



Equipment Maintenance and Development Centre

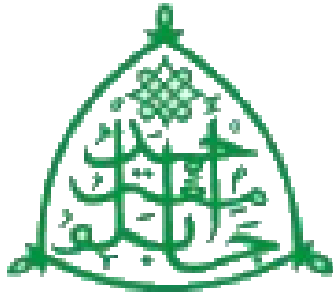
Ahmadu Bello University, Zaria.



2024 Short-Term Training Workshop Programmes
EMDC Technical Workshops Series – 2024

ABU EMDC Technical Training Workshops Series - 2024

TRAINING CALENDAR 2024



**Equipment Maintenance
and Development Centre**

**Ahmadu Bello University
Zaria**

2024 Short-Term Training Workshop Programmes
EMDC Technical Workshops Series – 2024

**Start Planning for your 2024 Training
Solutions Now!**

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About the Centre

The Equipment Maintenance Development Centre (EMDC), Ahmadu Bello University, Zaria which was established in 1990 by the National Universities Commission, is administratively placed under the office of the Vice Chancellor. It is a regional Centre catering for and overseeing the activities of Equipment Maintenance Centres in Federal Universities located in the North-West geographical region of the Country. It was later designated as a Centre of Excellence in Electrical, Electronic, and Computing Equipment Maintenance and Training by the NUC. In 2009, the Management of the Centre, after re-evaluating its mandates, expanded its mandate to include equipment development in addition to its traditional role as a Centre for equipment repairs and maintenance, and manpower training. In this regard, tremendous success has been achieved. To effectively achieve its mandate, the Centre was re-organised into three units, namely: Laboratory Equipment Repair and Maintenance, Equipment Development and Fabrication, and Computer Repair and Maintenance.

The mandates of the Centre are:

- Training and retraining of technical and academic staff in the art of equipment maintenance.
- Repair of broken-down equipment and tools utilizing identified staff and where necessary, external consultants.
- Carry out activities that are geared towards preventive maintenance of the University-wide equipment stock.
- Assisting in the procurement and installation of equipment required in the University.
- To provide equipment maintenance support, training, and repair services to the university and institution within the catchment area.
- Provide support in equipment specification, installation, commissioning, decommissioning, ordering and stocking of spares, documentation, and inventory services.
- Documentation of University teaching and research equipment.
- Acting as a Resource Centre for technical information on equipment use, maintenance, and repairs.
- Evolving new methods of standardising instrumentation in the Universities.

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- Regular inspection of the laboratories, with a view to updating the inventory of University Equipment.

As of today, ABU EMDC is one of the most reliable and functional resource centres among the committee of EMDCs and the Centre has strived to live up to its mandate since its establishment. The Centre currently has Ten (10) technical staff with some affiliated staff from the departments in the university and the industries. The Centre provides equipment and laboratory maintenance training programs for Technologists, Technicians, and Academic staff from within and outside the University. It has developed various prototype equipment such as Ventilator, Automatic hand washing machine, burner for industrial steam boilers, magnetic stirrer, autoclave, haematocrit, incubators, and centrifuges with patents, etc.



ABU EMDC Technical Training Workshops Series - 2024
Workshop Summary

1. 7-Day Training Workshop on Repairs and Maintenance of Scientific and Engineering Equipment in Universities, Research Institutes, and Private Laboratories, 4th – 10th February 2024.
2. 7-Day Training Workshop on Solar Photovoltaic (PV) System, Maintenance, and Troubleshooting, 3rd – 9th March 2024.
3. 7-Day Training Workshop on Principles of Laboratory Management, Procurement, Installation, Service, Maintenance, and Repairs of Scientific Equipment in Universities, Research Institutes, and Private Laboratories, 21st – 27th April 2024.
4. 7-Day Training Workshop on Electric Power Equipment Maintenance and Troubleshooting, 12th – 18th May 2024.
5. 7-Day Training Workshop on ISO/IEC 17025: Requirement for Laboratory Management System and Technical Competence, 9th – 15th June 2024.
6. 7-Day Hands-On Training Workshop on Modern Approach in Biomedical Equipment Maintenance and Management, 7th – 13th July 2024.
7. 7-Day Hands-On Training Workshop on Basic Computer Hardware, Networking Management, Security, Maintenance, and Troubleshooting, 11th – 17th August 2024.
8. 7-Day Hands-On Training Workshop on Printed Circuit Board (PCB), Electronic Circuit Design, & Troubleshooting, 8th – 14th September 2024.
9. 7-Day Hands-on Training Workshop Laboratory Quality Management, 13th – 19th October 2024.
10. 7-Day Hands-on Training Workshop on Arduino UNO Bootcamp for Beginners, 17th – 25th November 2024.
11. 7-Day Training Workshop on Modern Analytical and Chemical Laboratory Equipment (Analytical Instrumentation, Equipment Calibration, Operations, Quality & Safety), 10th – 16th December 2024.

7-Day Training Workshop on Repairs and Maintenance of Scientific and Engineering Equipment in Universities, Research Institutes, and Private Laboratories

Objectives

- ✦ To demonstrate the process of repairing defective instruments by experienced technicians and technologists;
- ✦ To provide hands-on training to the participants to enhance their skills and improve their confidence to independently maintain and repair defective scientific instruments;
- ✦ To acquaint the participants with the functions of scientific instruments through need-based training, as well as documentation of the repair and maintenance activities;
- ✦ To update the trainees' knowledge of evolving technologies in scientific equipment;
- ✦ To facilitate information exchange among scientists, researchers, technicians, service engineers, and industrialists for enhancing the existing scientific capacity.

