Hamisu Kabir Matazu





CONCLUSIONS

Mechanical engineering is contributing to a more sustainable future in Nigeria. As the country continues to develop, the role of mechanical engineers in finding innovative solutions to environmental challenges will become even more critical.

“Engineering itself needs a transformation to be more innovative, inclusive, cooperative and responsible”.

ICEE, UNESCO, CC&T Press, 2021

Engineering partnerships within the engineering community across the world and with all stakeholders such as governments and policy-makers, academia and educators, industry and foundations, and civil societies need to be rejigged

It is worthy to note the crucial importance of global partnerships among the engineering communities and the essential need to enhance capacity building in developing countries – such as Nigeria.

NIMechE COURTESY VISIT TO NSE PRESIDENT

Members of the Nigerian Institution of Mechanical Engineers (NIMechE) led by the National Chairman – Engr. Alhassan Abdu Mohammed, MNSE, FNIMechE paid a courtesy visit to the President of the Nigerian Society of Engineers – Engr. Margaret Aina Oguntala, FNSE in her office at the National Engineering Centre, Abuja on the Wednesday, 6th of March 2024.

The successful visit was aimed at strengthening the existing professional collaboration between NIMechE and NSE and as well, congratulate the President for her victory and giant strides.

In attendance: From the Left:

Head of IT NSE - Mr. Ibrahim Yusuf, Head Legal Services NSE - Barr. Tom Egbele, NIMechE Executive Secretary - Engr. Akpan Udeme Victor, MNSE, MNIMechE, NIMechE Abuja Chapter Chairman - Engr. Odama Matthew, MNSE, MNIMechE, Executive Secretary of NSE - Engr. Joshua Egube, FNSE, President of NSE - Engr. Margaret Aina Oguntala, FNSE, NIMechE National Chairman - Engr. Alhassan Abdu Mohammed, MNSE, FNIMechE, Director of Membership NSE, NIMechE Abuja Chapter Ex Officio - Engr. Ibrahim Balogun, MNSE, MNIMechE, NIMechE Abuja Chapter Secretary - Engr. Nathaniel Ajah, MNSE, MNIMechE and the Head of NSE Media and Protocols.



COURTESY VISIT TO

ENGR. DR. HALIMAT ADEDIRAN, FNSE, FNIMechE

Members of the Nigerian Institution of Mechanical Engineers (NIMechE) led by the National Chairman – Engr. Alhassan Abdu Mohammed, MNSE, FNIMechE paid a courtesy visit to one of NIMechE Icons and Trailblazer – Engr. Dr. Halimat Adediran, FNSE, FNIMechE in her office in Abuja on Wednesday 6th of March 2024.

In attendance: From the Left:

NIMechE Abuja Chapter Secretary - Engr. Nathaniel Ajah, MNSE, MNIMechE, NIMechE Executive Secretary - Engr. Akpan Udeme Victor, MNSE, MNIMechE, Engr. Dr. Halimat Adediran, FNSE, FNIMechE, NIMechE National Chairman - Engr. Alhassan Abdu Mohammed, MNSE, FNIMechE and NIMechE Chapter Chairman - Engr. Odama Matthew, MNSE, MNIMechE



INAUGURATION OF THE 9TH CHAIRMAN OF NIMechE IBADAN CHAPTER

The Nigerian Institution of Mechanical Engineers (NIMechE) Ibadan Chapter held an Inauguration Ceremony of the 9th Chairman of the Chapter – Engr. Wole Ayanrinde, MNSE, FNIMechE and Executive Members on Saturday, 16th March 2024 at Jogor Event Center Hall Ibadan, Oyo State.

The lecture with the Theme: “Local Contents, SME'S and Mechanical Engineering: Panacea for Consumption Inflation and Foreign Exchange Pressure in Nigeria's Economy” was presented by the Guest Speaker as well as the MD/CEO, Alamatun Nig. Ltd (Ex-Group Director Human Resource & General Services, Flour Mills of Nigeria PLC - Engr. Wale Adeniran MNSE, FNIMechE with the Chairman of the Occasion as the National Chairman of the Nigerian Institution of Mechanical Engineers - Engr. Alhassan Abdul Mohammed, MNSE, FNIMechE, ably represented by Engr. Prof. Dare A. A. MNSE, FNIMechE.

