



TRAINING CATALOGUE

2026 -2029





ANCEE 2.0

THE STANDARD FOR TRAINING IN ELECTRICITY



ANCEE 2.0

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INTRODUCTION

Welcome to the ANCEE Catalogue of courses which are offered for training and skill reinforcement targeting the various sector players: Electricity Power Utilities, Ministries in charge of Energy, Electricity Regulatory Agencies, Rural Electrification Agencies and all other institutions that require human capital development from World Class Centre's of Excellence.

The comprehensive and progressive courses are designed based on stakeholders' concrete experiences, current technology applications and hands on practicals based on operational Electricity Plants and facilities.

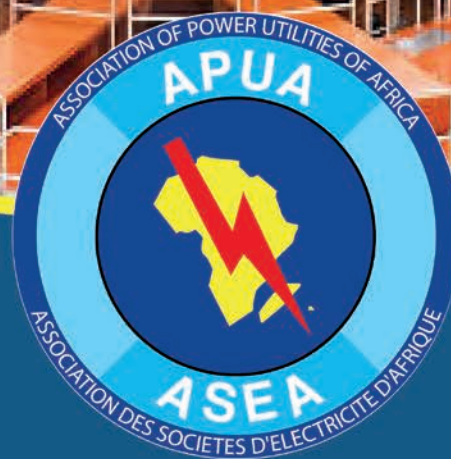
The Courses can also be Tailor – Made to suit the training needs of our client.

The ANCEE courses are offered in three modes:

- 1. On – Site (Face to Face at the ANCEE Centre of Excellence Premises)**
- 2. Off – Site (Face to Face at the Power Utility Premises)**
- 3. On – Line (By E – Learning)**

The cost of participation can be provided through the ANCEE Coordination Unit's Marketing and Business Development Section.

CATALOGUE 2026



GENERATION





INTRODUCTION TO GENERATION COURSES

Electricity Generation Courses cover topics ranging from fundamental power systems, power plant operations and maintenance strategies considering various equipment along the process of power generation. These courses have been documented as Courses based on the demand by Power Utilities and courses based on ANCEE Centre's of Excellence's Catalogues.



01

GENERATOR INSPECTION, TESTING AND MAINTENANCE

Course Description and Objectives

This course is designed to give comprehensive knowledge on generator testing, inspecting and maintenance in order to give best output. The effective maintenance of power generators is very important for the economic and reliable operation of power systems. Maximum efficiency, reliability and longevity of power generator are a big concern to many utilities and industries. These objectives can only be achieved by understanding the characteristics, selection criteria, common problems and repairs, prediction and preventive maintenance of a generator.

Who should attend

Technicians, Engineers, Maintenance and operation Superintendents, Power Station Manager.

Course Outline

- *Introduction to Generators*
- *Safety Protocols*
- *Inspection Procedures*
- *Testing Methods*
- *Common Faults & Troubleshooting*
- *Documentation & Reporting*
- *Practical Session*

Course Duration

5 Days

Number of Participants

8 Minimum and 16 Maximum

Course Prerequisites

A foundational understanding of electrical principles (AC/DC circuits), mechanical systems, and safety protocols, .

Training Methodology

The training methodology combines lectures, discussions, group exercises and illustrations. Participants will gain both theoretical and practical knowledge of the topics.

Course Materials

A set of soft copy notes will be provided.

Course Certification

The training methodology combines lectures, discussions, group exercises and illustrations. Participants will gain both theoretical and practical knowledge of the topics..



SCADA SYSTEMS MANAGEMENT - ADVANCED

Course Description and Objectives

The Advanced SCADA System Management course is designed to provide participants with in-depth knowledge and advanced technical skills required to manage, enhance, and secure SCADA systems. This course incorporates the latest technological advancements, including machine learning, AI, IoT integration, advanced cybersecurity measures, and data analytics.

Who should attend

Participants' profile or target group are engineers, technologists, technicians, or suitably qualified personnel needing an understanding of SCADA Systems and their management.

Course Outline

- *Advanced Control Systems.*
- *Modern Electrical Power System Overview.*
- *Advanced SCADA EMS, GIS Interfaces, and IoT Integration.*
- *Advanced SCADA System Architecture.*
- *Advanced SCADA System Interactive Operator Interfaces and Troubleshooting.*
- *Cybersecurity in Advanced SCADA Systems.*
- *Advanced Data Analytics and Machine Learning in SCADA Systems*
- *Supplementary Facilities in Advanced Centralized SCADA Systems.*

Course Duration

5 Days

Number of Participants

8 Minimum and 16 Maximum

Course Prerequisites

A foundational understanding of basics of SCADA systems.

Training Methodology

The training methodology combines lectures, discussions, group exercises and illustrations. Participants will gain both theoretical and practical knowledge of the topics.

Course Materials

A set of soft copy notes will be provided.

Course Certification

An APUA/ANCEE and Centre of Excellence Certified Certificate of Competence/Attendance will be awarded on successful completion of the course.



03

THERMAL POWER PLANT MAINTENANCE MANAGEMENT AND PLANNING

Course Description and Objectives

The course lays out thermal power plant operation and maintenance techniques from fundamentals. It builds knowledge in different areas of the whole range of operational processes. This course will equip participants with the skills and knowledge to optimize plant operations, minimize fuel consumption and improve overall plant efficiency.

Who should attend

profile or target group are Thermal power plant operators, control room operators, shift charge engineers and other suitably qualified personnel.

Course Outline

- *Steam generation*
- *Turbines and diesel engines*
- *Fuels and fuel handling*
- *Safety, health, environment and pollution control*
- *Plant electric systems*
- *Plant instrumentation operation and control*
- *Maintenance routines in thermal power plants.*

Course Duration

15 Days

Number of Participants

8 Minimum and 16 Maximum

Course Prerequisites

A foundational understanding of power plant operations.

Training Methodology

The training methodology combines both theoretical and practical knowledge of the topics. The emphasis is on the practical application of the topics.

Course Materials

A set of soft copy notes will be provided.

Course Certification

An APUA/ANCEE and Centre of Excellence Certified Certificate of Competence/Attendance will be awarded on successful completion of the course.



MAINTENANCE AND TROUBLESHOOTING OF CONTROL AND PROTECTION SYSTEMS IN A THERMAL POWER PLANT

Course Description and Objectives

The course objectives and outline for maintenance and troubleshooting of control and protection systems in a thermal power plant includes: Understanding the importance of protection and interlock systems in safeguarding equipment of boiler, turbine, and generator; learning about the various protections and interlocks available for these systems.

Who should attend

The course is designed for the energy sector professionals like power plant engineers, technicians, and operators responsible for maintaining and protecting power generation systems. It is also beneficial for electrical engineers, protection specialists, and utility professionals involved in power distribution, transmission, and grid stability.

Course Outline

- *Introduction to Thermal Control Instrumentation*
- *Fault Analysis and Troubleshooting*
- *Instrumentation and Control Systems*
- *Operational Practices and Troubleshooting*

Course Duration

5 Days

Number of Participants

8 Minimum and 16 Maximum

Course Prerequisites

Foundational appreciation and skills in Thermal Plants.

Training Methodology

The training methodology combines lectures, discussions, group exercises and practical's.

Course Materials

A set of soft copy notes will be provided.

Course Certification

An APUA/ANCEE and Centre of Excellence Certified Certificate of Competence/Attendance will be awarded on successful completion of the course.



05

CONTROL ROOM OPERATIONS FOR THERMAL POWER PLANTS

Course Description and Objectives

This course is designed to give and equip participants with the necessary skills to manage control room operations effectively in the Thermal Power Plants.

Who should attend

Technicians, Engineers, Maintenance and operation Superintendents, Power Station Managers and other suitably qualified staff.

Course Outline

- *Understanding Power Plant Functions*
- *Control Room Operations*
- *Safety and Emergency Protocols*
- *Operational Performance*
- *Hands-on Practical Sessions*

Course Duration

5 Days

Number of Participants

8 Minimum and 16 Maximum

Course Prerequisites

Afoundational understanding of Thermal Power Plants operations.

Training Methodology

The training methodology combines lectures, group exercises and hands on practical application of the topics.

Course Materials

A set of soft copy notes will be provided.

Course Certification

An APUA/ANCEE and Centre of Excellence Certified Certificate of Competence/Attendance will be awarded on successful completion of the course.



06

POWER PLANT SAFETY

Course Description and Objectives

A Power Plant Safety course aims to prevent workplace accidents, injuries, and fatalities by educating staff on identifying, assessing, and mitigating risks associated with high-voltage, high-pressure environments.

Who should attend

Power Plant operators, Maintenance personnel, Safety officers and all staff in a Power Plant.

Course Outline

- *Introduction to Power Plant Safety*
- *Hazard Identification & Risk Assessment*
- *Operational Safety Procedures*
- *Emergency Management & Fire Safety*
- *Auditing & Safety Culture*

Course Duration

5 Days

Number of Participants

8 Minimum and 16 Maximum

Course Prerequisites

A foundational understanding of electrical principles (AC/DC circuits), mechanical systems, and safety protocols, .

Training Methodology

The training methodology combines lectures, discussions, group exercises and illustrations. Participants will gain both theoretical and practical knowledge of the topics. The emphasis is on the practical application of the topics and as a result participant will go back to the workplace with both the ability and the confidence to apply the techniques learned to their duties.

Course Materials

A set of soft copy notes will be provided.

Course Certification

An APUA/ANCEE and Centre of Excellence Certified Certificate of Competence/Attendance will be awarded on successful completion of the course.



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- *Hazard Identification & Risk Assessment*
- *Operational Safety Procedures*
- *Emergency Management & Fire Safety*
- *Auditing & Safety Culture*

Course Duration

5 Days

Number of Participants

8 Minimum and 16 Maximum

Course Prerequisites

A foundational understanding of electrical principles (AC/DC circuits), mechanical systems, and safety protocols, .

Training Methodology

The training methodology combines lectures, discussions, group exercises and illustrations. Participants will gain both theoretical and practical knowledge of the topics. The emphasis is on the practical application of the topics and as a result participant will go back to the workplace with both the ability and the confidence to apply the techniques learned to their duties.

Course Materials

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- *Auditing & Safety Culture*

Course Duration

5 Days

Number of Participants

8 Minimum and 16 Maximum

Course Prerequisites

A foundational understanding of electrical principles (AC/DC circuits), mechanical systems, and safety protocols, .

Training Methodology

The training methodology combines lectures, discussions, group exercises and illustrations. Participants will gain both theoretical and practical knowledge of the topics. The emphasis is on the practical application of the topics and as a result participant will go back to the workplace with both the ability and the confidence to apply the techniques learned to their duties.

Course Materials

A set of soft copy notes will be provided.

Course Certification

An APUA/ANCEE and Centre of Excellence Certified Certificate of Competence/Attendance will be awarded on successful completion of the course.



DATA ANALYTICS IN O&M OF GENERATION PLANTS

Course Description and Objectives

This course provides comprehensive training on leveraging data analytics, AI, and IoT for the Operation and Maintenance (O&M) of power generation plants (renewable and conventional). Participants learn to implement predictive maintenance, optimize asset performance, reduce downtime, and improve operational efficiency using real-time data analysis, machine learning, and digital technologies.

Who should attend

All Power Plants Technicians, Engineers, Maintenance and Operation Superintendents, Power Station Manager and other suitably qualified staff.

Course Outline

- *Introduction to Data Analytics in Energy.*
- *Data Pre-processing and Management.*
- *Performance Analysis and Monitoring.*
- *Predictive Analytics and Maintenance*
- *Machine learning (ML) for anomaly detection.*

Course Duration

5 Days

Number of Participants

8 Minimum and 16 Maximum

Course Prerequisites

A foundational understanding of electrical principles, mechanical systems, and Power Plant Operations.

Training Methodology

The training methodology combines lectures, discussions, group exercises and illustrations. .

Course Materials

A set of soft copy notes will be provided.

Course Certification

An APUA/ANCEE and Centre of Excellence Certified Certificate of Competence/Attendance will be awarded on successful completion of the course.



08

ARTIFICIAL INTELLIGENCE (AI) APPLICATION IN O&M GENERATION PLANTS

Course Description and Objectives

The AI application course in Power Plants is a comprehensive introductory course designed to equip learners with the necessary skills to implement Artificial Intelligence (AI) and Machine Learning (ML) in predictive maintenance for power plants. The course focuses on the application of AI and ML techniques to predict equipment failures, reducing downtime and increasing overall efficiency in power generation.

Who should attend

Professionals working in the power plants, particularly those in maintenance, operations, and engineering and other suitably qualified personnel.

Course Outline

- *Machine Learning for Predictive Maintenance in Power Plants*
- *Data Preprocessing and Feature Engineering for Predictive Models*
- *Supervised and Unsupervised Learning Algorithms for Condition Monitoring*
- *Deep Learning Techniques for Anomaly Detection in Power Plant Operations*

Course Duration

5 Days

Number of Participants

8 Minimum and 16 Maximum

Course Prerequisites

A foundational understanding of Power Plants Operations and Maintenance.

Training Methodology

The training methodology combines lectures, discussions, practical activities..

Course Materials

A set of soft copy notes will be provided.

Course Certification

An APUA/ANCEE and Centre of Excellence Certified Certificate of Competence/Attendance will be awarded on successful completion of the course.



HYDRAULICS AND TURBINE REGULATION

Course Description and Objectives

The Hydraulics and Turbine Regulations course aims to provide participants with technical theory and practice in order to enable them comprehend the principles of operations of hydraulics turbines and governors. At the end of this training programme, course participants shall be able to explain Hydropower Schemes, maintain turbines and allied equipment and maintain Oil Hydraulic equipment.

Who should attend

Technicians, Engineers, Maintenance and operation Personnel in Power Plants and other suitably qualified personnel.

Course Outline

- *Introduction to Hydropower Schemes*
- *Water Hydraulics and Turbines*
- *Oil Hydraulics and Electro - Hydraulics.*

Course Duration

5 Days

Number of Participants

8 Minimum and 16 Maximum

Course Prerequisites

A foundational understanding of hydro power plants operations and control systems.

Training Methodology

The training methodology combines discussions, lectures, group exercises and practicals and simulations. The emphasis is on the practical application of the topics and as a result participant will go back to the workplace with both the ability and the confidence to apply the techniques learned to their duties.

Course Materials

A set of soft copy notes will be provided.

Course Certification

An APUA/ANCEE and Centre of Excellence Certified Certificate of Competence/Attendance will be awarded on successful completion of the course.



MACHINE CONDITION MONITORING

Course Description and Objectives

This course aims to provide training on detecting machinery faults early to prevent failure, optimize maintenance, and enhance safety, typically covering vibration analysis, thermography, and oil analysis. Participants learn to implement Condition-Based Maintenance (CBM), interpret diagnostic data, and adhere to international standards.

Who should attend

Technicians, Engineers, Maintenance and operation personnel in power plants.

Course Outline

- *Fundamentals of CBM*
- *Vibration Monitoring and Analysis.*
- *Lubrication and Oil Analysis*
- *Thermal Monitoring & NDT*
- *Data Interpretation & Reporting*

Course Duration

5 Days

Number of Participants

8 Minimum and 16 Maximum

Course Prerequisites

A foundational understanding of maintenance principles and power plant operations.

Training Methodology

Participants will gain both theoretical and practical knowledge of the topics. The emphasis is on the practical application of the topics and to enable participants apply all the knowledge gained in their operations.

Course Materials

A set of soft copy notes will be provided.

Course Certification

An APUA/ANCEE and Centre of Excellence Certified Certificate of Competence/Attendance will be awarded on successful completion of the course.



11

POWER SYSTEM OPERATIONS

Course Description and Objectives

The Power Systems Operations course provides participants with the technical theory and practice needed to enable them to comprehend the principles of operations of the power system, causes of faults and principles of protection.

Who should attend

Participants' profile or target group are Electrical/Mechanical Engineers, Technologists, Technicians and suitably qualified personnel.

Course Outline

- *Power Systems Overview*
- *Synchronous Machines*
- *Transformers, Capacitors and Reactors in Power Systems*
- *Power System Operations*
- *Interconnected System Operation*
- *Systems Studies*
- *Demand Side Management*
- *Switching Operations.*

Course Duration

5 Days

Number of Participants

8 Minimum and 16 Maximum

Course Prerequisites

A foundational understanding of electrical principles, mechanical systems, and power plant operations.

Training Methodology

The training methodology combines lectures, discussions, group exercises and practical lessons.

Course Materials

A set of soft copy notes will be provided.

Course Certification

An APUA/ANCEE and Centre of Excellence Certified Certificate of Competence/Attendance will be awarded on successful completion of the course.



THERMAL POWER PLANTS EFFICIENCY CALCULATIONS

Course Description and Objectives

This course provides a detailed understanding of thermal power plant performance, focusing on heat rate optimization, efficiency calculations, and testing methods for components like boilers, turbines, and condensers.

Who should attend

Technicians, Technologists, Engineers and other suitably qualified personnel.

Course Outline

- *Introduction to Thermal Power Plants.*
- *Efficiency Fundamentals.*
- *Boiler Performance Testing.*
- *Turbine & Condenser Performance.*
- *Heat Rate Optimization.*
- *Combined Cycle and Advanced Cycles.*
- *Economics and Environmental Impact.*

Course Duration

5 Days

Number of Participants

8 Minimum and 16 Maximum

Course Prerequisites

A foundational understanding of Thermal Power Plants operations.

Training Methodology

The training methodology combines lectures, simulations and practical knowledge of the topics.

Course Materials

A set of soft copy notes will be provided.

Course Certification

An APUA/ANCEE and Centre of Excellence Certified Certificate of Competence/Attendance will be awarded on successful completion of the course.



BOILER OPERATIONS AND MAINTENANCE WORKSHOP

Course Description and Objectives

This workshop on Boiler Operations and Maintenance provides fundamental training on the safe, efficient, and reliable operation of industrial boiler systems. Participants will learn to optimize performance, understand regulatory requirements, perform routine maintenance, troubleshoot issues, and manage water treatment. The course typically includes safety procedures, combustion analysis, and troubleshooting techniques

Who should attend

Boiler Operators and Technicians, Maintenance Engineers and Supervisors and other suitably qualified personnel.

Course Outline

- *Boiler Fundamentals & Types*
- *Boiler Operations*
- *Boiler Water Treatment*
- *Safety, Inspections & Troubleshooting*
- *Efficiency & Compliance*

Course Duration

3 Days

Number of Participants

8 Minimum and 16 Maximum

Course Prerequisites

A foundational understanding of Thermal Plants equipment operations.

Training Methodology

Instructor-led lectures, Case studies and real-life examples, Practical exercises/simulations.

Course Materials

A set of soft copy notes will be provided.

Course Certification

An APUA/ANCEE and Centre of Excellence Certified Certificate of Competence/Attendance will be awarded on successful completion of the course.



HYDRO TURBINE OPERATIONS AND MAINTENANCE WORKSHOP

Course Description and Objectives

A workshop on Hydro Turbine Operations and Maintenance focuses on equipping engineers and technicians with skills to operate, troubleshoot, and maintain hydraulic turbines and governors efficiently.

Who should attend

Technicians, Engineers, Maintenance and Operation Power Station Personnel, Rotating Equipment Specialists and Project Engineers in Renewables.

Course Outline

- *Introduction to Hydropower Principles*
- *Turbine Operations*
- *Turbine Maintenance & Diagnostics*
- *Governor Hydraulics and Control Systems*
- *Safety, Reliability, and Case Studies*
-

Course Duration

3 Days

Number of Participants

8 Minimum and 16 Maximum

Course Prerequisites

A foundational understanding of Power Plant equipment operations and maintenance.

Training Methodology

Instructor-led lectures, Case studies and real-life examples, Practical exercises/simulations.

Course Materials

A set of soft copy notes will be provided.

Course Certification

An APUA/ANCEE and Centre of Excellence Certified Certificate of Competence/Attendance will be awarded on successful completion of the course.



GAS TURBINE OPERATIONS AND MAINTENANCE

Course Description and Objectives

A Gas Turbine Operations and Maintenance (O&M) course provides technical personnel with the skills to safely operate, troubleshoot, and maintain gas turbines, focusing on maximizing reliability, efficiency, and component lifespan.