Course Content

- ✦ Principles of maintenance and repairs
- ✦ Instrumentation and components
- ✦ Instrumentation and troubleshooting
- ✦ New technologies in scientific equipment: Introduction to Arduino
- ✦ Equipment development principles
- ✦ How to solder and de-solder
- ✦ Rule of thumb in handling equipment
- ✦ Troubleshooting and repairs of equipment
- ✦ Hands-on training to expose participants to improve their skills to independently undertake maintenance and repairs of defective scientific instruments
- ✦ Information exchange among scientists, researchers, technicians, service engineers, and industrialists to enhance the existing scientific capacity.
- ✦ Soft skills

Target Audience

Professional Technicians, Scientists, Maintenance Personnel, Researchers, Engineers (Biomedical, Safety, and Service) from Academic and Research Institutions, Hospitals and Industries, students in higher Institutions of learning, and hobbyists.

ABU EMDC Technical Training Workshops Series - 2024

Duration: 7 Days
Date: 4th – 10th February 2024
Arrival: February 4, 2024
Departure: February 10, 2024

Registration Fees:

Students (Undergraduate/Youth Corp member):	₦25,000
Students (Postgraduate):	₦50,000
ABU Staff:	₦50,000
Academic Institutions/Individuals:	₦80,000
Corporate Organisations:	₦120,000
Foreigners:	\$250

Venue: Equipment Maintenance and Development Centre, Ahmadu Bello University, Main Campus, Samaru, Zaria



7-Day Training Workshop on Solar Photovoltaic (PV) Systems, Maintenance, and Troubleshooting

Objectives

- ✦ To provide detailed knowledge about the successful installations of solar energy systems (inverter, Solar panels, charge controllers, batteries, etc.)
- ✦ To understand the calculations and customization of the components.
- ✦ To understand energy audit and energy efficiency implementation techniques.

Course content

- ✦ Rudiments of renewable energy: From Theory to Application. Fundamentals of Basic Electricity. Inverter design, application, and usage in solar PV Systems.
- ✦ Basic troubleshooting and repairs of an inverter. DC-AC solar PV System, PV array connections, component sizing, Charge controller, instrumentation usage, and how to plan and design your grid system.
- ✦ PV module operation, Energy conversation and demand, performance and characteristic curve, storage system, site survey, on-grid and off-grid system.
- ✦ Solar PV installation, circuit conductors, PV system protection, solar cells and PV modules, types of solar PV system, solar components, and best tilt angle for solar PV panels. Troubleshooting of solar PV system and inverter
- ✦ Safety and thumb rules in troubleshooting, monitoring, and maintenance of PV systems, measurement tools, and instrument usage
- ✦ Hands-on exercise on installation, troubleshooting, and testing of solar PV system.
- ✦ Soft Skills.

Target Audience

This workshop is designed for those who intend to pursue a profession and career in solar PV system design and installation. This includes PV System installers, contractors, project managers, procurement officers, engineers, electricians, quality inspectors, technical support crew, energy professionals, architects, project developers, salesmen, and customer service professionals in the solar energy industry. It is ideal for complete beginners with zero solar PV experience, students, NYSC members, and anyone who has an interest in renewable energy, solar photovoltaic systems, and installation

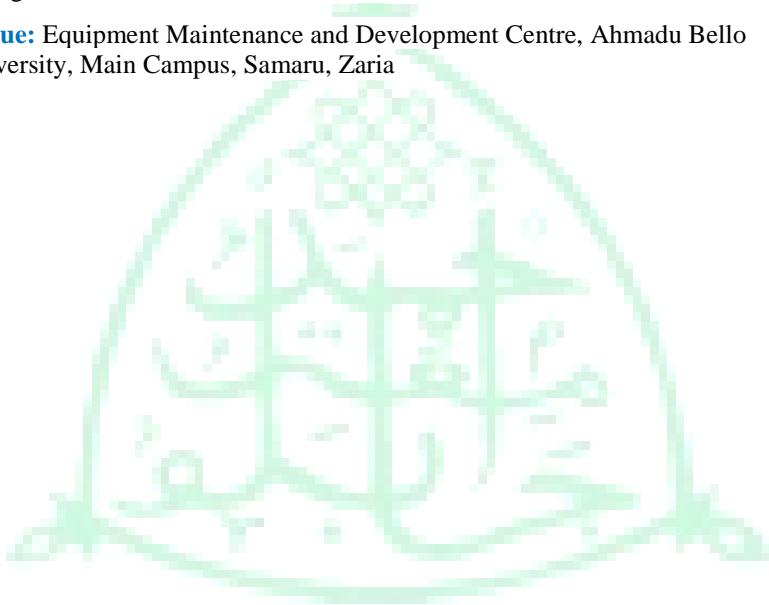
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Duration: 7 Days
Date: 3rd – 9th March 2024
Arrival: March 3, 2024
Departure: March 9, 2024

Registration Fees:

Students (Undergraduate/Youth Corp member):	₦25,000
Students (Postgraduate):	₦50,000
ABU Staff:	₦50,000
Academic Institutions/Individuals:	₦80,000
Corporate Organisations:	₦120,000
Foreigners:	\$250

Venue: Equipment Maintenance and Development Centre, Ahmadu Bello University, Main Campus, Samaru, Zaria



7-Day Training Workshop on Principles of Laboratory Management, Procurement, Installation, Service, Maintenance, and Repairs of Scientific Equipment in Universities, Research Institutes, and Private Laboratories

Objectives

- ✦ To update participants' knowledge of the latest techniques involved in the operation of scientific equipment
- ✦ To acquaint the participants with the functioning of scientific instruments through need-based training, as well as documentation of the repair and maintenance activities.
- ✦ To update the trainees' knowledge of evolving technologies in scientific equipment, principles of laboratory management, and PRISM.
- ✦ To facilitate information exchange among scientists, researchers, technicians, service engineers, and industrialists for enhancing the existing scientific capacity.

Course Content

- ✦ Ideal laboratory practice and scientific equipment usage
- ✦ Basic troubleshooting and repairs of laboratory equipment
- ✦ Management overview and partners in laboratory/studio/workshop facility management
- ✦ Technological challenges and managing technical personnel
- ✦ Laboratory staff and leadership
- ✦ Why PRISM
- ✦ Hands-on Troubleshooting of equipment and repairs
- ✦ Soft skills

Target Audience

Directors, Heads/Deans, Lab Managers/Supervisors, Professional Technicians and Technologists, Estate and Procurement Officers/Managers, Contractors, Maintenance Personnel, Scientists, Researchers and Service Engineers from Academic and Research Institutions, Hospitals and Industries, and Hobbyists.

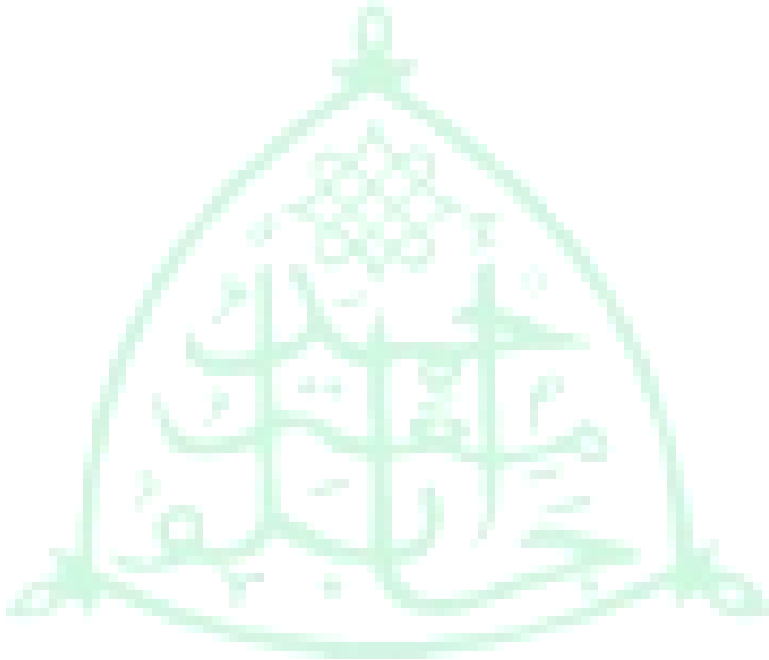
Duration:	7 Days
Date:	21 st – 27 th April 2024
Arrival:	April 21, 2024
Departure:	April 27, 2024

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Registration Fees:

Students (Undergraduate/Youth Corp member):	₦25,000
Students (Postgraduate):	₦50,000
ABU Staff:	₦50,000
Academic Institutions/Individuals:	₦80,000
Corporate Organisations:	₦120,000
Foreigners:	\$250

Venue: Equipment Maintenance and Development Centre, Ahmadu Bello University, Main Campus, Samaru, Zaria



7-Day Training Workshop on Electric Power Equipment Maintenance and Troubleshooting

Introduction

Electrical equipment in Electrical Power systems plays a vital role in the transmission and distribution of electrical power in the 21st Century. Its maintenance for sustainable operation is important to provide continuous service to end-users. This training workshop on Troubleshooting and Maintenance of Electrical Equipment is developed to assist Electrical personnel in understanding, maintaining, and troubleshooting common and uncommon problems in modern and existing Electrical Equipment. It will also provide the participants with a general knowledge to understand different Electrical Equipment and systems. It will increase the awareness of the required diagnostic skills for the maintenance of Modern Power systems.

Objectives

- ✚ To learn about Transformers and their functions
- ✚ To learn about the Need for an Efficient Earthing System
- ✚ To understand Electrical Equipment and Systems Maintenance Requirements
- ✚ To understand the need for routine maintenance and a logical approach to fault-finding techniques
- ✚ To discuss the procedures for finding an electrical fault
- ✚ To elaborate on a variety of Electrical Faults
- ✚ To develop Skills and Knowledge to implement condition-based maintenance and non-invasive maintenance, which will assist in reducing downtime and shut-down of equipment
- ✚ To understand the need for routine inspection, adequate maintenance of equipment, and accurate record-keeping
- ✚ To understand the Effective Maintenance Activities for the best utilisation of Time and Resources

Course content

The training course will revolve around maintenance, troubleshooting, and fault-finding techniques used in today's modern systems.