The epoch-making event had dignitaries and professionals from different works of life present and the Keynote Speaker for the event is the Rector, The Polytechnic Ibadan - Engr. Prof. kazeem Adekunle Adebisi, FNSE, MNIMechE,



Newly Inaugurated Executive Members
taking Oath of Office



Award presentation to the IPNC -Engr. Dr. Mrs.
Olufunmilade Akingbagbohun, FNSE, FNIMechE

NIMechE MEMBERS FELICITATES WITH ENGR. EMEKA EZE, FNSE, FAEng ON HIS NEW FEDERAL APPOINTMENT

Members of the Nigerian Institution of Mechanical Engineers (NIMechE) was present at a banquet in honour of the Past President of NSE – Engr. Emeka Eze, FNSE, FAEng who was appointed as the Chairman of FCT Civil Service Commission by the President of the Federal Republic of Nigeria – His Excellency, President Bola Ahmed Tinubu, GCFR.

The event which took place in Abuja on the 17th of March 2024 had dignitaries and professionals from all walks of life present. Members of NIMechE also graced the occasion and amongst the NIMechE members present at the event is Engr. Dr. Halimat Adediran, FNSE, FNIMechE.



INAUGURATION & INDUCTION CEREMONY OF MECHANICAL ENGINEERING STUDENTS OF NILE UNIVERSITY

Members of the Nigeria Institution of Mechanical Engineers (NIMechE) held an Inauguration and Induction Ceremony of Mechanical Engineering Students of Nile University of Nigeria on Wednesday, 20th March 2024 at the University Conference Hall, Nile University of Nigeria – Abuja.

Before the event, a courtesy call was paid to the Vice Chancellor of the University – Prof. Dili Dogo by members of NIMechE

The courtesy call was aimed at strengthening the collaboration between NIMechE and the University. Also, during the visit, a souvenir was presented to the Vice Chancellor of the University by the representative of NIMechE National Chairman, as well as NIMechE Abuja Chapter Chairman – Engr. Mathew Odama, MNSE, MNIMechE.



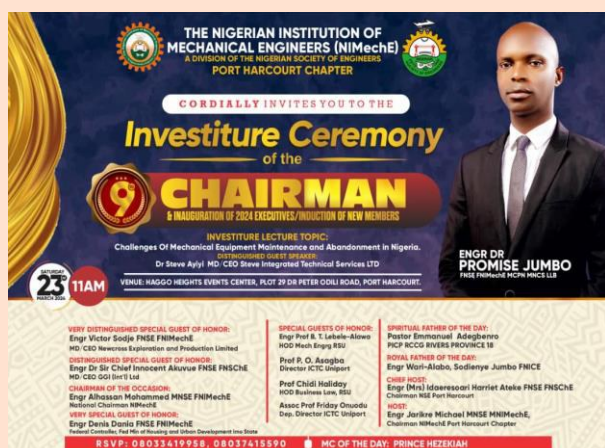


INAUGURATION OF ENGR. DR. PROMISE JUMBO, FNSE, FNIMechE

The Nigerian Institution of Mechanical Engineers (NIMechE) Portharcourt Chapter held an Inauguration Ceremony of the 9th Chairman of the Chapter – Engr. Dr. Promise Jumbo, FNSE, FNIMechE and the Executive Members on Saturday, 23rd March 2024.

The Inaugural Lecture with the theme: “Challenges of Mechanical Equipment Maintenance and Abandonment in Nigeria” was delivered by the Distinguished Guest Speaker as well as the Managing Director/Chief Executive Officer of Steve Integrated Technical Services Ltd – Dr. Steve Ayiji.

The auspicious event which took place at Haggo Heights Events Center, Port Harcourt – Rivers State was graced by friends, dignitaries and professionals from different fields of endeavour with the Chairman of the Occasion as the National Chairman of the Nigerian Institution of Mechanical Engineers – Engr. Alhassan Abdu Molammed, MNSE, FNIMechE who was ably represented by Engr. Dan Entire, FNSE, FNIMechE.







THE EDITORIAL BOARD COMMITTEE

Prepared by the Editorial Board Committee under the leadership of Engr. Ogochukwu Okeke, MNSE, MNIMEchE and approved by the National Chairman of the Nigerian Institution of Mechanical Engineers - Engr. Alhassan Abdu Mohammed, MNSE, FNIMEchE.



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