Who should attend

Maintenance Engineers & Technicians, Operations Managers & Operators, Plant Engineers & Mechanical Technicians.

Course Outline

- *Gas Turbine Fundamentals & Components.*
- *Operation & Control Systems.*
- *Maintenance Strategies & Procedures.*
- *Troubleshooting, Diagnostics & Performance.*
- *Safety & Reliability Optimization*

Course Duration

5 Days

Number of Participants

8 Minimum and 16 Maximum

Course Prerequisites

A foundational understanding of gas plant operations equipment.

Training Methodology

Instructor-led lectures, Case studies and real-life examples, Practical exercises/simulations.

Course Materials

A set of soft copy notes will be provided.

Course Certification

An APUA/ANCEE and Centre of Excellence Certified Certificate of Competence/Attendance will be awarded on successful completion of the course.



STEAM TURBINE OPERATIONS AND MAINTENANCE WORKSHOP

Course Description and Objectives

The workshop aims to enable participants grasp principles of steam turbine thermodynamics, energy conversion, and design types, learn start-up, shutdown, and emergency procedures, including monitoring turbine supervisory instruments (TSI), acquire basic knowledge for inspecting, disassembling, troubleshooting, and repairing major components like rotors, casings, and valves.

Who should attend

Power plant engineers, maintenance technicians, operators, and personnel responsible for turbine performance.

Course Outline

- *Steam Turbine Principles & Design*
- *Turbine Auxiliary Systems*
- *Operation and Control*
- *Maintenance and Inspection*
- *Troubleshooting and Reliability*
- *Maintenance Planning*

Course Duration

3 Days

Number of Participants

8 Minimum and 16 Maximum

Course Prerequisites

A foundational understanding of Steam power plant equipment operations and safety protocols.

Training Methodology

Instructor-led lectures, Case studies and real-life examples, Practical exercises/simulations.

Course Materials

A set of soft copy notes will be provided.

Course Certification

An APUA/ANCEE and Centre of Excellence Certified Certificate of Competence/Attendance will be awarded on successful completion of the course.



PLANT LUBRICATION WORKSHOP

Course Description and Objectives

The plant lubrication workshop aims to enhance machinery reliability and reduce downtime by training personnel on best practices in lubricant selection, contamination control, storage, and application. Key outcomes include improved maintenance efficiency, reduced operational costs, and the development of standardized, reliable lubrication routines.

Who should attend

This workshop is aimed at maintenance personnel, reliability engineers, and technicians.

Course Outline

- *Fundamentals of Lubrication*
- *Lubricant Selection and Application*
- *Contamination Control and Lubricant Health*
- *Lubrication Management and Analysis*
- *Safety and Environmental Practices*

Course Duration

2 Days

Number of Participants

8 Minimum and 16 Maximum

Course Prerequisites

A foundational understanding of operational plant equipment.

Training Methodology

Instructor-led lectures, Case studies and real-life examples, Practical exercises/simulations.

Course Materials

A set of soft copy notes will be provided.

Course Certification

An APUA/ANCEE and Centre of Excellence Certified Certificate of Competence/Attendance will be awarded on successful completion of the course.



18

POWER PLANT AUTOMATION

Course Description and Objectives

Power plant automation courses equip engineers and technicians with skills to design, operate, and maintain control systems (PLC, SCADA, DCS) for enhanced efficiency, safety, and reliability

Who should attend

Instrumentation and Control (C&I) Engineers, Plant Operations and Maintenance Personnel and System Integrators.

Course Outline

- *Introduction to Power Plant Automation*
- *Instrumentation and Actuators*
- *Control Systems Technology*
- *Process Automation Units*
- *Safety and Optimization*

Course Duration

10 Days

Number of Participants

8 Minimum and 16 Maximum

Course Prerequisites

Basic understanding of electrical engineering concepts and power systems

Training Methodology

The training methodology combines lectures, discussions, group exercises and practical lessons.

Course Materials

A set of soft copy notes will be provided.

Course Certification

An APUA/ANCEE and Centre of Excellence Certified Certificate of Competence/Attendance will be awarded on successful completion of the course.



BASIC MAINTENANCE OF COMBINED CYCLE GAS TURBINES (CCGT)

Course Description and Objectives

This course provides a foundational understanding of Combined Cycle Gas Turbine (CCGT) maintenance, focusing on safe operation, preventive maintenance, and troubleshooting for gas turbines and steam turbines. Participants will learn to identify component issues, perform inspections, and optimize reliability and plant efficiency.

Who should attend

Technicians, Engineers, Maintenance and Operation Personnel.

Course Outline

- *Introduction to Combined Cycle Technology*
- *Gas Turbine Maintenance*
- *HRSG and Steam Turbine Maintenance*
- *Performance Monitoring and Troubleshooting*
- *Safety and Operational Best Practices*

Course Duration

10 Days

Number of Participants

8 Minimum and 16 Maximum

Course Prerequisites

A foundational understanding of Thermal and Gas Plant operations and controls.

Training Methodology

The training lectures, group exercises, practical simulations and illustrations.

Course Materials

A set of soft copy notes will be provided.

Course Certification

An APUA/ANCEE and Centre of Excellence Certified Certificate of Competence/Attendance will be awarded on successful completion of the course.



GAS TURBINE COMBUSTION INSPECTION (CI)

Course Description and Objectives

The Gas Turbine Combustion Inspection course provides basic technical training on the maintenance, inspection, and troubleshooting of combustion systems, focusing on components like fuel nozzles, liners, and transition pieces to improve reliability and reduce downtime.

Who should attend

This course is designed for anyone needing a practical understanding of how to inspect, maintain, and repair gas turbine combustion systems for maximum performance and reliability.

Course Outline

- *Introduction to Gas Turbine Fundamentals.*
- *Combustion Section Construction.*
- *Inspection Planning and Scope.*
- *Component Inspection & Damage Assessment.*
- *Fuel and Combustion Systems.*
- *Maintenance & Reassembly*

Course Duration

3 Days

Number of Participants

8 Minimum and 16 Maximum

Course Prerequisites

A foundational understanding of Gas and Thermal Plant Operations equipment.

Training Methodology

The training combines lectures, discussions, simulations and illustrations. .

Course Materials

A set of soft copy notes will be provided.

Course Certification

An APUA/ANCEE and Centre of Excellence Certified Certificate of Competence/Attendance will be awarded on successful completion of the course.



GAS TURBINE HOT GAS PATH INSPECTION

Course Description and Objectives

A Gas Turbine Hot Gas Path Inspection (HGPI) course provides technical training on examining turbine components—nozzles, buckets, and shrouds—exposed to high temperatures to ensure structural integrity and efficiency.

Who should attend

This course is ideal for maintenance, operation, and reliability technicians, technologists and engineers.

Course Outline

- *Gas Turbine Fundamentals & Construction*
- *Inspection Planning and Preparation.*
- *Hot Gas Path Inspection Procedures.*
- *Inspection Techniques.*
- *Damage Analysis & Evaluation.*
- *Maintenance & Repairs*

Course Duration

3 Days

Number of Participants

8 Minimum and 16 Maximum

Course Prerequisites

A foundational understanding of Gas and Thermal Plant Operations Equipment.

Training Methodology

The training combines lectures, discussions, simulations and illustrations.

Course Materials

A set of soft copy notes will be provided.

Course Certification

An APUA/ANCEE and Centre of Excellence Certified Certificate of Competence/Attendance will be awarded on successful completion of the course.



GAS TURBINE MAJOR INSPECTION

Course Description and Objectives

A Gas Turbine Major Inspection course provides comprehensive training on the disassembly, inspection, repair, and reassembly of gas turbines, aimed at enhancing reliability and minimizing downtime. Key objectives include mastering hot gas path inspection, component analysis (buckets, nozzles, casings), and understanding maintenance schedules.

Who should attend

Maintenance and Operation Personnel, Technical Supervisors & Managers, Plant Engineers & other suitably qualified Technical Personnel.

Course Outline

- *Introduction to Gas turbine technology.*
- *Inspection Overview.*
- *Hot Gas Path Inspection (HGPI).*
- *Major Inspection Details.*
- *Auxiliary Systems.*
- *Alignment and Assembly.*
- *Troubleshooting*

Course Duration

5 Days

Number of Participants

8 Minimum and 16 Maximum

Course Prerequisites

A foundational understanding of Gas and Thermal Power Plant Operations and equipment.

Training Methodology

The training methodology combines lectures, discussions, group exercises with emphasis on the practical application of the topics.

Course Materials

A set of soft copy notes will be provided.

Course Certification

An APUA/ANCEE and Centre of Excellence Certified Certificate of Competence/Attendance will be awarded on successful completion of the course.



PUMPS AND VALVES: SELECTION, OPERATION AND MAINTENANCE

Course Description and Objectives

The Pumps and Valves: Selection, Operation and Maintenance course provides fundamental training on identifying, selecting, operating, and troubleshooting industrial pump and valve systems to improve reliability, safety, and energy efficiency. It covers centrifugal/positive displacement pumps, valve types, seal systems, and maintenance strategies.

Who should attend

Maintenance, Mechanical, and Reliability Engineers, Plant Operations Supervisors and Operators, Process and Project Engineers, Technicians involved in equipment installation, inspection, and servicing, Procurement personnel responsible for equipment purchasing

Course Outline

- *Pump Principles & Selection.*
- *Pump Operation & Maintenance.*
- *Valve Technology & Selection.*
- *Valve Maintenance & Troubleshooting.*
- *Best Practices*

Course Duration

5 Days

Number of Participants

8 Minimum and 16 Maximum

Course Prerequisites

A basic understanding of pump and valves operations and maintenance. .

Training Methodology

The training methodology combines lectures, group exercises, illustrations practical simulations.

Course Materials

A set of soft copy notes will be provided.

Course Certification

An APUA/ANCEE and Centre of Excellence Certified Certificate of Competence/Attendance will be awarded on successful completion of the course.



CORROSION ANALYSIS AND CONTROL IN POWER PLANTS

Course Description and Objectives

This course provides a basic understanding of corrosion mechanisms, monitoring techniques, and mitigation strategies specifically for power plant infrastructure. It aims to enhance reliability, reduce maintenance costs, and prevent premature failure of components like boilers and steam pipes.

Who should attend

Corrosion and Material Engineers, Power Plant Operation and Maintenance Managers, Mechanical and Electrical Engineers, Inspection and Quality Control Personnel and Asset Management Personnel.

Course Outline

- *Fundamentals of Corrosion.*
- *Power Plant Systems Analysis.*
- *Water Chemistry and Treatment*
- *Monitoring and Inspection Methods.*
- *Corrosion Management and Protection*

Course Duration

2 Days

Number of Participants

8 Minimum and 16 Maximum

Course Prerequisites

A foundational understanding of Power Plant Operations, Maintenance and Equipment.

Training Methodology

The training methodology combines lectures, discussions, group exercises and illustrations. Participants will gain both theoretical and practical knowledge of the topics. The emphasis is on the practical application of the topics and as a result participant will go back to the workplace with both the ability and the confidence to apply the techniques learned to their duties

Course Materials

A set of soft copy notes will be provided.

Course Certification

An APUA/ANCEE and Centre of Excellence Certified Certificate of Competence/Attendance will be awarded on successful completion of the course.



BALANCING AND ALIGNMENT TECHNIQUES

Course Description and Objectives

Balancing and Alignment Techniques training equips maintenance professionals with skills to reduce machinery vibration, improve reliability, and extend asset life. The course covers practical shaft alignment methods (dial indicator, laser), balancing techniques (static/dynamic), pre-alignment procedures, soft-foot correction, and thermal growth compensation.

Who should attend

Maintenance Mechanics and Technicians, Rotating Equipment Engineers, Vibration Analysts, Maintenance Supervisors and Managers, Reliability Engineers

Course Outline

- *Introduction to Alignment and Balancing.*
- *Pre-Alignment Procedures.*
- *Alignment Methodologies.*
- *Advanced Alignment.*
- *Balancing Techniques.*
- *Thermal Growth & Pipe Strain.*
- *Practical Workshop/Case Studies.*
-

Course Duration

3 Days

Number of Participants

8 Minimum and 16 Maximum

Course Prerequisites

A foundational understanding of Plant Operations and Maintenance of Rotating Equipment.

Training Methodology

The training methodology combines lectures, discussions, group exercises and practical illustrations..

Course Materials

A set of soft copy notes will be provided.

Course Certification

An APUA/ANCEE and Centre of Excellence Certified Certificate of Competence/Attendance will be awarded on successful completion of the course.



HYDRAULIC OIL/TRIP OIL SYSTEMS

Course Description and Objectives

This course provides fundamental training on the design, operation, maintenance, and troubleshooting of industrial hydraulic and trip oil systems, focusing on power transmission, valve control, and safety-critical shutdown mechanisms. Participants will learn to identify system components, interpret schematics, maintain oil quality, and troubleshoot malfunctions to minimize downtime.

Who should attend

Maintenance Engineers and Technicians, Operators and Supervisors, Mechanical and Process Engineers, Service Technicians and Technical Trainers, Apprentices and Graduates.

Course Outline

- *Introduction to Hydraulics.*
- *Hydraulic Fluids.*
- *Components & Components Symbolism.*
- *Trip Oil System Specifics.*
- *Safety Shutdown Mechanisms.*
- *Maintenance & Troubleshooting.*
- *Practical Sessions/Case Studies.*

Course Duration

2 Days

Number of Participants

8 Minimum and 16 Maximum

Course Prerequisites

A foundational understanding of Plant Hydraulics Equipment Operations and Maintenance. .

Training Methodology

The training methodology combines lectures, group exercises and practical simulations.

Course Materials

A set of soft copy notes will be provided.

Course Certification

An APUA/ANCEE and Centre of Excellence Certified Certificate of Competence/Attendance will be awarded on successful completion of the course.



POWER SYSTEMS SCADA AND EMS

Course Description and Objectives

This course provides comprehensive training on Supervisory Control and Data Acquisition (SCADA) and Energy Management Systems (EMS), focusing on real-time monitoring, control, optimization, and security of power generation, transmission, and distribution systems. Participants will learn system architecture, communication protocols, and EMS applications to enhance grid efficiency, reliability, and security.

Who should attend

Power System Operation Engineers and Dispatchers, Utility managers and planners, Substation technicians and maintenance personnel, Automation and control systems engineers.

Course Outline

- *Introduction to SCADA/EMS.*
- *SCADA System Architecture.*
- *Energy Management System (EMS) Functions.*
- *Utility Operations Fundamentals.*
- *SCADA and EMS Integration.*
- *Security and Testing*

Course Duration

10 Days

Number of Participants

8 Minimum and 16 Maximum

Course Prerequisites

A foundational understanding of Power Systems Operations and Power Plant operations and Auxiliary equipment. .

Training Methodology

The training methodology combines lectures, group exercises and practical simulations and illustrations.

Course Materials

A set of soft copy notes will be provided.

Course Certification

An APUA/ANCEE and Centre of Excellence Certified Certificate of Competence/Attendance will be awarded on successful completion of the course.



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POWER SYSTEMS OPERATION AND AUTOMATION

Course Description and Objectives

This course provides a comprehensive overview of modern power system operation, control, and automation techniques, focusing on stability, reliability, and renewable energy integration. Participants will learn about SCADA systems, voltage/frequency regulation, smart grids, and protective relaying.

Who should attend

Power System Engineers and Technicians, Grid Operation and Control Center Personnel, Planning Engineers in Transmission and Distribution Utilities, Personnel involved with Renewable Energy Integration.

Course Outline

- *Power System Operation Principles.*
- *Load Flow & Fault Analysis.*
- *System Control & Stability.*
- *Automation & Communication.*
- *Modern Trends & Renewable Energy*

Course Duration

10 Days

Number of Participants

8 Minimum and 16 Maximum

Course Prerequisites

A foundational understanding of Power System Operations and Equipment.

Training Methodology

The training methodology combines lectures, discussions, group exercises and illustrations.

Course Materials

A set of soft copy notes will be provided.

Course Certification

An APUA/ANCEE and Centre of Excellence Certified Certificate of Competence/Attendance will be awarded on successful completion of the course.



GENERATOR PROTECTION COURSE

Course Description and Objectives

This Generator Protection Course provides foundational training on protecting electrical generators from damage, covering relay technology, fault analysis, and testing, often including hands-on experience with modern digital relays.

Who should attend

Protection and Control Engineers, Commissioning and Maintenance Engineers/Technicians, Power Plant Operators and Technicians.

Course Outline

- *Introduction to Generator Protection.*
- *Generator Fault Analysis.*
- *Relay Protection Principles.*
- *Modern Numerical Relays.*
- *Hands-on/Case Studies*

Course Duration

3 Days

Number of Participants

8 Minimum and 16 Maximum

Course Prerequisites

A foundational understanding of electrical principles and Generators.

Training Methodology

The training methodology combines lectures, discussions, group exercises and illustrations

Course Materials

A set of soft copy notes will be provided.

Course Certification

An APUA/ANCEE and Centre of Excellence Certified Certificate of Competence/Attendance will be awarded on successful completion of the course.



CONTROL ROOM OPERATIONS FOR HYDROPOWER PLANTS

Course Description and Objectives

The Control Room Operations for Hydro-power Plants course provides technical theory and practical training in SCADA, turbine/generator operations, and power system management, often using simulations and focuses on enhancing safe, reliable daily operations, routine checks, and switching procedures.

Who should attend

Control Room Operators, Shift Charge Engineers, Technicians and Technologists Plant Managers and Supervisors, Any personnel involved in the operations and maintenance of a hydro plant

Course Outline

- *Introduction to Hydropower and Water Management.*
- *Electrical and Mechanical Components.*
- *Power Station Control and Protection.*
- *Control Room Activities.*
- *Safety and Switching Procedures.*
- *Practical Simulation*

Course Duration

20 Days

Number of Participants

8 Minimum and 16 Maximum

Course Prerequisites

A foundational understanding of Hydro-power Plants Operations and Maintenance.

Training Methodology

The training methodology combines lectures, group discussions and simulations.

Course Materials

A set of soft copy notes will be provided.

Course Certification

An APUA/ANCEE and Centre of Excellence Certified Certificate of Competence/Attendance will be awarded on successful completion of the course.



CONTROL ROOM OPERATIONS FOR THERMAL POWER PLANTS

Course Description and Objectives

This Control Room Operations for Thermal Power Plants course provides comprehensive training on boiler-turbine systems, DCS, and safety protocols to optimize efficiency and safety. Participants will master start-up/shut-down, emergency response, and system monitoring.

Who should attend

Control Room Operators, Power Plant Engineers (Mechanical & Electrical), Maintenance Technicians, Plant Managers and Shift Supervisors and other suitably qualified Personnel.

Course Outline

- *Thermal Plant Overview.*
- *Boiler Operations.*
- *Turbine and Steam Systems.*
- *Control Room Technology.*
- *Operational Procedures.*
- *Troubleshooting & Emergencies*

Course Duration

10 Days

Number of Participants

8 Minimum and 16 Maximum

Course Prerequisites

A foundational understanding of Thermal Power Plants Operations and Maintenance and Equipment.

Training Methodology

The training methodology combines lectures, discussions, group exercises and illustrations

Course Materials

A set of soft copy notes will be provided.

Course Certification

An APUA/ANCEE and Centre of Excellence Certified Certificate of Competence/Attendance will be awarded on successful completion of the course.



32

DAM SAFETY MANAGEMENT

Course Description and Objectives

The Dam Safety Management Course provides comprehensive training on the full life cycle of dams, focusing on risk assessment, surveillance, maintenance, and emergency response to ensure structural integrity and prevent failure.

Who should attend

Engineers and Personnel involved in the design, construction, operation, and maintenance of dams, Project managers and technical personnel responsible for dam safety inspections.

Course Outline

- *Introduction to Dam Safety.*
- *Types of Dams and Failure Modes.*
- *Surveillance and Monitoring.*
- *Risk Analysis and Management.*
- *Rehabilitation and Upgrading.*
- *Emergency Preparedness.*
- *Case Studies*

Course Duration

15 Days

Number of Participants

8 Minimum and 16 Maximum

Course Prerequisites

A foundational understanding of Water Dams in a Power Supply Chain, Water Management and Equipment.