- ✚ Fundamentals of Electrical Maintenance
- ✚ Introduction and Safety: Types of Fault and Factors affecting Fault Levels, Maintenance of Electrical Equipment, Managing Maintenance, Safety, Balanced and Unbalanced Faults, Safe Working Practices and Isolation Procedures

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- ✦ Maintenance of Electrical Equipment: Safe Working Practices and Isolation Procedures, Predictive Maintenance, Preventative Maintenance, Reactive Maintenance and Troubleshooting, Condition Monitoring
- ✦ Maintenance Engineering: Electrical Testing for Troubleshooting, Transformer Maintenance, Generator Maintenance, Transformer Components and Troubleshooting, Maintenance of Electric Motors, Power Electronics and Pulse Width Modulation Inverters, AC Machine Components and Problem Solving
- ✦ Troubleshooting, Maintenance, and Cable Faults: Synchronous Generators. Generator Maintenance and Troubleshooting, Variable Speed Drives and Harmonics, Cable Fault Locating, External Influences
- ✦ Cabling and Maintainability
- ✦ Field Test measurement using test instruments
- ✦ Analyse Current Competence in Maintenance and Fault-finding and yourself to fill 'gaps' of current knowledge
- ✦ Soft skills

Target audience

Electrical Professionals, Electrical Engineers, Consultants and Electrical managers and supervisors, Technicians, Electromechanical Technicians, control technicians, and other Professionals responsible for the operation, maintenance, and fault-finding techniques, Personnel who have a work scope which includes limited Electrical maintenance, Works, Services and Maintenance Personnel, both developing engineers & experienced electrical personnel working within commercial and heavy industrial environments within oil and gas processing plants.

Duration:	7 Days
Date:	12 th – 18 th May 2024
Arrival:	May 12, 2024
Departure:	May 18, 2024

Registration Fees:

Students (Undergraduate/Youth Corp member):	₦25,000
Students (Postgraduate):	₦50,000
ABU Staff:	₦50,000
Academic Institutions/Individuals:	₦100,000
Corporate Organisations:	₦200,000
Foreigners:	\$250

Venue: Equipment Maintenance and Development Centre, Ahmadu Bello University, Main Campus, Samaru, Zaria

7-Day Training Workshop on ISO/IEC 17025: Requirement for Laboratory Management System and Technical Competence

Objectives

- ✦ To ensure that laboratory workers, managers, and leaders are well-informed and skilled in laboratory management systems, safety, risk, and quality practices.
- ✦ To provide the knowledge for ISO 17025 standard awareness
- ✦ To develop capacities, necessary skills, and expertise towards ISO/IEC 17025:2017 accreditation assessment.

Course Content

- ✦ The evolution of ISO/IEC 17025:2017, main terms and definition
- ✦ ISO 17025 Standard and the difference between ISO 9001 and ISO 17025.
- ✦ The main challenges in the 2017 version of the ISO/IEC
- ✦ The main clauses of ISO/IEC 17025:2017
- ✦ Compliance with safety culture
- ✦ Management system requirement
- ✦ Internal auditing to ISO/IEC 17025:2017 (Document control of procedures, effective technical records, certified reference materials, suitable reagents, suitable test method, validated methods, correct handling of samples, management review record, defining measurement procedure)
- ✦ Resource requirements – General personnel, facilities, environmental conditions, equipment, suitable facilities, and conditions.
- ✦ Risk and opportunities procedure, review of requests, tenders, and contract
- ✦ Soft skills.

Target Audience

Scientists, Laboratory managers & and supervisors, technical staff of laboratories of all disciplines, Laboratory technologists/analysts and research officers, consultants, and auditors of all types who want or need to learn better audit practices and an appreciation for the technical demands of ISO/IEC 17025, Professionals looking to conduct and oversee an accreditation assessment of calibration, testing laboratories and those who are responsible for maintaining compliance with the requirements of ISO/IEC 17025 2017. Executives, Engineers, and Professionals who are directly or indirectly users of test results and or calibration data.

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Duration: 7 Days
Date: 9th – 15th June 2024
Arrival: June 9, 2024
Departure: June 15, 2024

Registration Fees:

Students (Undergraduate/Youth Corp member):	₦25,000
Students (Postgraduate):	₦50,000
ABU Staff:	₦50,000
Academic Institutions/Individuals:	₦80,000
Corporate Organisations:	₦120,000
Foreigners:	\$250

Venue: Equipment Maintenance and Development Centre, Ahmadu Bello University, Main Campus, Samaru, Zaria



7-Day Hands-On Training Workshop on Modern Approach in Biomedical Equipment Maintenance and Management

Objectives

- ✦ To provide the participants with a good understanding of biomedical equipment principles, applications, and maintenance procedures.
- ✦ To provide the participants with an understanding of the functionalities of healthcare equipment and their limitations.
- ✦ To provide the participants with the knowledge and skills required for the effective management of healthcare equipment for optimal performance and reliability since the primary responsibility for the care and maintenance of equipment rests with the user.
- ✦ To provide Surgeons and Clinicians with the basic preventive maintenance and care skills in a safe environment.