Training Methodology

The training methodology combines lectures, discussions, group exercises and illustrations.

Course Materials

A set of soft copy notes will be provided.

Course Certification

An APUA/ANCEE and Centre of Excellence Certified Certificate of Competence/Attendance will be awarded on successful completion of the course.



33

DISTRIBUTED GENERATION

Course Description and Objectives

The Distributed Generation (DG) course provides a comprehensive understanding of integrating small-scale power sources (solar, wind, storage) into traditional electrical grids. It focuses on technology, interconnection standards, protection, and grid impact analysis, aimed at training engineers to safely manage modern, flexible energy networks.

Who should attend

Electrical/Mechanical Technicians, Technologists and Engineers, Power System Protection and Control Personnel, Renewable Energy Project Managers and Developers, Engineers specialized in smart grid and Microgrid development.

Course Outline

- *Introduction to DG & DERs.*
- *Renewable Energy Technologies.*
- *Grid Interconnection Issues.*
- *Protection and Control.*
- *Distribution Management.*
- *Regulatory & Economic Frameworks*

Course Duration

5 Days

Number of Participants

8 Minimum and 16 Maximum

Course Prerequisites

A foundational understanding of Renewable Energy Technology.

Training Methodology

Instructor-led lectures, Case studies and Practical exercises/simulations.

Course Materials

A set of soft copy notes will be provided.

Course Certification

An APUA/ANCEE and Centre of Excellence Certified Certificate of Competence/Attendance will be awarded on successful completion of the course.



34

GENERATOR INSPECTION, TESTING AND MAINTENANCE

Course Description and Objectives

The Generator Inspection, Testing and Maintenance course gives participants the technical theory and practice needed to enable them to prepare, plan and conduct inspections, tests and maintenance of generators and their associated equipment in hydro-power.

Who should attend

Participants' profile or target group are Engineers, Technologists, Technicians and Personnel responsible for operations and maintenance of Generators.

Course Outline

- *Maintenance Principles*
- *Maintenance Planning and Scheduling*
- *Generator Inspections*
- *Generator Tests.*

Course Duration

10 Days

Number of Participants

8 Minimum and 16 Maximum

Course Prerequisites

A foundational understanding of electrical and mechanical engineering principles on power generation.

Training Methodology

The training methodology combines lectures and simulations with emphasis on the practical application of the topics covered.

Course Materials

A set of soft copy notes will be provided.

Course Certification

An APUA/ANCEE and Centre of Excellence Certified Certificate of Competence/Attendance will be awarded on successful completion of the course.



35

GENERATOR PERFORMANCE DYNAMICS

Course Description and Objectives

The Generator Performance Dynamics course technical theory and hands-on training to manage, operate, and maintain electrical generators. It covers generator design, monitoring, inspection, and protection techniques, ensuring optimal reliability.

Who should attend

Technicians, Engineers, Maintenance and operation Personnel in the Power Stations and other suitably qualified personnel.

Course Outline

- *Introduction to Generator Dynamics.*
- *Generator Design & Operation.*
- *Monitoring and Diagnostics.*
- *Maintenance & Inspection.*
- *Protection Systems.*
- *Troubleshooting and Case Studies.*

Course Duration

10 Days

Number of Participants

8 Minimum and 16 Maximum

Course Prerequisites

A foundational understanding of electrical and mechanical engineering principles on power generation.

Training Methodology

The training methodology combines lectures and simulations with emphasis on the practical application of the topics covered.

Course Materials

A set of soft copy notes will be provided.

Course Certification

An APUA/ANCEE and Centre of Excellence Certified Certificate of Competence/Attendance will be awarded on successful completion of the course.



36

HYDROPOWER CONSTRUCTION MANAGEMENT AND CONTRACT

Course Description and Objectives

This course has been designed to develop local capacity to deal with all issues related to contract management for successful, accelerated and sustainable hydropower development with greater confidence, clarity and impact. The course focuses on developing an equitable contract management system and mechanisms for quick dispute resolution, addressing potential calamities at hydropower construction sites, as well as fostering synergy among stakeholders, i.e. developers, consultants and contractors, for timely completion of hydropower projects..

Who should attend

Participants' profile or target group are engineers, environmental, social and economic scientists involved with hydropower development, legal and contract management as well as any suitably qualified personnel.

Course Outline

- *Introduction to Hydropower*
- *Tender documents for hydropower construction and their legal implication*
- *Hydropower contract preparation and negotiations*
- *Contract models*
- *Risks in hydropower projects and liability sharing in hydropower construction*
- *Construction delays in hydropower projects*

- *Construction management, monitoring and supervision.*

Course Duration

10 Days

Number of Participants

8 Minimum and 16 Maximum

Course Prerequisites

A foundational understanding of Hydropower Operations and basic contracts outlays. .

Training Methodology

The training methodology combines lectures, discussions, group exercises and illustrations

Course Materials

A set of soft copy notes will be provided.

Course Certification

An APUA/ANCEE and Centre of Excellence Certified Certificate of Competence/Attendance will be awarded on successful completion of the course.



37

HYDROPOWER TURBINE DYNAMICS AND OPERATIONS

Course Description and Objectives

The Hydropower Turbine Dynamics and Operations course is designed to give a background of hydropower turbine design. This is built up to details of turbine selection, operation and maintenance.

Who should attend

Participants' profile or target group are engineers, technologists and other suitably qualified personnel charged with the responsibility of procuring, operating and maintaining turbines.

Course Outline

- *Introduction to Turbine Dynamics and Operations*
- *Turbines Theory of Operation*
- *Design and Applications*
- *Francis Turbine*
- *Pelton Wheel*
- *Kaplan Turbine*
- *Operational Considerations*
- *Turbine Control and Regulation*
- *Maintenance of Hydropower Turbines.*

Course Duration

10 Days

Number of Participants

8 Minimum and 16 Maximum

Course Prerequisites

A foundational understanding of Hydropower Operations and Maintenance Equipment.

Training Methodology

The training methodology combines lectures, group exercises and practical simulations.

Course Materials

A set of soft copy notes will be provided.

Course Certification

An APUA/ANCEE and Centre of Excellence Certified Certificate of Competence/Attendance will be awarded on successful completion of the course.



38

HYDRAULICS AND TURBINE REGULATIONS

Course Description and Objectives

The Hydraulics and Turbine Regulations course aims to provide participants with technical theory and practice in order to enable them comprehend the principles of operations of hydraulics turbines and governors.

Who should attend

Technicians, Engineers, Maintenance and operation Superintendents, Power Station Manager

Course Outline

- *Introduction to Hydropower Schemes*
- *Water Hydraulics and Turbines*
- *Oil Hydraulics and Electro - Hydraulics.*

Course Duration

10 Days

Number of Participants

8 Minimum and 16 Maximum

Course Prerequisites

A foundational understanding of Hydro-power Operations and Maintenance Equipments.

Training Methodology

The training methodology combines lectures, discussions, group exercises and illustrations. Participants will gain both theoretical and practical knowledge of the topics. The emphasis is on the practical application of the topics and as a result participant will go back to the workplace with both the ability and the confidence to apply the techniques learned to their duties.

Course Materials

A set of soft copy notes will be provided.

Course Certification

An APUA/ANCEE and Centre of Excellence Certified Certificate of Competence/Attendance will be awarded on successful completion of the course.



39

SMALL HYDROPOWER DEVELOPMENT

Course Description and Objectives

The Small Hydropower Development course provides a detailed insight in the process involved in selection of a site for a small hydropower station, investigating the site, making detailed plans and optimising the designs and costs to ensure that the plant is technically and economically feasible.

Who should attend

Participants' profile or target group are Civil, Mechanical or Electrical Engineers, Project Managers, and any suitably qualified personnel working on renewable energy projects.

Course Outline

- *Introduction to Small Hydropower*
- *Stakeholder Mapping*
- *Small Hydropower Investigation*
- *Small Hydropower Planning*
- *Small Hydropower Design*
- *Legal, Regulatory and Other Compliance Requirements*
- *FIDIC procurement procedures guidelines*
- *Financial Closure.*

Course Duration

10 Days

Number of Participants

8 Minimum and 16 Maximum

Course Prerequisites

A foundational understanding of electrical and mechanical principles in Power Plants Operations and maintenance.

Training Methodology

The training methodology combines lectures, discussions, group exercises and illustrations. Participants will gain both theoretical and practical knowledge of the topics.

Course Materials

A set of soft copy notes will be provided.

Course Certification

An APUA/ANCEE and Centre of Excellence Certified Certificate of Competence/Attendance will be awarded on successful completion of the course.



40

WIND POWER DEVELOPMENT

Course Description and Objectives

The Wind Power Development course provides a detailed understanding in the selection of a site for a wind power generation and optimizing the designs to ensure that the proposed plant is technically and economically viable.

Who should attend

Participants' profile or target group are Civil, Mechanical or Electrical Engineers, Project Managers, and any suitably qualified personnel working on renewable energy projects.

Course Outline

- *Introduction to Wind Power*
- *Stakeholder Mapping*
- *Wind Measurement Campaign*
- *Wind Resource and Site Assessment*
- *Wind Farm Energy Yield Assessment*
- *Legal, Regulatory and Other Compliance Requirements*
- *Financial Closure.*

Course Duration

5 Days

Number of Participants

8 Minimum and 16 Maximum

Course Prerequisites

A basic understanding of Wind Power generation and equipment.

Training Methodology

The training methodology combines lectures, discussions, group exercises and illustrations. Participants will gain both theoretical and practical knowledge of the topics. The emphasis is on the practical application of the topics and as a result participant will go back to the workplace with both the ability and the confidence to apply the techniques learned to their duties.

Course Materials

A set of soft copy notes will be provided.

Course Certification

An APUA/ANCEE and Centre of Excellence Certified Certificate of Competence/Attendance will be awarded on successful completion of the course.



41

MACHINERY ALIGNMENT AND BALANCING

Course Description and Objectives

Machinery will need balancing from time to time. Among the key periods are when we have major rehabilitation and re-assembly works or during new installations and commissioning. Ensuring equipment is properly aligned is important in both prolonging the life and allowing for efficient operations.

The course is designed to help course participants identify various alignment problems and how to fix them. Identification of imbalance and how to rectify it is also dealt with. The course draws on strong aspects of practical work with use of appropriate tools and standards as being practiced in industry.

Who should attend

Technical personnel, Engineering Consultants, Tertiary Education Personnel, and other suitably qualified personnel.

Course Outline

- *Basics of Alignment*
- *Dial Indicators and Alignment Checks*
- *Alignment and Correction Methods*
- *Machine Movements*
- *Amplitude and Phase Readings*
- *Machinery Balancing Methods.*

Course Duration

5 Days

Number of Participants

8 Minimum and 16 Maximum

Course Prerequisites

A foundational understanding of Plant Rotating Machines..

Training Methodology

The training methodology combines lectures, discussions, group exercises and illustrations.

Course Materials

A set of soft copy notes will be provided.

Course Certification

An APUA/ANCEE and Centre of Excellence Certified Certificate of Competence/Attendance will be awarded on successful completion of the course.



42

EXPLOITATION OF COMBINED CYCLES

Course Description and Objectives

The Exploitation of Combined Cycles course provides in-depth training on the operation, maintenance, and optimization of Combined Cycle Gas Turbine (CCGT) power plants to enhance efficiency and reliability.

Who should attend

Power plant operators and supervisors.
Operations and maintenance engineers.
Technical staff involved in power generation.
Plant managers and project managers.

Course Outline

- *Introduction to CCGT.*
- *Gas Turbine Technology.*
- *Heat Recovery Steam Generators (HRSG).*
- *Steam Turbine System.*
- *Balance of Plant (BOP).*
- *Operation & Troubleshooting*

Course Duration

2 Days

Number of Participants

8 Minimum and 16 Maximum

Course Prerequisites

A foundational understanding of Thermal and Gas Plant Operations.

Training Methodology

The training methodology combines lectures, discussions, group exercises and illustrations. Participants will gain both theoretical and practical knowledge of the topics. The emphasis is on the practical application of the topics and as a result participant will go back to the workplace with both the ability and the confidence to apply the techniques learned to their duties.

Course Materials

A set of soft copy notes will be provided.

Course Certification

An APUA/ANCEE and Centre of Excellence Certified Certificate of Competence/Attendance will be awarded on successful completion of the course.



43

EXPLOITATION OF GAS TURBINES

Course Description and Objectives

The Exploitation of Gas Turbines course provides comprehensive training on the design, operation, and maintenance of gas turbine systems, focusing on increasing efficiency, reliability, and troubleshooting. Participants gain skills in assessing performance, analyzing, and applying International Standards for operational safety in Gas Power Plants.

Who should attend

Maintenance Engineers and Technicians, Operation Personnel and Supervisors and other Technical Service Personnel involved in procurement and maintenance planning.

Course Outline

- *Gas Turbine Basics.*
- *Component Technology.*
- *Auxiliary Systems.*
- *Performance Monitoring.*
- *Troubleshooting & Reliability.*
- *Specialized Topics*

Course Duration

10 Days

Number of Participants

8 Minimum and 16 Maximum

Course Prerequisites

A foundational understanding of Gas and Thermal Plant Operations.

Training Methodology

The training methodology combines lectures, discussions, group exercises and illustrations. Participants will gain both theoretical and practical knowledge of the topics. The emphasis is on the practical application of the topics and as a result participant will go back to the workplace with both the ability and the confidence to apply the techniques learned to their duties.

Course Materials

A set of soft copy notes will be provided.

Course Certification

An APUA/ANCEE and Centre of Excellence Certified Certificate of Competence/Attendance will be awarded on successful completion of the course.



44

STEAM TURBINES OPERATIONS

Course Description and Objectives

The Steam Turbines Operations Course provides essential knowledge on the safe, efficient operation, monitoring, and maintenance of impulse and reaction steam turbines. Attendees will learn to identify key components, understand lubrication and governing systems, manage startup/shutdown procedures, and troubleshoot common issues.

Who should attend

Operations and Maintenance Personnel, technicians, technologists and Engineers.

Course Outline

- *Fundamentals of Steam Turbines.*
- *Turbine Components & Systems.*
- *Auxiliary Systems.*
- *Control and Governing.*
- *Operations.*
- *Troubleshooting and Maintenance.*

Course Duration

10 Days

Number of Participants

8 Minimum and 16 Maximum

Course Prerequisites

A basic understanding of Steam and Gas Turbines Operations in Power Plants.

Training Methodology

The training methodology combines lectures, discussions, group exercises and illustrations. Participants will gain both theoretical and practical knowledge of the topics. The emphasis is on the practical application of the topics and as a result participant will go back to the workplace with both the ability and the confidence to apply the techniques learned to their duties.

Course Materials

A set of soft copy notes will be provided.

Course Certification

An APUA/ANCEE and Centre of Excellence Certified Certificate of Competence/Attendance will be awarded on successful completion of the course.



45

VOLTAGE REGULATION SYSTEM FOR HYDRAULIC POWER PLANTS

Course Description and Objectives

This course provides comprehensive training on controlling hydro-generator excitation systems to maintain stable voltage under varying loads. Key areas include AVR (Automatic Voltage Regulator) principles, exciter types, control strategies, grid code compliance, and maintenance techniques for hydraulic power plants to ensure safe, efficient, and reliable grid interconnection.

Who should attend

Electrical Engineers involved in hydroelectric plant operation, Power Plant Operators and technicians, Maintenance Engineers specializing in generator maintenance and troubleshooting.

Course Outline

- *Introduction to Hydro Power Generators.*
- *Excitation System Principles.*
- *Automatic Voltage Regulator (AVR) Technology.*
- *Excitation Components.*
- *Grid Requirements.*
- *Stability and Protection.*
- *Operation and Maintenance.*

Course Duration

5 Days

Number of Participants

8 Minimum and 16 Maximum

Course Prerequisites

A foundational understanding of electrical principles and Power Plant equipment Operations.

Training Methodology

The training methodology combines lectures, discussions, group exercises and illustrations. Participants will gain both theoretical and practical knowledge of the topics.

Course Materials

A set of soft copy notes will be provided.

Course Certification

An APUA/ANCEE and Centre of Excellence Certified Certificate of Competence/Attendance will be awarded on successful completion of the course.



46

MAINTENANCE OF DIESEL ENGINES

Course Description and Objectives

The Maintenance of Diesel Engines course equips technicians and engineers with essential skills to inspect, troubleshoot, and repair diesel engines, focusing on preventive maintenance, emission control, and system efficiency. It covers core engine components, fuel systems, and diagnostics to minimize downtime, reduce repair costs, and improve reliability.

Who should attend

This course is designed for professionals managing or maintaining diesel power in industrial, marine, or automotive contexts, including Mechanical Engineers and Technicians, Fleet Maintenance Managers and Plant Operators (Diesel Generation Units).

Course Outline

- *Introduction & Basic Principles.*
- *Diesel Engine Systems.*
- *Fuel Injection Systems*
- *Maintenance & Diagnostics*
- *Operation & Monitoring:*

Course Duration

5 Days

Number of Participants

8 Minimum and 16 Maximum

Course Prerequisites

A foundational understanding of Operations and Maintenance of Engines.

Training Methodology

The training methodology combines lectures, discussions, group exercises and illustrations. Participants will gain both theoretical and practical knowledge of the topics.

Course Materials

A set of soft copy notes will be provided.

Course Certification

An APUA/ANCEE and Centre of Excellence Certified Certificate of Competence/Attendance will be awarded on successful completion of the course.



47

MAINTENANCE OF STEAM TURBINES

Course Description and Objectives

A Maintenance of Steam Turbines course provides comprehensive training on the design, operation, troubleshooting, and repair of turbine components to maximize plant reliability and safety. It covers preventive maintenance techniques, rotor dynamics, lubrication, and control systems, aimed at minimizing downtime for engineers and technicians in power and process industries.

Who should attend

Plant Engineers and Technicians responsible for maintenance and operations and Rotating Equipment Specialists.

Course Outline

- *Fundamentals.*
- *Component Maintenance.*
- *Systems and Auxiliaries.*
- *Maintenance & Troubleshooting.*
- *Operation*

Course Duration

5 Days

Number of Participants

8 Minimum and 16 Maximum

Course Prerequisites

A foundational understanding of Plant Equipment Maintenance Protocols. .

Training Methodology

The training methodology combines lectures, discussions, group exercises and illustrations. Participants will gain both theoretical and practical knowledge of the topics. The emphasis is on the practical application of the topics and as a result participant will go back to the workplace with both the ability and the confidence to apply the techniques learned to their duties.

Course Materials

A set of soft copy notes will be provided.

Course Certification

An APUA/ANCEE and Centre of Excellence Certified Certificate of Competence/Attendance will be awarded on successful completion of the course.



48

MAINTENANCE MANAGEMENT SYSTEMS

Course Description and Objectives

The Maintenance Management Systems course teaches participants how to implement, optimize, and manage maintenance strategies to maximize asset reliability, reduce downtime, and minimize costs.

Who should attend

Maintenance Managers and Engineers, Planners and Schedulers, Supervisors and Technicians.

Course Outline

- *Maintenance Strategy & Techniques.*
- *Planning and Scheduling.*
- *CMMS Usage and Data Management.*
- *Asset Reliability & Risk Management.*
- *Budgeting & Cost Control.*
- *Workforce & Contractor Management*

Course Duration

5 Days

Number of Participants

8 Minimum and 16 Maximum

Course Prerequisites

A foundational understanding of Plant Equipment Maintenance and Operations.

Training Methodology

The training methodology combines lectures, discussions, group practical exercises and illustrations.

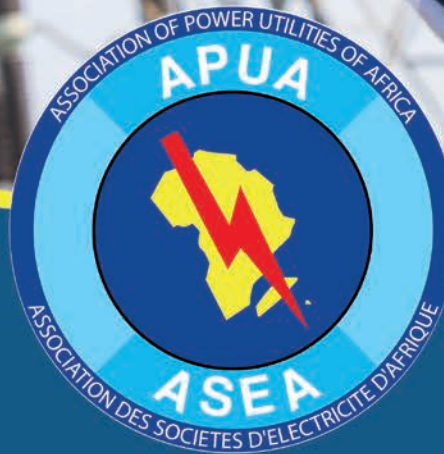
Course Materials

A set of soft copy notes will be provided.

Course Certification

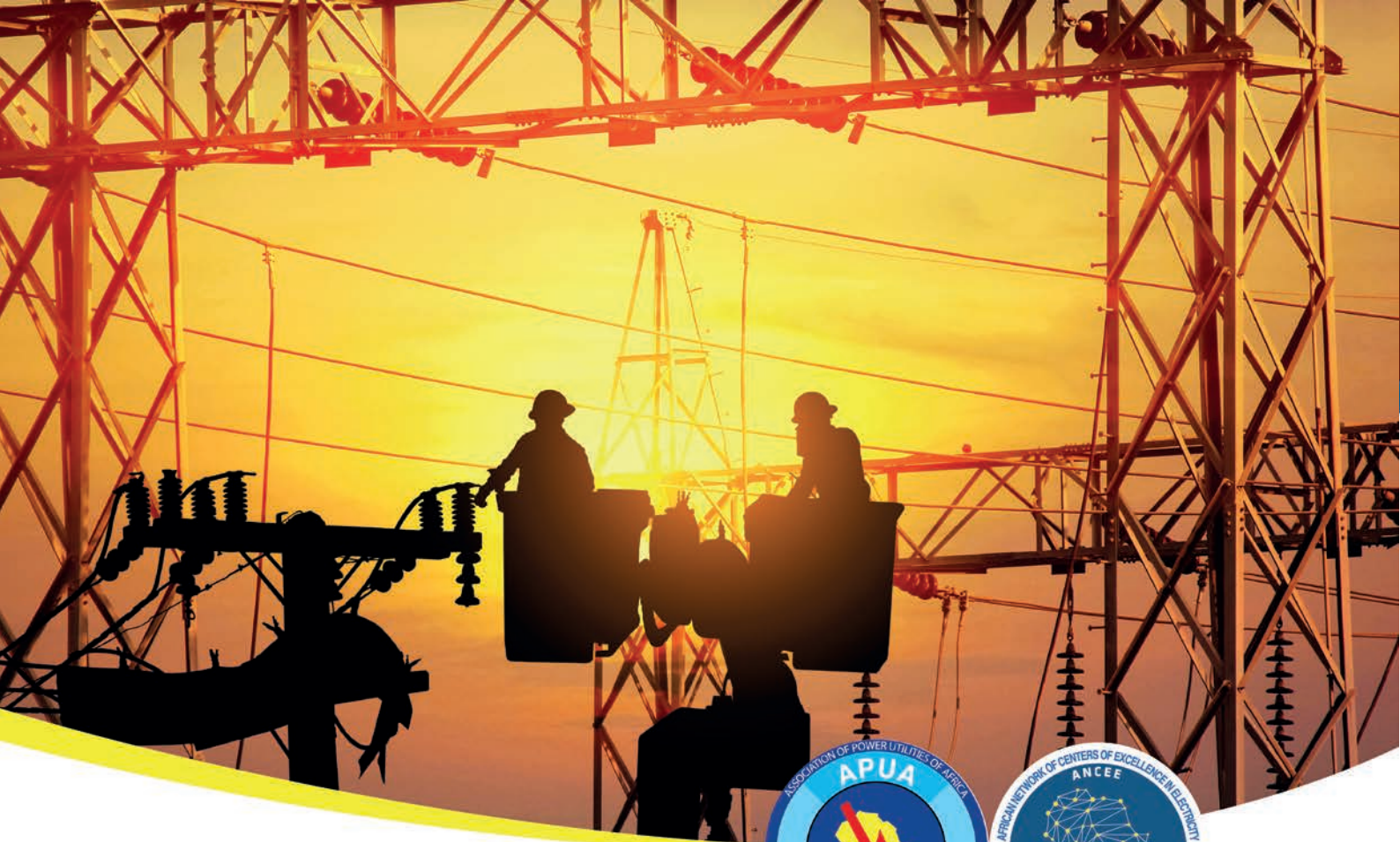
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CATALOGUE 2026



TRANSMISSION





INTRODUCTION TO TRANSMISSION COURSES

Electricity transmission courses cover essential topics including grid planning, High Voltage and Medium Voltage system design, protection, and maintenance, aimed at improving reliability, safety, and renewable energy integration.



01

TRANSMISSION LINE MAINTENANCE

Course Description and Objectives

This course will provide participants with practical techniques and concepts involved in transmission line maintenance, safe working practices in the construction and maintenance of transmission lines, procedures related to both live and dead-line situations and, principles of safe operation and isolation from live transmission power systems.

Who should attend

Line Maintenance Technicians and Linesmen, Field Engineers and Maintenance Planners, Substation/Overhead Line Construction Personnel, Utility Safety Personnel and Supervisors.

Course Outline

- *Introduction to Transmission Systems.*
- *Safety and Regulations.*
- *Inspection and Monitoring.*
- *Line Components Maintenance.*
- *Live-Line Work Techniques.*
- *Troubleshooting and Maintenance Procedures.*

Course Duration

5 Days

Number of Participants

8 Minimum and 16 Maximum

Course Prerequisites

Basic understanding of electrical theory and Power Systems and relevant experience in the electrical utility industry is recommended.

Training Methodology

The training methodology combines lectures, discussions, group exercises and illustrations. Participants will gain both theoretical and practical knowledge of the topics.

Course Materials

A set of soft copy notes will be provided.

Course Certification

An APUA/ANCEE and Centre of Excellence Certified Certificate of Competence/Attendance will be awarded on successful completion of the course.



MAINTENANCE OF CIRCUIT BREAKERS WITH OLE PNEUMATIC CONTROL

Course Description and Objectives

This specialized maintenance course focuses on the inspection, testing, and servicing of high-voltage circuit breakers employing pneumatic control mechanisms (operating mechanisms operated by compressed air). It covers pneumatic system components, fault detection, safe isolation practices, and mechanical maintenance to ensure breaker reliability.

Who should attend

Electrical Maintenance Engineers and Technicians, Substation Engineers and Technicians, Maintenance Supervisors, Mechanical Technicians working on pneumatic systems. Project Engineers responsible for switchgear installations.

Course Outline

- *Introduction to High Voltage Circuit Breakers.*
- *Pneumatic Control Systems.*
- *Maintenance Procedures.*
- *Troubleshooting Pneumatic Systems.*
- *Testing and Analysis.*
- *Safety Procedures.*

Course Duration

5 Days

Number of Participants

8 Minimum and 16 Maximum

Course Prerequisites

Basic understanding of electrical principles, Basic knowledge of mechanical systems or pneumatics is advantageous and Prior experience with high-voltage equipment is required.

Training Methodology

The training methodology combines lectures, discussions, group exercises and illustrations. Participants will gain both theoretical and practical knowledge of the topics.

Course Materials

A set of soft copy notes will be provided.

Course Certification

An APUA/ANCEE and Centre of Excellence Certified Certificate of Competence/Attendance will be awarded on successful completion of the course.



03

SWITCHGEAR OPERATION AND MAINTENANCE

Course Description and Objectives

The Switchgear Operation and Maintenance course provides comprehensive training on safely operating, inspecting, and maintaining Low, Medium, and High Voltage (LV/MV/HV) electrical switchgear. Key objectives include understanding arc interruption, mastering maintenance techniques (oil, SF6, vacuum), and ensuring personnel safety through compliance with international standards).

Who should attend

Electrical technicians, operators, and maintenance staff handling switchgear, Electrical supervisors and engineers, Plant electricians, power system operators, and maintenance managers, Personnel responsible for substation maintenance.

Course Outline

- *Introduction to Switchgear.*
- *Safety Procedures.*
- *Circuit Breaker Technology.*
- *Maintenance Practices.*
- *Condition Monitoring.*
- *Protection Systems.*

Course Duration

10 Days

Number of Participants

8 Minimum and 16 Maximum

Course Prerequisites

Basic understanding of electrical engineering principles, Working knowledge of power systems and substation equipment and familiarity with LV/MV/HV electrical networks.

Training Methodology

The training methodology combines both theoretical and practical knowledge of the topics. The emphasis is on the practical application of the topics.

Course Materials

A set of soft copy notes will be provided.

Course Certification

An APUA/ANCEE and Centre of Excellence Certified Certificate of Competence/Attendance will be awarded on successful completion of the course.



DC POWER SYSTEM MAINTENANCE

Course Description and Objectives

This DC Power System Maintenance course provides technicians and engineers with essential skills to install, monitor, and maintain DC power systems, including rectifiers and batteries. It focuses on troubleshooting, preventive maintenance, safety protocols, and proper equipment sizing to ensure high reliability in critical power environments.

Who should attend

DC Power Technicians and Maintenance Personnel, Electrical Engineers and Supervisors, and Technicians responsible for critical infrastructure.

Course Outline

- *Introduction to DC Systems.*
- *Battery Technology.*
- *System Components.*
- *Maintenance & Troubleshooting.*
- *Safety Practices.*

Course Duration

5 Days

Number of Participants

8 Minimum and 16 Maximum

Course Prerequisites

Basic understanding of electrical theory and circuits and previous experience in electrical maintenance or operations is recommended.

Training Methodology

The training methodology combines lectures, discussions, group exercises and practical's.

Course Materials

A set of soft copy notes will be provided.

Course Certification

An APUA/ANCEE and Centre of Excellence Certified Certificate of Competence/Attendance will be awarded on successful completion of the course.



POWER SYSTEM PLANNING

Course Description and Objectives

This Power System Planning course provides fundamental training for engineers to design secure, economic, and sustainable electricity infrastructure (generation, transmission, distribution) to meet future demand, balancing reliability with cost, environmental impact, and policy constraints. It combines technical analysis, load forecasting, and economic evaluation techniques suitable for regulated and market-based utilities.

Who should attend

Engineers and Technicians new in the Utility, System Planners and Planning Engineers, Personnel involved in power network operation, maintenance, and reliability and Supervisors in generation, transmission, and distribution divisions of the Utility.

Course Outline

- *Introduction.*
- *Load Forecasting.*
- *Generation Expansion Planning.*
- *Transmission System Planning.*
- *Distribution System Planning.*
- *Economic Evaluation.*
- *Modern Challenges*

Course Duration

5 Days

Number of Participants

8 Minimum and 16 Maximum

Course Prerequisites

Basic working knowledge of power systems (generation, transmission, distribution), background in electrical engineering or related technical field, familiarity with mathematical analysis and basic economic concepts and standard office tools (e.g., Excel for calculations).

Training Methodology

The training methodology combines lectures, group exercises and hands on practical application of the topics.

Course Materials

A set of soft copy notes will be provided.

Course Certification

An APUA/ANCEE and Centre of Excellence Certified Certificate of Competence/Attendance will be awarded on successful completion of the course.



06

ELECTRICAL SAFETY MANAGEMENT

Course Description and Objectives

This Electrical Safety Management course provides essential knowledge to identify hazards, apply safety regulations, and establish risk-controlled procedures, aimed at reducing workplace injuries and ensuring compliance. It covers arc flash, lockout/tagout, risk assessment, and safe practices for managing electrical hazards..

Who should attend

Non-Technical personnel, health & safety officers, risk managers, all Technical personnel, any personnel responsible for or working near electrical systems.

Course Outline

- *Introduction.*
- *Legislation & Standards.*
- *Hazard Identification.*
- *Risk Assessment.*
- *Safe Working Procedures.*
- *PPE & Tools.*
- *Emergency Response.*
- *Safety Management Systems.*

Course Duration

5 Days

Number of Participants

8 Minimum and 16 Maximum

Course Prerequisites

There are no strict pre-requisites, and the course is open to all personnel. However, a basic understanding of electricity is recommended.

Training Methodology

The training methodology combines lectures, discussions, group exercises and illustrations.

Course Materials

A set of soft copy notes will be provided.

Course Certification

An APUA/ANCEE and Centre of Excellence Certified Certificate of Competence/Attendance will be awarded on successful completion of the course.



DIGSILENT – PROTECTION RELAY GRADING

Course Description and Objectives

This course provides comprehensive training on improvement on system stability during normal operation and faults, skills to analyze, calculate, and set electrical protection devices to isolate faults reliably. Key topics include fault calculation, time-current curve coordination, IED configuration, and selectivity principles,

Who should attend

Electrical Power System Engineers, Protection and Control Technicians and Substation Personnel.

Course Outline

- *Principles of Protection.*
- *Fault Analysis.*
- *Overcurrent & Earth Fault.*
- *Relay Coordination.*
- *Modern Protection Technology.*
- *Specialized Applications*

Course Duration

5 Days

Number of Participants

8 Minimum and 16 Maximum

Course Prerequisites

Basic understanding of power systems and electrical engineering principles, familiarity with protection components (transformers, circuit breakers, relays) and basic knowledge of electrical design and analytical calculations.

Training Methodology

The training methodology combines lectures, discussions, group exercises and illustrations.

Course Materials

A set of soft copy notes will be provided.

Course Certification

An APUA/ANCEE and Centre of Excellence Certified Certificate of Competence/Attendance will be awarded on successful completion of the course.



08

POWER SYSTEM PROTECTION

Course Description and Objectives

The Power System Protection course provides comprehensive training on safeguarding electrical networks by detecting and isolating faults in generation, transmission, and distribution systems. Key goals include mastering protection schemes, relay coordination, instrument transformers, and setting calculations to ensure system reliability, safety, and stability..

Who should attend

Participants' profile or target group are engineers, technicians, and any suitably qualified personnel requiring an understanding of power system protection.

Course Outline

- *Introduction to Protection.*
- *Fault Analysis.*
- *Instrument Transformers.*
- *Protection Systems.*
- *Distance Protection.*
- *Equipment Protection.*
- *Digital/Numerical Relays.*

Course Duration

5 Days

Number of Participants

8 Minimum and 16 Maximum

Course Prerequisites

A foundational understanding of Electrical Power System Plants Operations and Maintenance.

Training Methodology

The training methodology combines lectures, discussions, practical activities.

Course Materials

A set of soft copy notes will be provided.

Course Certification

An APUA/ANCEE and Centre of Excellence Certified Certificate of Competence/Attendance will be awarded on successful completion of the course.



09



POWER SYSTEM MAINTENANCE MANAGEMENT

Course Description and Objectives

The Power System Maintenance Management course provides strategies to maximize asset reliability, reduce downtime, and ensure safety through proactive maintenance planning, condition monitoring, and risk-based management techniques. Key focus areas include preventive, predictive, and reliability-centered maintenance (RCM) for electrical equipment like transformers, switchgear, and motors.

Who should attend

Maintenance managers, supervisors, and planners, Electrical technicians, engineers, and plant engineers, Safety officers and technical staff responsible for electrical reliability.

Course Outline

- *Maintenance Fundamentals.*
- *Asset Management.*
- *Electrical Equipment Maintenance.*
- *Condition Monitoring.*
- *Safety & Regulatory Standards.*
- *Technology Application.*

Course Duration

5 Days

Number of Participants

8 Minimum and 16 Maximum

Course Prerequisites

A basic understanding of electrical systems, power distribution, and safe working practices.

Training Methodology

The training methodology combines discussions, lectures, group exercises and practicals and simulations. The emphasis is on the practical application of the topics and as a result participant will go back to the workplace with both the ability and the confidence to apply the techniques learned to their duties.

Course Materials

A set of soft copy notes will be provided.

Course Certification

An APUA/ANCEE and Centre of Excellence Certified Certificate of Competence/Attendance will be awarded on successful completion of the course.



POWER SYSTEM MONITORING

Course Description and Objectives

The Power System Monitoring course provides essential skills for analyzing, operating, and protecting electrical grids using modern, data-driven techniques, including SCADA, Wide Area Monitoring (WAMS), and Phasor Measurement Units (PMUs). It covers equipment health, fault analysis, and stability, aiming to improve grid reliability.

Who should attend

Electrical engineers, protection engineers, and maintenance technicians, Power system operators and planners in utilities and Engineering professionals in renewable energy.

Course Outline

- *Introduction to Power Systems.*
- *Monitoring Techniques.*
- *Power Quality Monitoring.*
- *Asset Health and Condition Monitoring.*
- *Protection Systems & Fault Analysis.*
- *Data Management & Analytics.*

Course Duration

5 Days

Number of Participants

8 Minimum and 16 Maximum

Course Prerequisites

Fundamental knowledge of electrical engineering principles (voltage, current, power), familiarity with power circuit analysis and basic understanding of electrical transmission and distribution systems.

Training Methodology

Participants will gain both theoretical and practical knowledge of the topics. The emphasis is on the practical application of the topics and to enable participants apply all the knowledge gained in their operations.

Course Materials

A set of soft copy notes will be provided.

Course Certification

An APUA/ANCEE and Centre of Excellence Certified Certificate of Competence/Attendance will be awarded on successful completion of the course.



11

SCADA SERVER DATABASE MAINTENANCE

Course Description and Objectives

This course provides comprehensive training on maintaining, backing up, and optimizing SCADA server databases to ensure data integrity, system performance, and historical data retrieval. It focuses on backup strategies, alarm/event logging, database security, and troubleshooting performance issues for industrial automation systems.

Who should attend

SCADA System Engineers and Administrators, Automation Engineers and Technicians, Database Administrators, Maintenance and Reliability Engineers.

Course Outline

- *Introduction to SCADA Databases.*
- *Database Backup & Recovery.*
- *Historical Data Management.*
- *Performance Monitoring & Optimization.*
- *SCADA Server Security.*
- *Maintenance Automation.*

Course Duration

5 Days

Number of Participants

8 Minimum and 16 Maximum

Course Prerequisites

Basic understanding of industrial control systems (PLCs, SCADA concepts), and basic knowledge of SQL concepts or databases would be beneficial but not mandatory.

Training Methodology

The training methodology combines lectures, discussions, group exercises and practical lessons.

Course Materials

A set of soft copy notes will be provided.

Course Certification

An APUA/ANCEE and Centre of Excellence Certified Certificate of Competence/Attendance will be awarded on successful completion of the course.



SCADA DATA MINING, SIMULATIONS AND REPORTS EXTRACTION

Course Description and Objectives

This course provides comprehensive training on extracting, analyzing, and visualizing industrial control data to optimize operations. Participants learn to use SCADA data for performance analysis, predictive maintenance, and generating actionable reports to enhance production efficiency and safety.

Who should attend

Production and Operations Engineers, SCADA System Integrators and Technicians, Process Engineers and Automation Specialists.

Course Outline

- *Introduction to SCADA Systems.*
- *Data Acquisition and Management.*
- *Data Mining & Analysis.*
- *Simulation & Optimization.*
- *Report Generation & Visualization.*
- *Case Studies & Lab Sessions.*

Course Duration

5 Days

Number of Participants

8 Minimum and 16 Maximum

Course Prerequisites

Basic understanding of industrial automation or control systems (PLC/SCADA fundamentals) and familiarity with data analysis concepts.

Training Methodology

The training methodology combines lectures, simulations and practical knowledge of the topics.

Course Materials

A set of soft copy notes will be provided.

Course Certification

An APUA/ANCEE and Centre of Excellence Certified Certificate of Competence/Attendance will be awarded on successful completion of the course.



SYSTEM MONITORING AND CONTROL

Course Description and Objectives

The System Monitoring and Control course equip professionals to track performance, manage risks, and automate industrial or IT systems using tools like SCADA, CBM, or SIEM. Objectives include mastering data analysis, enhancing operational efficiency, preventing equipment failure, and implementing proactive controls. The training ensures secure, reliable system performance.

Who should attend

Production engineers, maintenance technicians, and reliability engineers, IT project managers, system administrators, and network engineers, Personnel involved in risk management, compliance, and quality control.

Course Outline

- *Fundamentals of Monitoring.*
- *Data Collection & Analysis.*
- *System Diagnostics.*
- *Control Strategies.*
- *System Performance Management.*

Course Duration

5 Days

Number of Participants

8 Minimum and 16 Maximum

Course Prerequisites

Basic knowledge of IT/OT systems and technical infrastructure, familiarity with industrial operations (e.g., HVAC, SCADA).