Course Content

- ✦ Intro to ISO/IEC for Medical devices
- ✦ Instrumentation: Component identification and digital meter usage
- ✦ IT planning for Biomedical Equipment Management Quality technical support, Installations, Maintenance: PPM, AMC & CMC, Corrective Maintenance, Routine Maintenance/Preventive Maintenance and Troubleshooting, Calibrations, Performance Verification, and Repairs of various biomedical equipment in the Hospital, Data Management and Interpretation
- ✦ PRISM, Health Project Management, Equipment Condition Appraisal, Testing & Commissioning of New Equipment and Contract Management
- ✦ Practical Hands-on Exercises: Repairs of received equipment and case studies
- ✦ Communication Skills and Capacity Transfer, Strong analytical and problem-solving skills with effective time management and organization skills

Target Audience

This program is designed for Healthcare products end users (Doctors, Nurses, Scientists, Researchers, Medical Technologists, Radiologists, Clinical Educators/Trainers and hospital administrative staff), Engineers (Biomedical, Medical Electronics, Biomedical Instrumentation, Electronics & Instrumentation, Communications, Electrical, Computer), project managers, hospital technicians, maintenance personnel, healthcare technology managers, laboratory managers, hospital administrators, Sales personnel, and medical equipment sales representatives. It is also suitable for individuals interested in a

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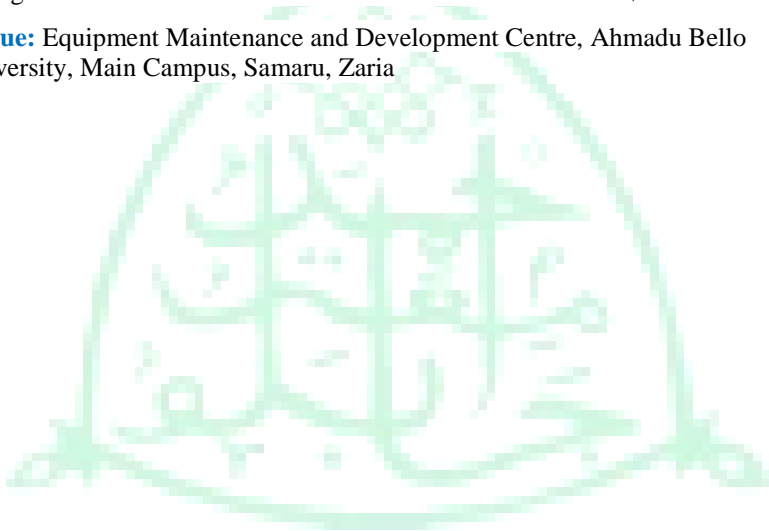
career in healthcare equipment maintenance and management. Procurement and auditing personnel will benefit from this program as well.

Duration: 7 Days
Date: 7th – 13th July 2024
Arrival: July 7, 2024
Departure: July 13, 2024

Registration Fees:

Students (Undergraduate/Youth Corp member):	₦25,000
Students (Postgraduate):	₦50,000
ABU Staff:	₦50,000
Academic Institutions/Individuals:	₦80,000
Corporate Organisations:	₦120,000
Foreigners:	\$250

Venue: Equipment Maintenance and Development Centre, Ahmadu Bello University, Main Campus, Samaru, Zaria



7-Day Hands-On Training Workshop on Basic Computer Hardware, Networking Management, Security, Maintenance, and Troubleshooting

Objectives

- ✚ To assemble, and install different operating systems and all other application software
- ✚ To maintain and troubleshoot the PC with all its hardware components
- ✚ To setup and configure the networking system using various network devices
- ✚ To establish a robust, stable, and secure network to protect data from various attacks.

Course Content

- ✚ Preventive Maintenance and troubleshooting of PC
- ✚ Troubleshooting, maintenance, and repairs of computer power supply
- ✚ Network Administration
- ✚ Network cabling
- ✚ Networking basics, IP & setting up a computer on LAN
- ✚ Practice IP addressing technique (IPv4/IPv6), sub netting and super netting the network
- ✚ Network collaboration, surveillance, and maintenance
- ✚ Cyber security essentials and associated safety issues
- ✚ Network troubleshooting; case study and discussion
- ✚ Troubleshooting, maintenance, and repairs of the computer system
- ✚ Soft skills

Target Audience

Scientists, Engineers, Researchers, Network Managers, and operators, Data Communication Analysts/Network Administrators, Technologists, IT Managers/Directors, MIS specialists, maintenance personnel, librarians, industries, and security policymakers who are interested in network security and gaining an understanding of the threats they face and how to mitigate such threats, prospective teachers and students.

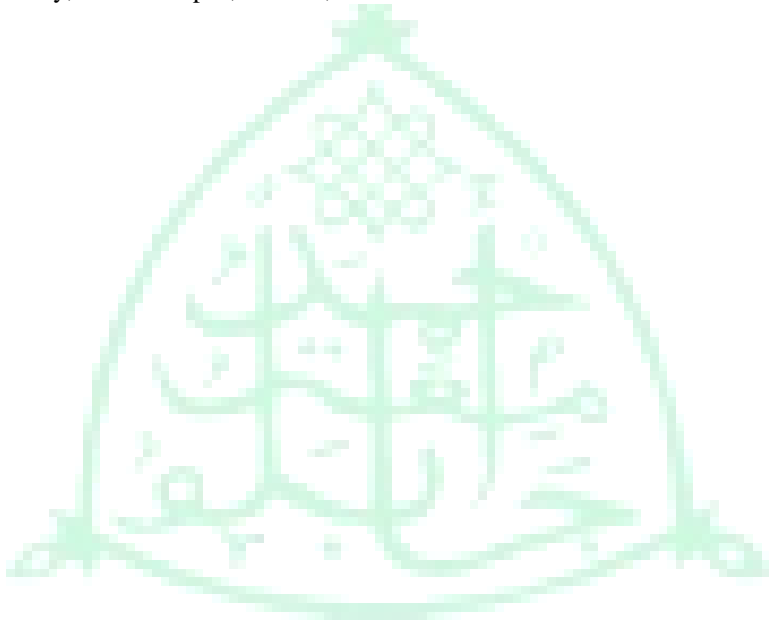
Duration:	7 Days
Date:	11 th – 17 th August 2024
Arrival:	August 11, 2024
Departure:	August 17, 2024

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Registration Fees:

Students (Undergraduate/Youth Corp members):	₦25,000
Students (Postgraduate):	₦50,000
ABU Staff:	₦50,000
Academic Institutions/Individuals:	₦80,000
Corporate Organisations:	₦120,000
Foreigners:	\$250

Venue: Equipment Maintenance and Development Centre, Ahmadu Bello University, Main Campus, Samaru, Zaria



7-Day Hands-on Training Workshop on Printed Circuit Board (PCB), Electronic Circuit Design, and Troubleshooting

Introduction

This training workshop will introduce you to the concepts of PCB designing, development tools, components, and their categories. You will get hands-on experience in drawing a Schematic, setting up an Environment for PCB designing Practice, PCB Designing Basic and Analog Electronic Circuits, PCB Designing Power Supplies, Different Sensor modules, Electronics Projects, and Embedded Projects. You will have hands-on experience in PCB Layout, Prototype design, Design Rule Check (DRC), PCB Making, Printing the Design, Etching, and Drilling, Assembly of components and Component Mounting, Soldering and De-soldering, Interconnecting and Packaging Electronic Circuits (IPC) Standards, and PCB and Hardware Testing.

Objectives

- ✚ To introduce the participants to the concepts of PCB designing and development tools
- ✚ To demonstrate the detailed description and practical aspects of PCB designing
- ✚ To teach participants how to create schematics and layouts for their electronic circuit designs
- ✚ To provide participants with an understanding of the different materials used in PCB manufacturing
- ✚ To provide hands-on experience with lab practice and designing
- ✚ To enable participants to design their own printed circuit boards (PCBs) using industry-standard software tools

Course contents

- ✚ Introduction to PCB designing concepts
- ✚ Components identification and their categories
- ✚ Introduction to Development Tools
- ✚ Detailed description and practicals of PCB designing: PCB Layout Designing, Prototype Designing, Design Rule Check (DRC), PCB Making, Printing, Etching, Drilling, Assembly of components, PCB Materials, Printing the Design, Interconnecting and Packaging Electronic Circuits (IPC) Standards, Soldering and De-soldering, Component Mounting, PCB and Hardware Testing
- ✚ Lab practice and designing concepts: Drawing a Schematic, setting up an Environment for PCB, PCB Designing Practice Designing of Basic and Analog Electronic Circuits, PCB Designing of Power Supplies, PCB

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Designing of Different Sensor modules, PCB Designing of Electronics Projects, PCB Designing of Embedded Projects

- ✚ Electronic circuit troubleshooting
- ✚ Soft skills

Target audience

- ✚ Students who are interested in electronics and want to learn about PCB and electronic circuit designing
- ✚ Engineers who want to improve their skills in PCB and electronic circuit designing
- ✚ Hobbyists who want to learn how to design and build their own electronic circuits
- ✚ Entrepreneurs who want to create their own electronic products
- ✚ Technicians who want to learn how to repair and troubleshoot electronic circuits
- ✚ Researchers who want to design custom electronic circuits for their experiments
- ✚ Scientists who want to create custom electronic instruments for their research
- ✚ Educators who want to teach electronics and PCB design to their students

Duration: 7 Days
Date: 8th – 14th September 2024
Arrival: September 8, 2024
Departure: September 14, 2024

Registration Fees:

Students (Undergraduate/Youth Corp members)	₦25,000
Students (Postgraduate):	₦50,000
ABU Staff:	₦50,000
Academic Institutions/Individuals:	₦80,000
Corporate Organisations:	₦120,000
Foreigners:	\$250

Venue: Equipment Maintenance and Development Centre, Ahmadu Bello University, Main Campus, Samaru, Zaria

7-Day Hands-on Training Workshop Laboratory Quality Management

Objectives

The laboratory quality management training workshop aims to equip laboratory professionals, including managers, quality officers, and technicians, with the skills to establish and maintain a robust Quality Management System. Participants will learn to differentiate between Quality Control and Assurance, ensure compliance with international standards, foster a culture of continuous improvement, and enhance communication within laboratory teams. The workshop targets diverse roles, emphasizing practical application to improve overall laboratory quality, from leadership and strategic planning to frontline operations and regulatory compliance.