Training Methodology

Instructor-led lectures, Case studies and real-life examples, Practical exercises/simulations.

Course Materials

A set of soft copy notes will be provided.

Course Certification

An APUA/ANCEE and Centre of Excellence Certified Certificate of Competence/Attendance will be awarded on successful completion of the course.



PROTECTION FOR CONTROL ENGINEERS

Course Description and Objectives

The Protection for Control Engineers course provides essential training on safeguarding automation systems, focusing on relay coordination, safety instrumented systems (SIS) compliance, and fault analysis, often adhering to international standards. This course will also cover protection schemes, troubleshooting, and maintenance for automation.

Who should attend

Instrumentation and Control Engineers, Electrical Engineers and Technicians. Process Engineers and Operators involved in safety-critical systems.

Course Outline

- *Fundamentals of Protection.*
- *Safety Instrumented Systems (SIS).*
- *Control System Protection.*
- *Testing and Maintenance:*

Course Duration

5 Days

Number of Participants

8 Minimum and 16 Maximum

Course Prerequisites

Fundamental knowledge of electrical engineering, industrial automation, or instrumentation and experience in plant operations or maintenance is beneficial.

Training Methodology

Instructor-led lectures, Case studies and real-life examples, Practical exercises/simulations.

Course Materials

A set of soft copy notes will be provided.

Course Certification

An APUA/ANCEE and Centre of Excellence Certified Certificate of Competence/Attendance will be awarded on successful completion of the course.



POWER TRADING AND ENERGY MANAGEMENT

Course Description and Objectives

This Power Trading and Energy Management course provides comprehensive knowledge on energy market structures, price drivers, derivative instruments, and risk management strategies. Participants will learn to analyze supply-demand dynamics, design hedging strategies for electricity and navigate regulatory frameworks.

Who should attend

Energy traders and analysts, risk managers and financial officers in the energy sector. Portfolio managers and power plant operators.

Course Outline

- **Introduction:** Energy market mechanisms and market structures.
- **Pricing:** Energy pricing drivers, volatility, and trading instruments.
- **Trading:** Strategies, portfolio management, and arbitrage.
- **Risk Management:** Hedging tools, Value at Risk (VaR), and scenario modeling.
- **Regulation:** Compliance, reporting, and market governance.
- **Special Topics:** Renewable energy developments, carbon trading, and green technology.

Course Duration

5 Days

Number of Participants

8 Minimum and 16 Maximum

Course Prerequisites

Basic knowledge of energy sector fundamentals and understanding of basic financial concepts is recommended.

Training Methodology

Instructor-led lectures, Case studies and real-life examples, Practical exercises/simulations.

Course Materials

A set of soft copy notes will be provided.

Course Certification

An APUA/ANCEE and Centre of Excellence Certified Certificate of Competence/Attendance will be awarded on successful completion of the course.



ELECTRICITY TRANSMISSION STRUCTURES

Course Description and Objectives

This course provides a comprehensive understanding of electrical power transmission systems, covering the design, analysis, and structural mechanics of overhead lines, towers, and insulators. Objectives focus on designing reliable, economical, and safe transmission systems while analyzing component performance, including sag-tension calculations, conductor selection, and environmental loads.

Who should attend

Electrical and Structural Engineers involved in transmission design, Utility Engineers, System Operators, Engineering personnel focusing on HVDC or HVAC power infrastructure.

Course Outline

- *Introduction to Transmission Structures.*
- *Electrical Design Components.*
- *Mechanical Design of Lines.*
- *Structure and Foundation Design.*
- *Installation and Safety.*

Course Duration

5 Days

Number of Participants

8 Minimum and 16 Maximum

Course Prerequisites

Basic understanding of Electrical Engineering principles and circuit analysis and some basic knowledge of mechanics or structural engineering.

Training Methodology

Instructor-led lectures, Case studies and real-life examples, Practical exercises/simulations.

Course Materials

A set of soft copy notes will be provided.

Course Certification

An APUA/ANCEE and Centre of Excellence Certified Certificate of Competence/Attendance will be awarded on successful completion of the course.



STRUCTURE OF HV SOURCE SUBSTATIONS

Course Description and Objectives

The objectives for the HV Source Substations course are to equip participants with the knowledge and skills necessary to design, install, commission, test, enhance, and maintain high-voltage substations.

Who should attend

Plant Operational and Maintenance personnel, reliability engineers, and technicians.

Course Outline

- *Substation Classifications*
- *Earth Fault and Overcurrent Protection*
- *Grounding Systems Calculations*
- *Faults Analysis*
- *Use of Types of Circuit Breakers – Vacuum, SF6*

Course Duration

10 Days

Number of Participants

8 Minimum and 16 Maximum

Course Prerequisites

Basic understanding of electricity and power systems and familiarity with cable networks.

Training Methodology

Instructor-led lectures, Case studies and real-life examples, Practical exercises/simulations.

Course Materials

A set of soft copy notes will be provided.

Course Certification

An APUA/ANCEE and Centre of Excellence Certified Certificate of Competence/Attendance will be awarded on successful completion of the course.



18



PROTECTION AND REMOTE CONTROL OF THE HIGH VOLTAGE NETWORK

Course Description and Objectives

This course provides essential knowledge on protecting and remotely controlling high-voltage (HV) networks, covering fault analysis, protection relay settings, circuit breaker control, and safety protocols for HV systems. Key topics include IEDs, differential protection, and remote operation to maximize system reliability.

Who should attend

Electrical Engineers and Technicians, Protection and Control Engineers and Network Operators.

Course Outline

- *Fundamentals of HV Systems.*
- *Protection Schemes.*
- *Control and Instrumentation.*
- *Remote Control and Automation.*
- *Safety and Coordination.*

Course Duration

5 Days

Number of Participants

8 Minimum and 16 Maximum

Course Prerequisites

Basic understanding of electrical engineering concepts and power systems

Training Methodology

The training methodology combines lectures, discussions, group exercises and practical lessons.

Course Materials

A set of soft copy notes will be provided.

Course Certification

An APUA/ANCEE and Centre of Excellence Certified Certificate of Competence/Attendance will be awarded on successful completion of the course.



MAINTENANCE OF HIGH VOLTAGE SUBSTATIONS

Course Description and Objectives

This comprehensive course on the maintenance of High Voltage (HV) substations covers safety, testing, and maintenance strategies for critical equipment like switchgear and transformers. Objectives focus on improving reliability, safety compliance, and proactive, scheduled maintenance.

Who should attend

Electrical Engineers and Technicians, Substation Maintenance Personnel and Power System Operators.

Course Outline

- *Substation Fundamentals & Safety.*
- *Switchgear Operations & Maintenance.*
- *Transformer Maintenance & Testing.*
- *Protection & Control Systems.*
- *Cable Fault & Site Management.*
-

Course Duration

5 Days

Number of Participants

8 Minimum and 16 Maximum

Course Prerequisites

A background in electrical engineering or technical training or a basic understanding of electrical power systems.

Training Methodology

The training lectures, group exercises, practical simulations and illustrations.

Course Materials

A set of soft copy notes will be provided.

Course Certification

An APUA/ANCEE and Centre of Excellence Certified Certificate of Competence/Attendance will be awarded on successful completion of the course.



OPERATION AND MAINTENANCE OF HV SUBSTATION EQUIPMENT

Course Description and Objectives

The Operation and Maintenance of High Voltage (HV) Substation Equipment course provides comprehensive training on the design, operation, and maintenance of substations. Objectives include understanding key equipment, protection systems, safety procedures, and modern AI/IoT maintenance techniques..

Who should attend

Substation operation & maintenance engineers, Electrical Maintenance Technicians/Technologists and Electrical Safety Personnel.

Course Outline

- *Introduction.*
- *Substation Types.*
- *Equipment Maintenance.*
- *Protection & Control.*
- *Substation Grounding.*
- *Safety Practices.*
- *Testing and Diagnostics..*

Course Duration

10 Days

Number of Participants

8 Minimum and 16 Maximum

Course Prerequisites

Basic knowledge of electrical principles and power systems and experience in electrical maintenance.

Training Methodology

The training combines lectures, discussions, simulations and illustrations.

Course Materials

A set of soft copy notes will be provided.

Course Certification

An APUA/ANCEE and Centre of Excellence Certified Certificate of Competence/Attendance will be awarded on successful completion of the course.



ELECTRICAL PROTECTION OF HIGH VOLTAGE, MEDIUM VOLTAGE AND LOW VOLTAGE NETWORKS

Course Description and Objectives

This course provides a comprehensive understanding of protection principles, device coordination, and safety standards across High (HV), Medium (MV), and Low Voltage (LV) networks. Participants will learn to design, calculate, and maintain electrical systems, focusing on fault detection, relay settings, and safety compliance.

Who should attend

Electrical Engineers (Senior/Principal), Operation and Maintenance Technicians and Safety Officers.

Course Outline

- *Fundamentals of Protection.*
- *LV Protection Systems.*
- *MV/HV Protection Systems.*
- *Protection Coordination & Calculation.*
- *Switchgear & Equipment.*
- *Safety & Compliance.*

Course Duration

15 Days

Number of Participants

8 Minimum and 16 Maximum

Course Prerequisites

Fundamental knowledge of electrical engineering principles, basic experience working within electrical distribution networks and at least an electrical technician or engineering qualification.

Training Methodology

The training methodology combines lectures, discussions, group exercises with emphasis on the practical application of the topics.

Course Materials

A set of soft copy notes will be provided.

Course Certification

An APUA/ANCEE and Centre of Excellence Certified Certificate of Competence/Attendance will be awarded on successful completion of the course.



ELECTRICAL POWER QUALITY

Course Description and Objectives

The Electrical Power Quality course provides essential knowledge on analyzing, mitigating, and monitoring voltage sags, harmonics, and transients in industrial and utility power systems. It focuses on international standards, mitigation techniques and improving reliability.

Who should attend

Electrical Engineers, Operations and Maintenance Technicians and Technologists, Energy Managers and Field Service Technicians.

Course Outline

- *Introduction to PQ.*
- *Voltage Quality Problems.*
- *Waveform Distortion.*
- *Voltage Unbalance & Flicker.*
- *Mitigation Solutions.*
- *Monitoring and Analysis.*
- *Grounding and EMI*

Course Duration

5 Days

Number of Participants

8 Minimum and 16 Maximum

Course Prerequisites

A foundation in electrical engineering principles, understanding of Three-Phase Power Systems and Machines and a basic knowledge of electrical distribution systems.

Training Methodology

The training methodology combines lectures, group exercises, illustrations practical simulations.

Course Materials

A set of soft copy notes will be provided.

Course Certification

An APUA/ANCEE and Centre of Excellence Certified Certificate of Competence/Attendance will be awarded on successful completion of the course.



REACTIVE POWER COMPENSATION

Course Description and Objectives

This course on Reactive Power Compensation and Voltage Control enables participants to understand power factor correction, voltage stability, and harmonic mitigation techniques. It covers shunt/series compensation, FACTS devices, and capacitor bank design, aiming to optimize electrical network efficiency, reduce losses, and enhance power quality for industrial and utility applications.

Who should attend

Electrical Engineers and Technicians, Maintenance Personnel, Transmission and Distribution Personnel and Personnel focused on Energy Efficiency.

Course Outline

- *Fundamentals.*
- *Reactive Power Management.*
- *Transmission Compensation.*
- *Harmonics & Power Quality.*
- *Advanced Solutions.*
- *Case Studies & Applications.*

Course Duration

2 Days

Number of Participants

8 Minimum and 16 Maximum

Course Prerequisites

Basic understanding of electrical systems (Voltage, Current, Power), familiarity with AC machinery or electrical machines.

Training Methodology

The training methodology combines lectures, discussions, group exercises and illustrations. Participants will gain both theoretical and practical knowledge of the topics.

Course Materials

A set of soft copy notes will be provided.

Course Certification

An APUA/ANCEE and Centre of Excellence Certified Certificate of Competence/Attendance will be awarded on successful completion of the course.



MANAGEMENT AND CONTROL OF EHV AND HV ELECTRICITY NETWORK

Course Description and Objectives

This course on the management and control of EHV/HV networks focuses on safe, efficient operation, covering switching procedures, protection systems, real-time monitoring (SCADA), and power flow management. It covers HV/EHV equipment maintenance, safety regulations, and fault restoration techniques.

Who should attend

Transmission and Distribution Line Engineers, HV Electrical Substation Technicians and Engineers, Network Operators and Maintenance Personnel.

Course Outline

- *HV/EHV Network Fundamentals.*
- *Safety & Switching Procedures.*
- *Control & Operation.*
- *Protection & Maintenance.*
- *Emergency Response & Planning.*

Course Duration

3 Days

Number of Participants

8 Minimum and 16 Maximum

Course Prerequisites

Fundamental knowledge of electrical engineering principles, basic understanding of electricity distribution/transmission systems and relevant technical background or experience in electrical maintenance.

Training Methodology

The training methodology combines lectures, discussions, group exercises and practical illustrations.

Course Materials

A set of soft copy notes will be provided.

Course Certification

An APUA/ANCEE and Centre of Excellence Certified Certificate of Competence/Attendance will be awarded on successful completion of the course.

ANALYSIS OF TRANSMISSION NETWORK INCIDENTS

Course Description and Objectives

This course provides comprehensive training on analyzing transmission network incidents, focusing on identifying root causes, evaluating system impact, and implementing corrective actions to ensure grid reliability. Participants will learn incident investigation methodologies, regulatory compliance, and best practices for restoration to minimize future outages.

Who should attend

Transmission System Operators (TSOs) and operators, Electrical and power system engineers, System planners and protection engineers and maintenance personnel.

Course Outline

- *Introduction to Transmission System Reliability.*
- *Incident Identification and Data Collection.*
- *Root Cause Analysis Techniques.*
- *Case Studies in Transmission Failures.*
- *Incident Reporting and Documentation.*
- *Preventive Measures and System Improvement.*

Course Duration

5 Days

Number of Participants

8 Minimum and 16 Maximum

Course Prerequisites

Fundamental knowledge of power systems analysis and electrical engineering principles, familiarity with high-voltage transmission networks and basic understanding of Power Utility regulations.

Training Methodology

The training methodology combines lectures, group exercises and practical simulation

Course Materials

A set of soft copy notes will be provided.

Course Certification

An APUA/ANCEE and Centre of Excellence Certified Certificate of Competence/Attendance will be awarded on successful completion of the course.





LIVE LINE WORKING ON OVERHEAD AND UNDERGROUND CONNECTIONS

Course Description and Objectives

This Live Line Working on Overhead and Underground Connections course equips technical personnel to maintain energized power networks (low/high voltage) safely without disconnections. It covers safe techniques for both overhead line construction and underground cable jointing, ensuring regulatory compliance.

Who should attend

Line technicians and electricians, Substation plant technicians. Electrical utility construction workers, Supervisors and engineers focusing on distribution and transmission maintenance.

Course Outline

- *Introduction to Live Line Working.*
- *Overhead Lines: Conductor types and insulation materials, Support structures, poles, and tower maintenance, Sag-tension calculations and clearances.*
- *Underground Connections: Cable types and handling, Jointing and terminating techniques.*
- *Environmental protection and civil coordination.*
- *Safety & Maintenance.*

Course Duration

3 Days

Number of Participants

8 Minimum and 16 Maximum

Course Prerequisites

Basic knowledge of electrical principles and safety standards, basic qualifications as a linesperson, joiner, or fitter.

Training Methodology

The training methodology combines lectures, group exercises and practical simulations and illustrations.

Course Materials

A set of soft copy notes will be provided.

Course Certification

An APUA/ANCEE and Centre of Excellence Certified Certificate of Competence/Attendance will be awarded on successful completion of the course.



LIVE LINE WORK ON HV/LV BOXES AND SUBSTATIONS

Course Description and Objectives

The Live Line Work on HV/LV Boxes and Substations course is specialized training designed to teach personnel how to safely maintain energized electrical systems. It focuses on hazard identification, insulation techniques, PPE, and hot stick/barehand methods to minimize fatalities.

Who should attend

Electricians and Maintenance Technicians, Electrical Engineers and Supervisors, Safety Technicians and Compliance Engineers and Maintenance Personnel specialized in substations.

Course Outline

- *Introduction to Live Working.*
- *Hazard Awareness.*
- *Equipment and Tools.*
- *Live Line Methods.*
- *Substation & Box Procedures.*
- *Insulation & Protection.*
- *Field Practice.*

Course Duration

3 Days

Number of Participants

8 Minimum and 16 Maximum

Course Prerequisites

Technical qualification, experience in electrical maintenance or construction (HV/LV), physical and psychological fitness for high-risk work, basic knowledge of substation equipment and safety procedures.

Training Methodology

The training methodology combines lectures, discussions, group exercises and illustrations.

Course Materials

A set of soft copy notes will be provided.

Course Certification

An APUA/ANCEE and Centre of Excellence Certified Certificate of Competence/Attendance will be awarded on successful completion of the course.



MAINTENANCE OF HV CIRCUIT BREAKERS WITH OLEO PNEUMATIC CONTROL

Course Description and Objectives

This course provides participants with specialized knowledge to operate, maintain, and troubleshoot High Voltage (HV) circuit breakers using OLEO pneumatic control systems. It focuses on safety standards, SF6 gas handling, pneumatic mechanism servicing, and advanced diagnostic testing (timing, contact resistance) to ensure network reliability and reduce maintenance downtime.

Who should attend

HV Maintenance Technicians and Technologists, Engineers, Substation Engineers and Operators.

Course Outline

- *HV Circuit Breaker Fundamentals & Safety.*
- *OLEO Pneumatic Control System.*
- *Maintenance & Inspection Procedures.*
- *SF6 Gas Technology.*
- *Testing and Diagnostics.*
- *Troubleshooting & Repair.*

Course Duration

5 Days

Number of Participants

8 Minimum and 16 Maximum

Course Prerequisites

Basic knowledge of electrical safety and high voltage systems, and experience in electrical maintenance or operations within the Power Utility.

Training Methodology

The training methodology combines lectures, discussions, group exercises and illustrations.

Course Materials

A set of soft copy notes will be provided.

Course Certification

An APUA/ANCEE and Centre of Excellence Certified Certificate of Competence/Attendance will be awarded on successful completion of the course.



MAINTENANCE OF HTB CIRCUIT BREAKERS WITH PNEUMATIC CONTROL LEVEL 1 TO 3

Course Description and Objectives

This course provides technicians with the skills to install, maintain, and troubleshoot High Voltage (HV/HTB) SF6 circuit breakers with pneumatic operating mechanisms, covering levels 1-3. It combines theoretical lectures with hands-on training for routine maintenance, diagnostics, and component repair.

Who should attend

Maintenance Engineers and Technicians, Substation Personnel and Technicians tasked with repairing HV circuit breakers.

Course Outline

- *Introduction to HTB SF6 Circuit Breakers.*
- *Pneumatic System Maintenance.*
- *SF6 Handling and Inspection.*
- *Mechanical & Electrical Maintenance.*
- *Troubleshooting and Diagnostics.*
- *Practical Training and Assessment.*

Course Duration

5 Days

Number of Participants

8 Minimum and 16 Maximum

Course Prerequisites

A basic understanding of electrical equipment and experience in mechanical or electrical engineering.

Training Methodology

The training methodology combines lectures, group discussions and simulations.

Course Materials

A set of soft copy notes will be provided.

Course Certification

An APUA/ANCEE and Centre of Excellence Certified Certificate of Competence/Attendance will be awarded on successful completion of the course.



MAINTENANCE OF EHV/HV SUBSTATION EQUIPMENT

Course Description and Objectives

This course on Maintenance of EHV/HV Substation Equipment focuses on essential procedures to ensure reliability, safety, and efficiency of high-voltage systems. It covers preventive and breakdown maintenance of transformers, switchgear, and protection systems, equipping participants with modern maintenance techniques.

Who should attend

Substation Engineers & Technicians, Electrical Maintenance Personnel, Safety Officers and other suitably qualified Personnel.

Course Outline

- *Introduction to HV/EHV Substations.*
- *Transformer Maintenance.*
- *Circuit Breaker (CB) Maintenance.*
- *Disconnectors/Isolator Maintenance.*
- *Instrument Transformers (CT/VT/CVT) Maintenance.*
- *Protection Systems & Relays.*
- *Surge Arresters & Earthing Systems.*
- *Safety Procedures.*

Course Duration

2 Days

Number of Participants

8 Minimum and 16 Maximum

Course Prerequisites

Basic understanding of electrical power systems, Relevant experience in the electricity utility and familiarity with electrical safety standards.

Training Methodology

The training methodology combines lectures, discussions, group exercises and illustrations.

Course Materials

A set of soft copy notes will be provided.

Course Certification

An APUA/ANCEE and Centre of Excellence Certified Certificate of Competence/Attendance will be awarded on successful completion of the course.



32

MAINTENANCE OF EHV AND HV OVERHEAD POWER LINES

Course Description and Objectives

This course provides fundamental knowledge on the safe inspection, maintenance, and refurbishment of High Voltage (HV) and Extra High Voltage (EHV) overhead lines. Participants will learn best practices for maintaining transmission infrastructure—such as towers, conductors, and insulators—to maximize reliability and safety.

Who should attend

Transmission Line Design & Maintenance Engineers, Electrical Engineers and Technicians and other suitably personnel.

Course Outline

- *Overview.*
- *Components & Design.*
- *Maintenance Procedures.*
- *Condition Monitoring.*
- *Safety & Logistics.*

Course Duration

2 Days

Number of Participants

8 Minimum and 16 Maximum

Course Prerequisites

A basic understanding of electrical engineering principles, experience in operating overhead lines and basic knowledge of electrical safety practices.

Training Methodology

The training methodology combines lectures, discussions, group exercises and illustrations.

Course Materials

A set of soft copy notes will be provided.

Course Certification

An APUA/ANCEE and Centre of Excellence Certified Certificate of Competence/Attendance will be awarded on successful completion of the course.

CATALOGUE 2026



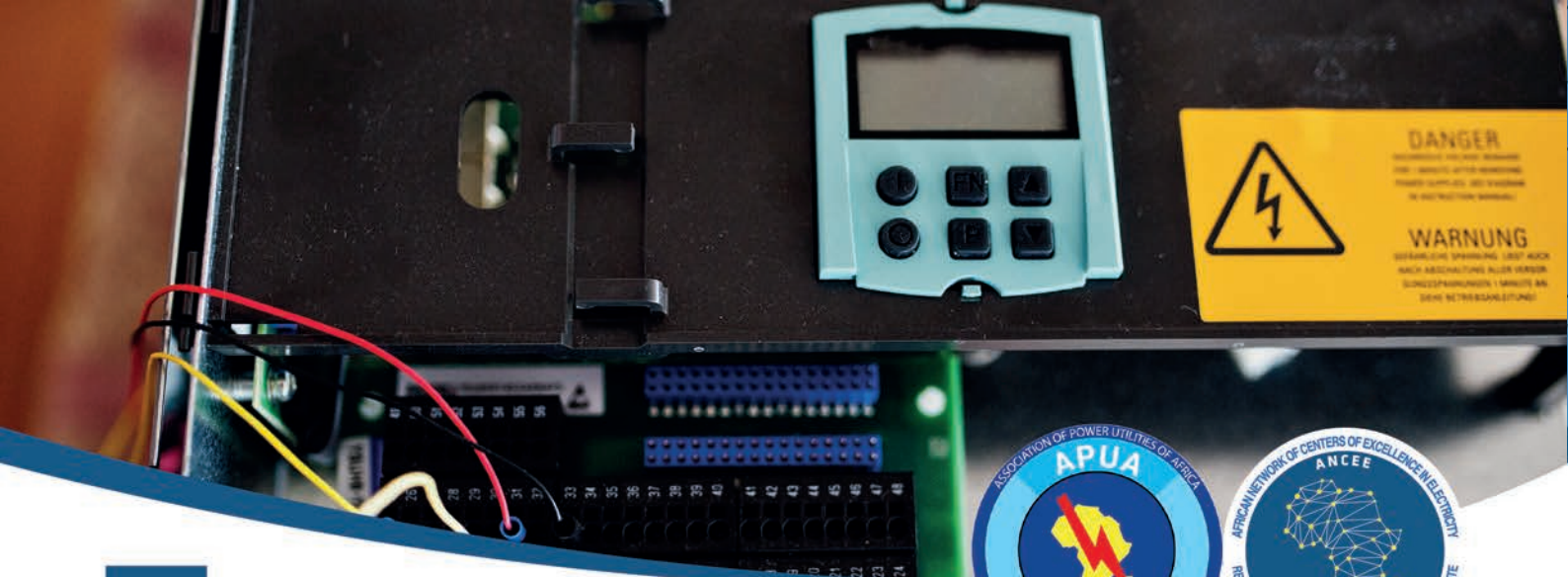
DISTRIBUTION





INTRODUCTION TO DISTRIBUTION COURSES

The interactive Electric Power Distribution training courses typically cover various topics related to distribution system planning, equipment selection, protection schemes, and maintenance practices. The courses highlight the basics of electrical power systems, including their components, operations, functionalities and discusses the importance of standards in ensuring the safe and reliable distribution of electricity and the role of regulatory bodies in establishing and enforcing standards.



01

PRACTICAL EARTHING, BONDING AND LIGHTNING PROTECTION FOR ELECTRICAL/ELECTRONIC SYSTEMS AND EQUIPMENT

Course Description and Objectives

This course will expose the participants to an in-depth understanding of grounding, bonding, lightning protection and surge mitigation techniques, ensuring optimal safety and performance in electrical systems.

Who should attend

Technicians, Technologists and Engineers in the Operations and Maintenance of the Electricity Power System.

Course Outline

- *Basics of grounding and bonding.*
- *Design and installation practices for earthing and bonding.*
- *Applications of earthing and bonding in electrical systems.*
- *Lightning protection systems and their importance.*

Course Duration

5 Days

Number of Participants

8 Minimum and 16 Maximum

Course Prerequisites

Basic understanding of electrical theory and Power Systems and relevant experience in the electrical utility industry is recommended.

Training Methodology

The training methodology combines lectures, discussions, group exercises and illustrations. Participants will gain both theoretical and practical knowledge of the topics.

Course Materials

A set of soft copy notes will be provided.

Course Certification

An APUA/ANCEE and Centre of Excellence Certified Certificate of Competence/Attendance will be awarded on successful completion of the course.



ELECTRICITY DISTRIBUTION NETWORK DESIGN, CONSTRUCTION AND MAINTENANCE

Course Description and Objectives

This comprehensive course covers electricity distribution network design, construction, and maintenance, focusing on planning efficient, reliable LV/MV networks, equipment specification (transformers, switchgear, cables), safety standards, and protective relaying.

Who should attend

Electrical utility engineers and technicians working on distribution systems and maintenance engineers focused on reliability.

Course Outline

- *Distribution System Planning & Design.*
- *Equipment Specification.*
- *Design Studies.*
- *Construction & Installation.*
- *Maintenance & Operations.*

Course Duration

5 Days

Number of Participants

8 Minimum and 16 Maximum

Course Prerequisites

Basic understanding of electrical engineering principles (voltage, current, power) and Power Utility experience in power systems.

Training Methodology

The training methodology combines lectures, discussions, group exercises and illustrations. Participants will gain both theoretical and practical knowledge of the topics.

Course Materials

A set of soft copy notes will be provided.

Course Certification

An APUA/ANCEE and Centre of Excellence Certified Certificate of Competence/Attendance will be awarded on successful completion of the course.



03

ANALYSIS OF ENERGY LOSSES ON ELECTRICITY DISTRIBUTION NETWORKS

Course Description and Objectives

The Analysis of Energy Losses on Electricity Distribution Networks course covers identifying, calculating, and reducing technical (Joule effect, transformer) and non-technical (theft, metering errors) losses to improve efficiency. It includes loss modeling, data analysis for network planning, and loss reduction strategies for Distribution System Operators (DSOs).

Who should attend

Engineers & Planners, Maintenance and Operations Technical Personnel.

Course Outline

- *Fundamentals.*
- *Loss Categorization.*
- *Data Collection & Analysis.*
- *Loss Calculation Methods.*
- *Reduction Strategies.*
- *Technical Planning.*

Course Duration

2 Days

Number of Participants

8 Minimum and 16 Maximum

Course Prerequisites

Basic knowledge of electrical engineering principles, specifically power systems, electrical network design, and power flow and familiarity with distribution network operations.

Training Methodology

The training methodology combines both theoretical and practical knowledge of the topics. The emphasis is on the practical application of the topics.

Course Materials

A set of soft copy notes will be provided.

Course Certification

An APUA/ANCEE and Centre of Excellence Certified Certificate of Competence/Attendance will be awarded on successful completion of the course.



HIGH AND LOW VOLTAGE UNDERGROUND CABLE TECHNOLOGY

Course Description and Objectives

The High and Low Voltage Underground Cable Technology course provides comprehensive training on the design, installation, testing, and maintenance of cable systems, focusing on electrical insulation, thermal characteristics, fault detection, and safety standards.

Who should attend

Engineers, Technicians, Technologists (distribution and transmission), Cable Jointers, Cable Line-workers, and Maintenance Personnel.

Course Outline

- *Cable Fundamentals.*
- *Design & Engineering.*
- *Installation Practices.*
- *Jointing and Termination.*
- *Testing and Maintenance.*
- *Safety Standards.*

Course Duration

5 Days

Number of Participants

8 Minimum and 16 Maximum

Course Prerequisites

An engineering qualification, Trade qualification and basic understanding of power system components.

Training Methodology

The training methodology combines lectures, discussions, group exercises and practical's.

Course Materials

A set of soft copy notes will be provided.

Course Certification

An APUA/ANCEE and Centre of Excellence Certified Certificate of Competence/Attendance will be awarded on successful completion of the course.



05

FAULT FINDING ON ELECTRICITY DISTRIBUTION NETWORKS

Course Description and Objectives

The Fault Finding on Electricity Distribution Networks course provides essential skills for diagnosing and repairing electrical faults in power systems. It covers topics dealing with fault analysis, protection systems, cable fault location, and switchgear maintenance.

Who should attend

Electrical Utility Personnel: Technicians and Engineers involved in distributing electricity. Maintenance Personnel: Personnel responsible for repairing overhead lines, underground cables, and substations.

Safety Inspectors.

Course Outline

- *Introduction to Power Distribution.*
- *Types of Electrical Faults.*
- *Protection Systems.*
- *Fault Detection & Location Techniques.*
- *Troubleshooting & Maintenance Procedures.*
- *Safety and Regulations.*

Course Duration

5 Days

Number of Participants

8 Minimum and 16 Maximum

Course Prerequisites

Fundamental Electrical knowledge of basic electrical engineering principles, circuits, and components.

Training Methodology

The training methodology combines lectures, group exercises and hands on practical application of the topics.

Course Materials

A set of soft copy notes will be provided.

Course Certification

An APUA/ANCEE and Centre of Excellence Certified Certificate of Competence/Attendance will be awarded on successful completion of the course.



06

REMOTE CONTROL AND PROTECTION OF MV NETWORKS

Course Description and Objectives

This Remote Control and Protection of MV Networks course provides engineers and technicians with skills to operate, maintain, and secure Medium Voltage (MV) switchgear and protection systems, often covering digital monitoring, SCADA integration, and relay protection techniques. This practical training is essential for improving network reliability and reducing outages.

Who should attend

Electrical Engineers (Design, Protection, Project, and Maintenance), System Operators managing power distribution networks, Technicians involved in maintenance and commissioning.

Course Outline

- *MV Network Architecture.*
- *Switchgear Components.*
- *Protection Systems.*
- *Remote Control & SCADA.*
- *Maintenance & Troubleshooting.*
- *Safety Standards.*

Course Duration

5 Days

Number of Participants

8 Minimum and 16 Maximum

Course Prerequisites

Fundamental knowledge of electrical circuits and power systems and working knowledge of electrical industrial safety (including PPE).

Training Methodology

The training methodology combines lectures, discussions, group exercises and illustrations

Course Materials

A set of soft copy notes will be provided.

Course Certification

An APUA/ANCEE and Centre of Excellence Certified Certificate of Competence/Attendance will be awarded on successful completion of the course.



ANALYSIS OF INCIDENTS ON THE ELECTRICAL NETWORK

Course Description and Objectives

The Analysis of Incidents on the Electrical Network course provides technical training on identifying, simulating, and mitigating faults to ensure supply continuity. It focuses on fault types, short-circuit calculations, and protection, aimed at electrical engineers responsible for system reliability.

Who should attend

Electrical Engineers, Technical Personnel in network operations, maintenance, and control and protection engineers.

Course Outline

- *Introduction to Faults.*
- *System Modeling & Components.*
- *Fault Analysis Techniques.*
- *Fault Types and Consequences.*
- *Incident Mitigation.*

Course Duration

5 Days

Number of Participants

8 Minimum and 16 Maximum

Course Prerequisites

Basic knowledge of linear electrical circuit analysis and fundamental understanding of electrical systems.

Training Methodology

The training methodology combines lectures, discussions, group exercises and illustrations.

Course Materials

A set of soft copy notes will be provided.

Course Certification

An APUA/ANCEE and Centre of Excellence Certified Certificate of Competence/Attendance will be awarded on successful completion of the course.



08

TECHNICAL MANAGEMENT OF DISTRIBUTION INFRASTRUCTURE

Course Description and Objectives

The Technical Management of Distribution Infrastructure course provides training on operating, maintaining, and optimizing power distribution systems (substations, lines, transformers)..

Who should attend

Participants' profile or target group are engineers, technicians, and any suitably qualified personnel requiring an understanding of power system operations..

Course Outline

- *Introduction to Distribution Systems.*
- *Operations & Maintenance.*
- *Infrastructure Planning & Design.*
- *Technology Integration.*
- *Safety and Regulation.*

Course Duration

5 Days

Number of Participants

8 Minimum and 16 Maximum

Course Prerequisites

a foundational understanding of Electrical Power System Plants Operations and Maintenance.

Training Methodology

The training methodology combines lectures, discussions, practical activities.

Course Materials

A set of soft copy notes will be provided.

Course Certification

An APUA/ANCEE and Centre of Excellence Certified Certificate of Competence/Attendance will be awarded on successful completion of the course.



09

MAINTENANCE OF MV/LV TRANSFORMER SUBSTATIONS

Course Description and Objectives

This Maintenance of MV/LV Transformer Substations course covers the inspection, testing, and maintenance of substation equipment (transformers, switchgear, protection relays) to ensure safety and reliability.

Who should attend

Maintenance managers, supervisors, and planners, Electrical technicians and Engineers.

Course Outline

- *Substation Fundamentals.*
- *Transformer Maintenance.*
- *Switchgear & Circuit Breakers.*
- *Protection & Safety.*
- *Preventive & Predictive Maintenance.*
- *Safety Protocols*

Course Duration

5 Days

Number of Participants

8 Minimum and 16 Maximum

Course Prerequisites

A basic understanding of electrical systems, power distribution, and safe working practices.

Training Methodology

The training methodology combines discussions, lectures, group exercises and practicals and simulations. The emphasis is on the practical application of the topics and as a result participant will go back to the workplace with both the ability and the confidence to apply the techniques learned to their duties.

Course Materials

A set of soft copy notes will be provided.

Course Certification

An APUA/ANCEE and Centre of Excellence Certified Certificate of Competence/Attendance will be awarded on successful completion of the course.



HIGH VOLTAGE METERING SYSTEM AND MEASUREMENT

Course Description and Objectives

The High Voltage (HV) Metering System and Measurement course covers the design, testing, calibration, and safety standards for measuring high voltage electrical energy, typically focusing on CT/VT instrumentation, revenue metering, and substation equipment.

Who should attend

Engineers, Metering Technicians & Technologists and Maintenance Personnel.

Course Outline

- *HV Measurement Fundamentals.*
- *Instrument Transformers.*
- *HV Metering Components.*
- *Calibration and Testing.*
- *Safety Standards.*
- *Switchgear & Substation Integration*

Course Duration

5 Days

Number of Participants

8 Minimum and 16 Maximum

Course Prerequisites

Basic Electrical Knowledge and familiarity with AC circuits and electrical principles combined with experience in electrical power systems.

Training Methodology

Participants will gain both theoretical and practical knowledge of the topics. The emphasis is on the practical application of the topics and to enable participants apply all the knowledge gained in their operations.

Course Materials

A set of soft copy notes will be provided.

Course Certification

An APUA/ANCEE and Centre of Excellence Certified Certificate of Competence/Attendance will be awarded on successful completion of the course.



11

MEDIUM AND LOW VOLTAGE ELECTRICITY METERING

Course Description and Objectives

This training covers the installation, testing, and maintenance of Low Voltage (LV) and Medium Voltage (MV) metering systems, including Current Transformers (CT) and Potential Transformers (PT). It focuses on safety, compliance with international standards, and technical competence for accurate energy measurement.

Who should attend

Engineers, Technicians and other suitably qualified Personnel.

Course Outline

- *Metering Fundamentals.*
- *LV & MV Equipment.*
- *Safety & Regulatory Standards.*
- *Wiring & Commissioning.*
- *Case Studies.*

Course Duration

5 Days

Number of Participants

8 Minimum and 16 Maximum

Course Prerequisites

An understanding of fundamental electrical principles and high-voltage equipment and familiarity with electrical safety regulations and safe working practices.

Training Methodology

The training methodology combines lectures, discussions, group exercises and practical lessons.

Course Materials

A set of soft copy notes will be provided.

Course Certification

An APUA/ANCEE and Centre of Excellence Certified Certificate of Competence/Attendance will be awarded on successful completion of the course.



PROTECTION OF ELECTRICAL NETWORKS

Course Description and Objectives

The Protection of Electrical Networks course provides technical training on designing, coordinating, and maintaining protection schemes for LV, MV, and HV systems to prevent equipment failure and enhance safety. It covers fault analysis, relay coordination, and substation protection.

Who should attend

Electrical engineers, Substation Technicians, Maintenance engineers, electricians and SCADA personnel.

Course Outline

- *Introduction to Protection Systems.*
- *Fault Analysis.*
- *Protection Devices.*
- *Coordination and Grading.*
- *System Protection.*
- *Commissioning & Testing.*

Course Duration

5 Days

Number of Participants

8 Minimum and 16 Maximum

Course Prerequisites

Fundamental knowledge of electrical power engineering and familiarity with Power System Analysis.

Training Methodology

The training methodology combines lectures, simulations and practical knowledge of the topics.

Course Materials

A set of soft copy notes will be provided.

Course Certification

An APUA/ANCEE and Centre of Excellence Certified Certificate of Competence/Attendance will be awarded on successful completion of the course.



HIGH VOLTAGE AND LOW VOLTAGE TRANSFORMER SUBSTATION EQUIPMENT

Course Description and Objectives

This High Voltage and Low Voltage Transformer Substation Equipment course provides a comprehensive overview of substation design, construction, and maintenance, covering essential topics such as transformer selection, switchgear, protection systems, earthing, and safety protocols for MV/LV/HV systems. This training offers crucial skills for managing substation equipment, reducing downtime, and ensuring safe operations.

Who should attend

Electrical Engineers and Technicians, Maintenance Managers and Plant Electricians. Safety Managers and Authorized Persons (HV/LV).

Course Outline

- *Substation Design and Components.*
- *Transformer and Equipment.*
- *Switchgear and Protection.*
- *Earthing and Safety.*
- *Commissioning.*

Course Duration

5 Days

Number of Participants

8 Minimum and 16 Maximum

Course Prerequisites

Basic knowledge electrical principles and familiarity with power system operations.

Training Methodology

Instructor-led lectures, Case studies and real-life examples, Practical exercises/simulations

Course Materials

A set of soft copy notes will be provided.

Course Certification

An APUA/ANCEE and Centre of Excellence Certified Certificate of Competence/Attendance will be awarded on successful completion of the course.



MAINTENANCE AND TROUBLESHOOTING OF DISTRIBUTION SYSTEMS

Course Description and Objectives

This course provides comprehensive training on maintaining, troubleshooting, and repairing electrical distribution systems (MV/LV), focusing on inspection, testing, and safety. Participants will learn to enhance reliability, use diagnostic tools, and understand best practices for switchgear and transformers.