Course Content

- ✚ Introduction to Laboratory Quality Management
- ✚ Basics of Quality Management Systems (QMS)
- ✚ Understanding Laboratory Processes
- ✚ Introduction to Quality Control (QC)
- ✚ Introduction to Quality Assurance (QA)
- ✚ Compliance with International Standards
- ✚ Laboratory Documentation and Record-Keeping
- ✚ Training and Competence Management
- ✚ Equipment and Instrumentation Management
- ✚ Continuous Improvement in the Laboratory
- ✚ Interactive Workshops and Group Activities
- ✚ Soft Skills
- ✚ Q&A Session and Discussion
- ✚ Conclusion and Next Steps

Target Audience

Laboratory Managers and Directors, Quality Managers and Officers, Laboratory Supervisors and Team Leaders, Laboratory Technologists and Technicians, Quality Assurance and Control Personnel, Regulatory Affairs Professionals, Training Coordinators, Personnel Involved in Equipment Maintenance, Laboratory Quality Improvement Teams, New Hires and Entry-Level Staff, Scientists and Researchers, Students in related field and Hobbyist

- Duration:** 7 Days
Date: 13th – 19th October 2024
Arrival: October 13, 2024

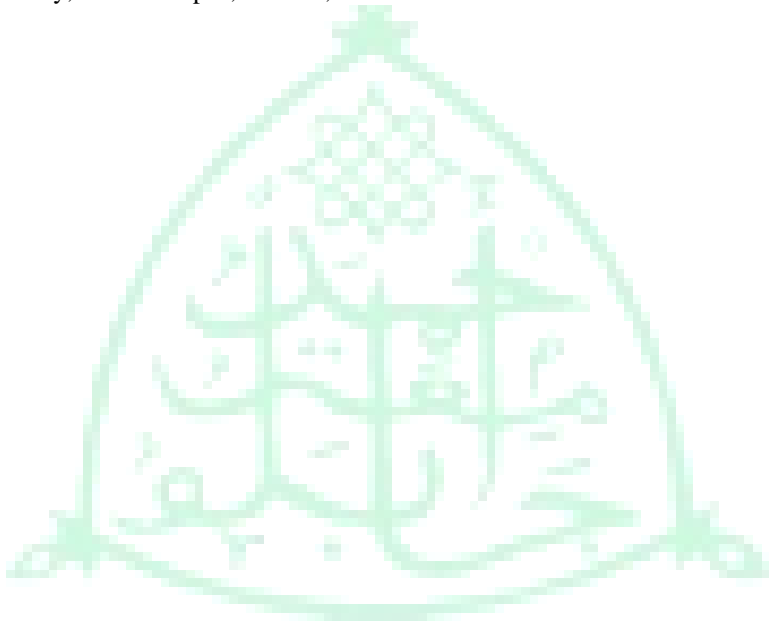
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Departure: October 19, 2024

Registration Fees:

Students (Undergraduate/Youth Corp members):	₦25,000
Students (Postgraduate):	₦50,000
ABU Staff:	₦50,000
Academic Institutions/Individuals:	₦80,000
Corporate Organisations:	₦120,000
Foreigners:	\$250

Venue: Equipment Maintenance and Development Centre, Ahmadu Bello University, Main Campus, Samaru, Zaria



7-Day Hands-on Training Workshop on Arduino UNO Bootcamp for Beginners

Introduction

Arduino is an open-source prototyping platform for developing electronics projects. An Arduino is a small computer that you can program to control things like lights or motors along with listening to components like motion detection sensors. It can give your project interactivity without needing an expensive and large circuit. Instead, you use a computer to program the Arduino, upload your code to the Arduino, and hook up your circuit. Arduino can interact with buttons, LEDs, motors, speakers, cameras, GPS units, and even your smartphone or your Television.

Objectives

- ✚ To understand the importance of quality control
- ✚ To develop the participant's skills in method validation
- ✚ To improve participant's skills in the area of equipment maintenance and operation
- ✚ To develop participants' skills in method development and method validation
- ✚ To be able to perform Corrective/Preventive actions and subsequent root cause analysis
- ✚ Perfect their skills in conducting internal Audit and Management Reviews.

Course Content

- ✚ Introduction to Microcontroller and Microprocessor, Arduino
- ✚ Overview of Embedded Systems
- ✚ Fundamentals of Arduino Electronics
- ✚ Controlling Embedded System Based Devices using Arduino
- ✚ Learning Arduino Platform
- ✚ Programming the Arduino
- ✚ Learn how to use an Arduino safely
- ✚ Program your Arduino using code that you've written in the Arduino IDE (Integrated Development Environment)
- ✚ Software and Hardware Tools for Arduino
- ✚ Joining Arduino Community
- ✚ The Basics of Sensors and Actuators using Arduino and much more.
- ✚ Understand best practice concepts for programming and prototyping
- ✚ Use a wide variety of hardware and components to prototype your projects using a breadboard

ABU EMDC Technical Training Workshops Series - 2024

- ✚ Build your own innovative project with Arduino
- ✚ Decision Making and Using Logic
- ✚ Data manipulation and EEPROM
- ✚ Libraries, Serial Data and Hardware
- ✚ Wiring circuits using a breadboard.
- ✚ Designing the circuits that interact with basic actuators and sensors
- ✚ Interfacing actuators and sensors
- ✚ Soft skills

Target Audience

There are no prerequisites for joining this workshop. Anyone interested can join this workshop. Students from Electronics, Electrical, Instrumentation, CS/IT, Hardware or software technicians, technical personnel of various industries, Engineers, Technologists and technicians, artists, hobbyists, designers, and anyone interested in developing interactive objects and environments.