Who should attend

Electrical Engineers and Technicians, Maintenance Engineers, Power Systems Managers and Operators and Personnel managing Telecom Infrastructure.

Course Outline

- *Electrical Distribution Fundamentals.*
- *Maintenance Strategies.*
- *Troubleshooting Techniques.*
- *Component Specifics.*
- *Safety and Compliance.*
- *Case Studies.*

Course Duration

5 Days

Number of Participants

8 Minimum and 16 Maximum

Course Prerequisites

Basic understanding of electrical power principles and familiarity with electrical equipment.

Training Methodology

Instructor-led lectures, Case studies and real-life examples, Practical exercises/simulations

Course Materials

A set of soft copy notes will be provided.

Course Certification

An APUA/ANCEE and Centre of Excellence Certified Certificate of Competence/Attendance will be awarded on successful completion of the course.



ELECTRICITY DISTRIBUTION NETWORK MANAGEMENT

Course Description and Objectives

This Electricity Distribution Network Management course offers comprehensive training in designing, planning, operating, and maintaining electrical distribution systems for reliability and economic efficiency. Key topics include overhead network design, load forecasting, transformer protection, earthing, and maintenance techniques.

Who should attend

Electrical Engineers and Technicians, Distribution System Operations Personnel and Maintenance Personnel.

Course Outline

- *Foundations of Distribution.*
- *Network Design & Components.*
- *Operation & Control.*
- *Protection & Reliability.*
- *Management & Maintenance.*

Course Duration

5 Days

Number of Participants

8 Minimum and 16 Maximum

Course Prerequisites

Basic knowledge of electrical energy principles and understanding of Power System Operations.

Training Methodology

Instructor-led lectures, Case studies and real-life examples, Practical exercises/simulations

Course Materials

A set of soft copy notes will be provided.

Course Certification

An APUA/ANCEE and Centre of Excellence Certified Certificate of Competence/Attendance will be awarded on successful completion of the course.



CABLE JOINTING AND TERMINATION

Course Description and Objectives

The Cable Jointing and Termination course provides practical training in joining, terminating, and testing low (LV), medium (MV), or high voltage (HV) cables to ensure system integrity. It covers cable preparation, stress control, and safe installation practices.

Who should attend

Electricians & Cable Jointers, Electrical Engineers & Technicians involved in maintenance, commissioning, and design of electrical systems and Personnel working with utility power distribution networks.

Course Outline

- *Safety and Regulations.*
- *Cable Theory and Types.*
- *Cable Preparation.*
- *Jointing Techniques.*
- *Termination Methods.*
- *Stress Control.*
- *Testing and Inspection.*

Course Duration

15 Days

Number of Participants

8 Minimum and 16 Maximum

Course Prerequisites

General Experience and Knowledge of electrical principles.

Training Methodology

Instructor-led lectures, Case studies and real-life examples, Practical exercises/simulations.

Course Materials

A set of soft copy notes will be provided.

Course Certification

An APUA/ANCEE and Centre of Excellence Certified Certificate of Competence/Attendance will be awarded on successful completion of the course.



CABLE FAULT LOCATING

Course Description and Objectives

The Cable fault locating course typically covers essential techniques for detecting, pre-locating, and pinpointing underground high/medium voltage cable faults using methods like thumping, TDR, and arc reflection to ensure reliable cable connections.

Who should attend

Electrical technicians, cable jointers, Utility engineering personnel responsible for underground cable networks and personnel involved in excavation and avoiding cable strikes.

Course Outline

- *Safety Practices.*
- *Cable Fundamentals.*
- *Fault Characteristics.*
- *Pre-location Methods.*
- *Pinpointing Methods.*
- *Practical Sessions.*

Course Duration

10 Days

Number of Participants

8 Minimum and 16 Maximum

Course Prerequisites

Basic understanding of electricity and power systems and familiarity with cable networks.

Training Methodology

Instructor-led lectures, Case studies and real-life examples, Practical exercises/simulations

Course Materials

A set of soft copy notes will be provided.

Course Certification

An APUA/ANCEE and Centre of Excellence Certified Certificate of Competence/Attendance will be awarded on successful completion of the course.



18

PROJECT MANAGEMENT OF DISTRIBUTION PROJECTS

Course Description and Objectives

The Project Management of Distribution Projects course focuses on planning, executing, and closing utility infrastructure projects (e.g., power lines, substations). It covers project lifecycles, cost control, risk management, and regulatory compliance.

Who should attend

Power Utility Project Managers, Engineers responsible for distribution, planning, or construction, Project Control Personnel responsible for tracking scheduling and costs and Utility Contract Managers responsible for handling external contractors.

Course Outline

- *Initiation & Planning.*
- *Scheduling & Cost Control.*
- *Risk & Contract Management.*
- *Execution & Control.*
- *Closure.*

Course Duration

5 Days

Number of Participants

8 Minimum and 16 Maximum

Course Prerequisites

Experience in utility operations, engineering, or project and basic understanding of project management principles.

Training Methodology

The training methodology combines lectures, discussions, group exercises and practical lessons.

Course Materials

A set of soft copy notes will be provided.

Course Certification

An APUA/ANCEE and Centre of Excellence Certified Certificate of Competence/Attendance will be awarded on successful completion of the course.



DISTRIBUTION GENERATORS

Course Description and Objectives

This Distributed Generation technical course covers connecting, protecting, and operating DG systems (rotary/converter) to Distribution Network Operator (DNO) networks, covering grid codes (e.g., G99), protection schemes, and network impact.

Who should attend

Electrical Engineers working in distribution, generation, or renewable energy and Design & Planning Engineers responsible for planning connection to networks.

Course Outline

- *Key Elements of DG.*
- *Connection & Grid Codes.*
- *Protection Schemes.*
- *Network Impact.*
- *Case Studies.*
-

Course Duration

5 Days

Number of Participants

8 Minimum and 16 Maximum

Course Prerequisites

A background in electrical engineering or technical training or a basic understanding of electrical power systems.

Training Methodology

The training lectures, group exercises, practical simulations and illustrations.

Course Materials

A set of soft copy notes will be provided.

Course Certification

An APUA/ANCEE and Centre of Excellence Certified Certificate of Competence/Attendance will be awarded on successful completion of the course.



MAINTENANCE OF OVERHEAD NETWORKS

Course Description and Objectives

The Maintenance of Overhead Networks course provides essential training on the inspection, repair, and safety protocols for electricity transmission and distribution lines. Key topics include structure maintenance (poles/towers), conductor repair, insulator testing, and safety regulations.

Who should attend

Electrical technicians and line mechanics, Transmission and distribution engineers, Safety officers and maintenance personnel.

Course Outline

- *Safety and Regulations.*
- *Components and Structure.*
- *Conductor and Maintenance.*
- *Inspecting and Testing.*

Course Duration

5 Days

Number of Participants

8 Minimum and 16 Maximum

Course Prerequisites

Basic knowledge of electrical safety, prior field experience or a technical background in electrical engineering.

Training Methodology

The training combines lectures, discussions, simulations and illustrations.

Course Materials

A set of soft copy notes will be provided.

Course Certification

An APUA/ANCEE and Centre of Excellence Certified Certificate of Competence/Attendance will be awarded on successful completion of the course.



DISTRIBUTION LINE MAINTENANCE

Course Description and Objectives

The Distribution Line Maintenance course focuses on the inspection, testing, repair, and safety protocols for overhead and underground power distribution systems. The course will cover pole maintenance, conductor repair, transformer inspection, and safety standards.

Who should attend

Electrical Technicians & Linemen responsible for constructing, repairing, or maintaining power lines and Electrical Engineers & Technicians managing distribution system assets.

Course Outline

- *Introduction & Safety.*
- *Preventive & Predictive Maintenance.*
- *Overhead Line Maintenance.*
- *Underground System Maintenance.*
- *Live Line Techniques.*
- *Testing & Inspection.*

Course Duration

10 Days

Number of Participants

8 Minimum and 16 Maximum

Course Prerequisites

Fundamental Knowledge and basic familiarity with electrical principles and power distribution systems, experience as a technician, engineer within the power utility and prior training in basic electrical safety practices.

Training Methodology

The training combines lectures, discussions, simulations and illustrations.

Course Materials

A set of soft copy notes will be provided.

Course Certification

An APUA/ANCEE and Centre of Excellence Certified Certificate of Competence/Attendance will be awarded on successful completion of the course.



CONSTRUCTION AND MAINTENANCE OF DISTRIBUTION LINES

Course Description and Objectives

This course provides technical training on designing, installing, inspecting, and maintaining overhead/underground electrical distribution lines, emphasizing safety, structural assembly, and conductor installation.

Who should attend

Distribution Lineworkers and Technicians, Electrical Engineers (Planning, Design, Maintenance), Line Inspectors and Safety Managers.

Course Outline

- *Distribution System Basics.*
- *Safety and Standards.*
- *Line Construction.*
- *Equipment Installation.*
- *Maintenance & Maintenance.*
- *Underground Distribution.*

Course Duration

10 Days

Number of Participants

8 Minimum and 16 Maximum

Course Prerequisites

Fundamental knowledge of electrical power distribution systems, basic experience working within electrical distribution networks.

Training Methodology

The training methodology combines lectures, discussions, group exercises with emphasis on the practical application of the topics.

Course Materials

A set of soft copy notes will be provided.

Course Certification

An APUA/ANCEE and Centre of Excellence Certified Certificate of Competence/Attendance will be awarded on successful completion of the course.



UNBALANCED LV NETWORKS

Course Description and Objectives

The Unbalanced LV networks course provides essential knowledge and understanding of load diversity, thermal constraints, voltage constraints, fault level, earthing, power quality, and protection.

Who should attend

Power system engineers, technicians working on distribution modeling, Engineers seeking clarity on handling three phase unbalance, fundamentals in load flow and field mismatch cases.

Course Outline

- *Source Unbalance*
- *Network Unbalance*
- *Load Unbalance*
- *Interpretation & Correction*

Course Duration

5 Days

Number of Participants

8 Minimum and 16 Maximum

Course Prerequisites

A foundation in electrical engineering principles, understanding of Three-Phase Power Systems and Machines and a basic knowledge of electrical distribution systems.

Training Methodology

The training methodology combines lectures, group exercises, illustrations practical simulations.

Course Materials

A set of soft copy notes will be provided.

Course Certification

An APUA/ANCEE and Centre of Excellence Certified Certificate of Competence/Attendance will be awarded on successful completion of the course.



REACTIVE POWER COMPENSATION

Course Description and Objectives

This course on Reactive Power Compensation and Voltage Control enables participants to understand power factor correction, voltage stability, and harmonic mitigation techniques. It covers shunt/series compensation, FACTS devices, and capacitor bank design, aiming to optimize electrical network efficiency, reduce losses, and enhance power quality for industrial and utility applications.

Who should attend

Electrical Engineers and Technicians, Maintenance Personnel, Transmission and Distribution Personnel and Personnel focused on Energy Efficiency.

Course Outline

- *Fundamentals.*
- *Reactive Power Management.*
- *Transmission Compensation.*
- *Harmonics & Power Quality.*
- *Advanced Solutions.*
- *Case Studies & Applications.*

Course Duration

2 Days

Number of Participants

8 Minimum and 16 Maximum

Course Prerequisites

Basic understanding of electrical systems (Voltage, Current, Power), familiarity with AC machinery or electrical machines.

Training Methodology

The training methodology combines lectures, discussions, group exercises and illustrations. Participants will gain both theoretical and practical knowledge of the topics.

Course Materials

A set of soft copy notes will be provided.

Course Certification

An APUA/ANCEE and Centre of Excellence Certified Certificate of Competence/Attendance will be awarded on successful completion of the course.



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BTA NETWORK TROUBLESHOOTING FAULT FINDING AND DIAGNOSIS

Course Description and Objectives

The BTA Network Troubleshooting – Fault Finding and Diagnosis course is a hands-on program, focused on managing, configuring, and resolving issues in modern Triple-/Quad-Play and IPTV networks. It covers physical to network layer diagnostics, security, and quality of service (QoS) for carrier-grade IP services.

Who should attend

Transmission and Distribution Line Engineers, HV Electrical Substation Technicians and Engineers, Network Operators and Maintenance Personnel.

Course Outline

- *Networking Overview & Methodology.*
- *Physical Layer Diagnostics.*
- *Data Link & Network Layer.*
- *Service Delivery Troubleshooting.*
- *Wireless Networking.*
- *Security & Access Control.*

Course Duration

5 Days

Number of Participants

8 Minimum and 16 Maximum

Course Prerequisites

Fundamental knowledge of network principles, configurations, electrical engineering principles, basic understanding of electricity distribution/transmission systems.

Training Methodology

The training methodology combines lectures, discussions, group exercises and practical illustrations.

Course Materials

A set of soft copy notes will be provided.

Course Certification

An APUA/ANCEE and Centre of Excellence Certified Certificate of Competence/Attendance will be awarded on successful completion of the course.



ELECTRICITY DISTRIBUTION MANAGEMENT

Course Description and Objectives

The Electricity Distribution Management course provides comprehensive training on planning, operating, and maintaining power networks, focusing on reliability, safety, and modern technologies. The course covers load forecasting, system design, protection, and smart grid integration aiming to enhance infrastructure efficiency.

Who should attend

Electrical engineers and technicians, personnel in operations, Power system planners and maintenance personnel.

Course Outline

- *Introduction to Distribution.*
- *Design & Components.*
- *Load Forecasting & Planning.*
- *Operation & Reliability.*
- *Modern Trends.*

Course Duration

5 Days

Number of Participants

8 Minimum and 16 Maximum

Course Prerequisites

Fundamental knowledge of power systems and electrical engineering principles, familiarity with Distribution networks and basic understanding of Power Utility regulations.

Training Methodology

The training methodology combines lectures, group exercises and practical simulations.

Course Materials

A set of soft copy notes will be provided.

Course Certification

An APUA/ANCEE and Centre of Excellence Certified Certificate of Competence/Attendance will be awarded on successful completion of the course.



POWER SYSTEM OPERATION AND MAINTENANCE

Course Description and Objectives

Power System Operation and Maintenance course provides practical skills for managing, troubleshooting, and securing power systems (substations, generation, and distribution), aiming to increase reliability, efficiency, and safety. The training covers protection systems, safety regulations, and maintenance techniques, essential for minimizing down-time.

Who should attend

Electrical, Maintenance Engineers, Power Plant Operators and Technicians. Substation Personnel and Utility Distribution Engineers.

Course Outline

- *Power System Components.*
- *Protection Systems.*
- *Operations & Control.*
- *Maintenance Practices.*
- *Safety & Compliance.*

Course Duration

15 Days

Number of Participants

8 Minimum and 16 Maximum

Course Prerequisites

Basic knowledge of power system operations, electrical principles and safety standards.

Training Methodology

The training methodology combines lectures, group exercises and practical simulations and illustrations.

Course Materials

A set of soft copy notes will be provided.

Course Certification

An APUA/ANCEE and Centre of Excellence Certified Certificate of Competence/Attendance will be awarded on successful completion of the course.



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AERIAL BUNDLED CABLE INSTALLATION

Course Description and Objectives

The Aerial Bundled Cable (ABC) Installation course covers safe installation, tensioning, and termination of insulated overhead conductors, focusing on safety standards and practical pole-work skills, planning, support structures, hauling, and maintenance.

Who should attend

Electrical Lineworkers (HV or LV), personnel conducting overhead power distribution installations, substation personnel and cable jointers.

Course Outline

- *Safety and Standards.*
- *Planning & Site Assessment.*
- *Installation Techniques.*
- *Hardware and Support.*
- *Termination and Testing.*
- *Maintenance.*

Course Duration

5 Days

Number of Participants

8 Minimum and 16 Maximum

Course Prerequisites

Recognised Electrical Lineworker qualification, experience in overhead line construction.

Training Methodology

The training methodology combines lectures, discussions, group exercises and illustrations.

Course Materials

A set of soft copy notes will be provided.

Course Certification

An APUA/ANCEE and Centre of Excellence Certified Certificate of Competence/Attendance will be awarded on successful completion of the course.



DISTRIBUTION LINE DESIGN AND CONSTRUCTION

Course Description and Objectives

The Distribution Line Design and Construction course provides essential training on designing, staking, and installing overhead/underground power systems, typically based on local and international standards.

Who should attend

Distribution Systems Maintenance and Operations Technicians and Technologists, Engineers, Substation Engineers and Operators.

Course Outline

- *Introduction to Electrical Power.*
- *Line Design Fundamentals.*
- *Components and Equipment.*
- *NESC Guidelines.*
- *Construction Techniques.*
- *Software Applications.*

Course Duration

5 Days

Number of Participants

8 Minimum and 16 Maximum

Course Prerequisites

Basic knowledge of electrical safety and distribution networks systems.

Training Methodology

The training methodology combines lectures, discussions, group exercises and illustrations.

Course Materials

A set of soft copy notes will be provided.

Course Certification

An APUA/ANCEE and Centre of Excellence Certified Certificate of Competence/Attendance will be awarded on successful completion of the course.



DISTRIBUTION SYSTEMS OPERATIONS

Course Description and Objectives

The Distribution Systems Operations course provides participants with the technical theory and practice needed to enable them to comprehend the principles of operations of the distribution system, principles of protection and coordination of maintenance.

Who should attend

Participants' profile or target group are Electrical/Mechanical Engineers, Technologists, Technicians and suitably qualified personnel.

Course Outline

- *Power Systems Overview*
- *Distribution System Components*
- *Protection*
- *Distribution Automation*
- *Distribution Equipment Maintenance*
- *Switching Operations*
- *Safety Requirements.*

Course Duration

5 Days

Number of Participants

8 Minimum and 16 Maximum

Course Prerequisites

A basic understanding of electrical equipment and experience in mechanical or electrical engineering.

Training Methodology

The training methodology combines lectures, group discussions and simulations.

Course Materials

A set of soft copy notes will be provided.

Course Certification

An APUA/ANCEE and Centre of Excellence Certified Certificate of Competence/Attendance will be awarded on successful completion of the course.



MODERN DISTRIBUTION SYSTEM DESIGN AND PLANNING

Course Description and Objectives

The course intends to provide participants with a fundamental understanding of electric circuit analysis with application to power distribution systems. It presents an introduction to the various types of distribution system configurations, equipment and loads.

Who should attend

Participants' profile or target group are engineers, technologists, technicians and any other qualified personnel involved in the distribution system design and construction.

Course Outline

- *Distribution System Overview*
- *Distribution System Layout*
- *Electrical Design of Overhead Lines*
- *Mechanical Design of Overhead Lines*
- *Underground Cables*
- *Distribution Transformer Selection*
- *Distribution Load Flows*
- *Distribution Feeder Loss Reduction and Voltage Drop Control*
- *Distribution System Protection and Automation*
- *Switchgear Selection and Rating*
- *Design Standards for Distribution Systems.*

Course Duration

15 Days

Number of Participants

8 Minimum and 16 Maximum

Course Prerequisites

Basic understanding of electrical power distribution systems, Relevant experience in the electricity utility and familiarity with electrical safety standards.

Training Methodology

The training methodology combines lectures, discussions, group exercises and illustrations.

Course Materials

A set of soft copy notes will be provided.

Course Certification

An APUA/ANCEE and Centre of Excellence Certified Certificate of Competence/Attendance will be awarded on successful completion of the course.



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POWER SYSTEM INCIDENT ANALYSIS

Course Description and Objectives

The Power System Incident Analysis course provides comprehensive training on identifying the root causes of electrical failures, covering fault diagnosis, protection system mis-operation, and forensic data analysis. It enables participants to improve system reliability, reduce downtime, and prevent future failures using structured investigation techniques.

Who should attend

Electrical Engineers & Technicians, System Operators, Safety & Maintenance Personnel and other suitably qualified personnel..

Course Outline

- *Fundamentals of Power Systems.*
- *Fault Analysis & Modeling.*
- *Protection System Analysis.*
- *Incident Investigation Techniques.*
- *Common Failure Modes.*
- *Case Studies.*

Course Duration

15 Days

Number of Participants

8 Minimum and 16 Maximum

Course Prerequisites

A basic understanding of electrical power systems operations and engineering principles.