Duration:	7 Days
Date:	17 th – 23 th November 2024
Arrival:	November 17, 2024
Departure:	November 23, 2024

Registration Fees:

Students (Undergraduate/Youth Corp members):	₦40,000
Students (Postgraduate):	₦70,000
ABU Staff:	₦80,000
Academic Institutions/Individuals:	₦100,000
Corporate Organisations:	₦180,000
Foreigners:	\$350

Venue: Equipment Maintenance and Development Centre, Ahmadu Bello University, Main Campus, Samaru, Zaria

Requirements:

- Bring your notebook/laptop if you have one, if not computer is available for you.

Package for the workshop:

- Each participant will receive a Complete Arduino Starter Kit to take home after completion of the course
- Certificate of Attendance
- Breakfast, tea and lunch
- Training Slide Manual

7-Day Training Workshop on Modern Analytical and Chemical Laboratory Equipment (Analytical Instrumentation, Equipment Calibration, Operations, Quality & Safety)

Introduction

This training workshop on modern analytical and chemical laboratory equipment will update the participants with the current laboratory operation principles and management. It will also introduce the participants to test method development, validation, laboratory safety, equipment maintenance and control, personnel training, and proactive/preventive and root cause analysis.

Objectives

- ✦ To understand the importance of quality control and the essential components of a laboratory management system
- ✦ To develop the participant's skills in method validation
- ✦ To improve the Participant's skills in the area of equipment maintenance and operation
- ✦ To develop participants' skills in method development and method validation
- ✦ To realize the need for data control and method documentation
- ✦ Understand the concept of traceability within laboratory activities
- ✦ To be able to raise Corrective/Preventive actions and subsequent root cause analysis

Course Content

- ✦ Introduction to modern chemical laboratory operation
- ✦ Laboratory instrumentation and analytical equipment
- ✦ Equipment calibration; external versus internal calibration
- ✦ Safe operating procedures
- ✦ Method development and validation
- ✦ Basic maintenance and troubleshooting
- ✦ Equipment management best practice.
- ✦ Laboratory accreditation
- ✦ Soft skills

Target Audience

Laboratory managers/supervisors; Scientific Personnel of Laboratories like Chemists, (Chemical, Environmental, Safety, Process/Shift) Engineers, Maintenance Personnel, Laboratory Technologists and Technicians; Newly recruited staff of chemical laboratories, Instrument Operators in chemical laboratories; Researchers, Laboratory analysts, and scientists cooperate

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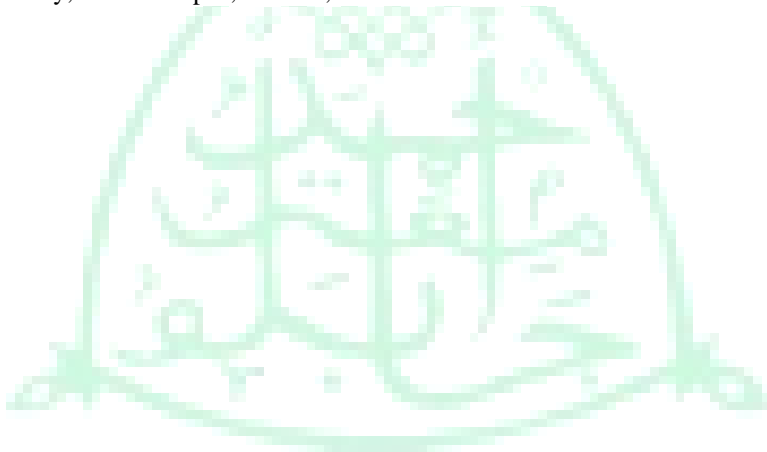
organisations and environmental officers, students in higher Institutions of learning.

- Duration:** 7 Days
- Date:** 10th – 16th December 2024
- Arrival:** December 10, 2024
- Departure:** December 16, 2024

Registration Fees:

Students (Undergraduate/Youth Corp members):	₦20,000
Students (Postgraduate):	₦40,000
ABU Staff:	₦40,000
Academic Institutions/Individuals:	₦80,000
Corporate Organisations:	₦120,000
Foreigners:	\$250

Venue: Equipment Maintenance and Development Centre, Ahmadu Bello University, Main Campus, Samaru, Zaria



Further Information

For registration and inquiries on the workshop, please visit:
www.abu.edu.ng/emdc, or contact the officials enlisted:

The Director, Prof. A. A Abdelmalik 08036791694

The Workshop Coordinator, Engr. I. A. Zubairu 08036371680

Assistant Workshop Coordinator, Mrs. S. Abdullah 08025950577

Each course includes:

- ✚ Certificate of Participation issued by EMDC, ABU, Zaria
- ✚ Working tools in categories of the registration fee
- ✚ Breakfast, tea, and lunch at Centre

***NOTE: Participants will be responsible for their own accommodation, travel/local transport, and dinner.**

• For accommodation (standard and budgeted hotels)

- ✚ ABU Guest INN (Royal Choice)
Single: ₦6,000. Double: ₦12,000
- ✚ NAERLS Suites and Conference Centre
Single: ₦12,000. Double: ₦17,000
- ✚ ABU Centre of Excellence
Single: ₦5,000. Double: ₦10,000