Training Methodology

The training methodology combines lectures, discussions, group exercises and illustrations.

Course Materials

A set of soft copy notes will be provided.

Course Certification

An APUA/ANCEE and Centre of Excellence Certified Certificate of Competence/Attendance will be awarded on successful completion of the course.



TECHNICAL SPECIFICITY OF A 225/20KV SOURCE STATION

Course Description and Objectives

The 225/20kV source station course covers the design, operation, and protection of HVB/HTA substations that step down high-voltage transmission power to medium-voltage distribution.

Who should attend

Electrical/Mechanical Technicians, Technologists and Engineers and other suitably qualified and experienced Personnel.

Course Outline

- *Introduction to HV/MV Substations.*
- *Primary Equipment and Components.*
- *Substation Protection and Control.*
- *Substation Auxiliary Systems.*
- *Operations, Safety, and Maintenance*
-

Course Duration

2 Days

Number of Participants

8 Minimum and 16 Maximum

Course Prerequisites

A foundational understanding of Power Utility Operations, Power System Operations and Electrical Engineering principles.

Training Methodology

Instructor-led lectures, Case studies and Practical exercises/simulations.

Course Materials

A set of soft copy notes will be provided.

Course Certification

An APUA/ANCEE and Centre of Excellence Certified Certificate of Competence/Attendance will be awarded on successful completion of the course.



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DESIGN STUDY OF LV UNDERGROUND NETWORKS

Course Description and Objectives

This course provides comprehensive training on designing safe, efficient low-voltage (LV) underground distribution networks, covering cable sizing, fault analysis, and regulatory standards. Participants will learn to model networks, calculate loading, and optimize distribution layouts.

Who should attend

Participants' profile or target group are Engineers, Technologists, Technicians and suitably qualified Personnel.

Course Outline

- *Introduction to LV Distribution.*
- *Regulations and Standards.*
- *Underground Cable Design & Sizing.*
- *Network Analysis & Calculation.*
- *Safety and Earthing.*
- *System Protection.*
- *Computer-Aided Planning*

Course Duration

5 Days

Number of Participants

8 Minimum and 16 Maximum

Course Prerequisites

A foundational understanding of electrical and mechanical engineering principles on power system operations.

Training Methodology

The training methodology combines lectures and simulations with emphasis on the practical application of the topics covered.

Course Materials

A set of soft copy notes will be provided.

Course Certification

An APUA/ANCEE and Centre of Excellence Certified Certificate of Competence/Attendance will be awarded on successful completion of the course.



STRUCTURE OF HV/HV SOURCE STATIONS

Course Description and Objectives

This course provides comprehensive knowledge on designing, operating, and maintaining HV/HV source stations (substations). It prepares participants for authorized person roles..

Who should attend

Technicians, Engineers, Maintenance and operation Personnel in the Power Utility and Substations and other suitably qualified personnel.

Course Outline

- *Substation Design & Configuration.*
- *Major Equipment & Components*
- *Layout and Planning.*
- *Protection and Control.*
- *HV Safety and Operations.*

Course Duration

3 Days

Number of Participants

8 Minimum and 16 Maximum

Course Prerequisites

a foundational understanding of electrical and mechanical engineering principles on power generation.

Training Methodology

The training methodology combines lectures, discussions, group exercises and illustrations.

Course Materials

The training methodology combines lectures and simulations with emphasis on the practical application of the topics covered.

Course Certification

An APUA/ANCEE and Centre of Excellence Certified Certificate of Competence/Attendance will be awarded on successful completion of the course.



DESIGN STUDY OF 15 KV AND 33KV OVERHEAD NETWORKS

Course Description and Objectives

This course provides comprehensive training on designing high-voltage overhead lines and associated infrastructure (15kV–33kV), focusing on technical, mechanical, and safety standards.

Who should attend

Transmission line design engineers, Utility electrical personnel and other suitably qualified personnel.

Course Outline

- *Introduction to OH Line Design.*
- *Route Planning & Environmental Conditions.*
- *Electrical Design.*
- *Mechanical Design.*
- *Earthing and Safety.*
- *Construction & Project Management.*

Course Duration

15 Days

Number of Participants

8 Minimum and 16 Maximum

Course Prerequisites

A foundational understanding of electrical power system Operations.

Training Methodology

The training methodology combines lectures, discussions, group exercises and illustrations

Course Materials

A set of soft copy notes will be provided.

Course Certification

An APUA/ANCEE and Centre of Excellence Certified Certificate of Competence/Attendance will be awarded on successful completion of the course.



DESIGN STUDY OF MV/LV TRANSFORMER STATIONS FOR PUBLIC DISTRIBUTION

Course Description and Objectives

This training covers the design, component selection, and safety standards (IEC/IEEE) for Medium Voltage to Low Voltage (MV/LV) public distribution transformer stations. Participants learn to design pole-mounted, compact, or masonry substations, including transformer sizing, switchgear, protection, earthing, and network layout.

Who should attend

Electrical Engineers and Designers involved in power distribution systems, Substation Maintenance and Construction Personnel and other suitably qualified personnel.

Course Outline

- *Introduction.*
- *Types of Substations.*
- *Network Topology.*
- *Component Selection.*
- *Protection Systems.*
- *Design & Layout.*
- *Safety & Earthing.*
- *Standards & Commissioning.*

Course Duration

5 Days

Number of Participants

8 Minimum and 16 Maximum

Course Prerequisites

Basic knowledge of electrical engineering principles, understanding of power system fundamentals (voltages, currents, power factors) and familiarity with electrical circuit theory.

Training Methodology

The training methodology combines lectures, group exercises and practical simulations.

Course Materials

A set of soft copy notes will be provided.

Course Certification

An APUA/ANCEE and Centre of Excellence Certified Certificate of Competence/Attendance will be awarded on successful completion of the course.

TECHNICAL MANAGEMENT OF DISTRIBUTION NETWORKS

Course Description and Objectives

The Technical Management of Distribution Works course covers the planning, operation, maintenance, and optimization of power distribution networks aiming to improve network efficiency.

Who should attend

Electrical Engineers, Distribution Operation & Maintenance Personnel, Project Engineers in the power sector and Technical Personnel responsible for network reliability.

Course Outline

- *Distribution Network Fundamentals.*
- *Operation & Safety.*
- *Maintenance & Troubleshooting.*
- *System Optimization.*
- *Project Management.*

Course Duration

4 Days

Number of Participants

8 Minimum and 16 Maximum

Course Prerequisites

A fundamental understanding of electrical engineering principles and experience in power system operations coupled with a technical background.

Training Methodology

The training methodology combines lectures, discussions, group exercises and illustrations. Participants will gain both theoretical and practical knowledge of the topics. The emphasis is on the practical application of the topics and as a result participant will go back to the workplace with both the ability and the confidence to apply the techniques learned to their duties.

Course Materials

A set of soft copy notes will be provided.

Course Certification

An APUA/ANCEE and Centre of Excellence Certified Certificate of Competence/Attendance will be awarded on successful completion of the course.





STUDY OF OVERHEAD, OVERHEAD UNDERGROUND AND UNDERGROUND RISER CONNECTIONS

Course Description and Objectives

The study of overhead, overhead- underground, and underground riser connections involves evaluating the benefits and trade-offs of each method based on technical, economic, environmental, and social factors. It aims to establish a clear and consistent approach to evaluating overhead lines and underground cables, considering the challenges of expanding electricity grid to support energy transformation.

Who should attend

Participants' profile or target group are Mechanical or Electrical Engineers, Technicians and any suitably qualified personnel in the energy sector.

Course Outline

- HVAC
- HVDC
- *Transmission Line Easements*
- *Economic Considerations*
- *Environmental Considerations*
- *Social Considerations*
- *Factors examined*

Course Duration

2 Days

Number of Participants

8 Minimum and 16 Maximum

Course Prerequisites

A foundational understanding of electrical and mechanical principles in Power Plants Operations and maintenance.

Training Methodology

The training methodology combines lectures, discussions, group exercises and illustrations. Participants will gain both theoretical and practical knowledge of the topics.

Course Materials

A set of soft copy notes will be provided.

Course Certification

An APUA/ANCEE and Centre of Excellence Certified Certificate of Competence/Attendance will be awarded on successful completion of the course.



KNOWLEDGE OF MAPPING SOFTWARE (ARCGIS)

Course Description and Objectives

An introductory ArcGIS (mapping software) course enables users to create, analyze, and share digital maps using ArcGIS Pro or ArcGIS and cartographic best practices to communicate geographic information effectively.

Who should attend

This course is suitable for individuals with little to no prior GIS experience, including GIS Specialists or Analysts, data managers, and cartographers..

Course Outline

- *Introduction to ArcGIS Ecosystem.*
- *GIS Data Acquisition & Management.*
- *Map Creation & Symbolization.*
- *Geospatial Data Visualization.*
- *Spatial Analysis Foundations.*
- *Sharing GIS Content.*

Course Duration

10 Days

Number of Participants

8 Minimum and 16 Maximum

Course Prerequisites

Software Knowledge: Basic competence with Windows-based software (browsing files, navigating interfaces).

Training Methodology

The training methodology combines lectures, discussions, group exercises and illustrations. Participants will gain both theoretical and practical knowledge of the topics.

Course Materials

A set of soft copy notes will be provided.

Course Certification

An APUA/ANCEE and Centre of Excellence Certified Certificate of Competence/Attendance will be awarded on successful completion of the course.



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MV AND LV METERING OF ELECTRICAL ENERGY

Course Description and Objectives

The MV and LV Metering of Electrical Energy course covers the design, installation, testing, and maintenance of Low Voltage (LV) and Medium Voltage (MV) metering systems, including current transformers (CTs), voltage transformers (VTs), and smart metering technologies..

Who should attend

Electrical Engineers and Technicians responsible for distribution and protection systems, Plant/Maintenance Electricians maintaining LV/MV switchgear, Metering Technicians/Operators involved in installing and testing commercial/industrial meters and utility personnel involved in energy billing and smart grid operations.

Course Outline

- *Metering Fundamentals.*
- *Instrument Transformers.*
- *Smart Metering and Technology.*
- *Installation and Wiring.*
- *Testing and Calibration.*
- *Revenue Protection.*
- *Regulatory Standards.*

Course Duration

5 Days

Number of Participants

8 Minimum and 16 Maximum

Course Prerequisites

Fundamental knowledge of AC electrical circuits, basic understanding of electricity distribution components (transformers, switchgear), experience with low-voltage wiring and electrical safety practices.

Training Methodology

The training methodology combines lectures, discussions, group exercises and simulations.

Course Materials

A set of soft copy notes will be provided.

Course Certification

An APUA/ANCEE and Centre of Excellence Certified Certificate of Competence/Attendance will be awarded on successful completion of the course.



42

USE OF GPS DEVICES

Course Description and Objectives

The use of GPS Devices course provides essential training on operating handheld or smartphone GPS units for navigation, mapping, and tracking. Participants learn to configure units, manage waypoints/tracks, and interpret data for outdoor safety or professional field work.

Who should attend

Cartographers, MV, LV and PE Network Operators and other suitably qualified personnel.

Course Outline

- *GPS Fundamentals.*
- *Device Setup.*
- *Navigation Basics.*
- *Map Integration.*
- *Field Practice.*
- *Limitations & Accuracy.*

Course Duration

4 Days

Number of Participants

8 Minimum and 16 Maximum

Course Prerequisites

Basic computer literacy is usually required for importing/exporting GPS data.

Training Methodology

The training methodology combines lectures, discussions, group exercises and illustrations. Participants will gain both theoretical and practical knowledge of the topics.

Course Materials

A set of soft copy notes will be provided.

Course Certification

An APUA/ANCEE and Centre of Excellence Certified Certificate of Competence/Attendance will be awarded on successful completion of the course.



43

OPERATION OF INTERCONNECTED OR SPECIFIC HTB WORKS

Course Description and Objectives

The course will enable participants gain hands-on experience in inspection, testing, and maintenance procedures for various types of switchgear. The course is designed to increase safety, reliability, and longevity of switchgear assets through proper operation, maintenance, and testing procedures. It also aims to reduce switchgear downtime and faults through preventive maintenance and early diagnosis of problems.

Who should attend

Maintenance Engineers and Technicians, Operation Personnel and Supervisors and other Technical Service Personnel involved in Substation Operations and Maintenance.

Course Outline

- *Introduction to High Voltage Systems and Substations.*
- *High Voltage Equipment in Substations.*
- *Protective Relays.*
- *High Voltage Regulations.*

Course Duration

5 Days

Number of Participants

8 Minimum and 16 Maximum

Course Prerequisites

A foundational understanding of Power System Operations and Substation Operations and Maintenance.

Training Methodology

The training methodology combines lectures, discussions, group exercises and illustrations. Participants will gain both theoretical and practical knowledge of the topics. The emphasis is on the practical application of the topics and as a result participant will go back to the workplace with both the ability and the confidence to apply the techniques learned to their duties.

Course Materials

A set of soft copy notes will be provided.

Course Certification

An APUA/ANCEE and Centre of Excellence Certified Certificate of Competence/Attendance will be awarded on successful completion of the course.



44

MAINTENANCE OF MV/LV SUBSTATION EQUIPMENT

Course Description and Objectives

The Maintenance of MV/LV Substation Equipment course provides comprehensive training on the inspection, testing, and maintenance of switchgear, transformers, and protection systems to ensure reliability and safety. Key topics include circuit breaker operation, transformer testing, and relay calibration.

Who should attend

Electrical Maintenance Engineers, Technicians, and Technologists, Substation Operation and Planning Managers, Plant Electricians and Supervisors and Safety Personnel working in power systems.

Course Outline

- *Substation Fundamentals.*
- *Transformer Maintenance.*
- *Circuit Breaker & Switchgear Maintenance.*
- *Protection Systems & Relays.*
- *Preventive & Condition-Based Maintenance.*
- *Site Testing & Commissioning.*

Course Duration

5 Days

Number of Participants

8 Minimum and 16 Maximum

Course Prerequisites

Basic knowledge of electrical principles and components and working experience in electrical maintenance, operations, or design.

Training Methodology

The training methodology combines lectures, group exercises and simulations. Participants will gain both theoretical and practical knowledge of the topics.

Course Materials

A set of soft copy notes will be provided.

Course Certification

An APUA/ANCEE and Centre of Excellence Certified Certificate of Competence/Attendance will be awarded on successful completion of the course.



45

MAINTENANCE AND CONNECTION OF OPTICAL FIBRE

Course Description and Objectives

The Maintenance and Connection of Optical Fibre course provides comprehensive, hands-on training for installing, testing, and troubleshooting fiber systems, including fusion/mechanical splicing and OTDR testing. This training focuses on practical skills, industry-standard safety, and network reliability.

Who should attend

Telecom technicians and network installers, IT professionals, data center technicians, and network engineers, Electrical and fiber maintenance personnel.

Course Outline

- *Introduction to Fiber Optics.*
- *Safety Procedures.*
- *Cable Components & Installation.*
- *Connection & Splicing.*
- *Testing & Troubleshooting.*
- *Standards & Regulations.*

Course Duration

15 Days

Number of Participants

8 Minimum and 16 Maximum

Course Prerequisites

Basic Technical Knowledge: Familiarity with electrical principles, electrical tools, or basic telecommunications systems. Physical Ability: Ability to work with small parts, fibers, and hand tools.

Training Methodology

The training methodology combines lectures, discussions, group exercises and illustrations. Participants will gain both theoretical and practical knowledge of the topics.

Course Materials

A set of soft copy notes will be provided.

Course Certification

An APUA/ANCEE and Centre of Excellence Certified Certificate of Competence/Attendance will be awarded on successful completion of the course.

CATALOGUE 2026



RENEWABLE ENERGY





INTRODUCTION TO RENEWABLE ENERGY COURSES

Renewable Energy courses provide foundational knowledge primarily on solar, wind, hydro, geothermal, and biomass technologies, focusing on sustainability, climate change mitigation, and energy transition. These courses, offered by ANCEE cover technical basics, economic feasibility, and policy, making them ideal for utilities to enhance their Human capital Development skills in green energy.



01



WIND POWER DEVELOPMENT

Course Description and Objectives

The Wind Power Development course provides a detailed understanding in the selection of a site for a wind power generation and optimizing the designs to ensure that the proposed plant is technically and economically viable.

Who should attend

Participants' profile or target group are Civil, Mechanical or Electrical Engineers, Project Managers, and any suitably qualified personnel working on renewable energy projects.

Course Outline

- *Introduction to Wind Power*
- *Stakeholder Mapping*
- *Wind Measurement Campaign*
- *Wind Resource and Site Assessment*
- *Wind Farm Energy Yield Assessment*
- *Legal, Regulatory and Other Compliance Requirements*
- *Financial Closure.*

Course Duration

5 Days

Number of Participants

8 Minimum and 16 Maximum

Course Prerequisites

Basic understanding of electrical theory and Power Systems...

Training Methodology

The training methodology combines lectures, discussions, group exercises and illustrations. Participants will gain both theoretical and practical knowledge of the topics.

Course Materials

A set of soft copy notes will be provided.

Course Certification

The training methodology combines lectures, discussions, group exercises and illustrations. Participants will gain both theoretical and practical knowledge of the topics..



WIND TURBINE TECHNOLOGY

Course Description and Objectives

The Wind Turbine Technology course covers wind energy fundamentals, mechanical/electrical systems, maintenance, and safety regulations, preparing participants with added technical skills for on-site turbine inspections, maintenance and repair.

Who should attend

Electrical and Mechanical Maintenance and Operations Engineers and Technicians.

Course Outline

- *Wind Energy Fundamentals.*
- *Turbine Components.*
- *Electrical & Mechanical Systems.*
- *Operations & Maintenance (O&M).*
- *Health & Safety.*

Course Duration

5 Days

Number of Participants

8 Minimum and 16 Maximum

Course Prerequisites

Background Knowledge: Basic understanding of Physics and Mathematics. Technical Skills: Knowledge of electronics or mechanics. Physical Requirements: Ability to climb high towers and work at heights.

Training Methodology

The training methodology combines lectures, discussions, group exercises and illustrations. Participants will gain both theoretical and practical knowledge of the topics.

Course Materials

A set of soft copy notes will be provided.

Course Certification

An APUA/ANCEE and Centre of Excellence Certified Certificate of Competence/Attendance will be awarded on successful completion of the course.



03

WIND FARM OPERATIONS AND MAINTENANCE

Course Description and Objectives

The Wind Farm Operations and Maintenance (O&M) course provides technical training on turbine components, diagnostics, safety standards and repair techniques to optimize performance.

Who should attend

Participants' profile or target group are Civil, Mechanical or Electrical Engineers, Project Managers, and any suitably qualified personnel working on renewable energy projects.

Course Outline

- *Introduction to Wind Technology.*
- *Operations & Control.*
- *Maintenance Strategies.*
- *Safety & Compliance.*
- *Electrical and Mechanical Systems.*
- *Offshore/Onshore Specifics.*

Course Duration

15 Days

Number of Participants

8 Minimum and 16 Maximum

Course Prerequisites

Basic understanding of electrical engineering principles, Working knowledge of power systems operations.

Training Methodology

The training methodology combines both theoretical and practical knowledge of the topics. The emphasis is on the practical application of the topics.

Course Materials

A set of soft copy notes will be provided.

Course Certification

An APUA/ANCEE and Centre of Excellence Certified Certificate of Competence/Attendance will be awarded on successful completion of the course.



04

WIND FARM CONTROL SYSTEMS MAINTENANCE

Course Description and Objectives

The Wind Farm Control Systems Maintenance course covers PLC systems, SCADA data analysis, converter troubleshooting, sensor calibration, and turbine control logic to enhance troubleshooting capabilities.

Who should attend

Wind turbine technicians (scheduled maintenance), Engineers operating in renewable energy and other Technical support personnel.

Course Outline

- *Control Fundamentals.*
- *System Components.*
- *Electrical & Electronics.*
- *Safety & Data.*
- *Simulation/Practical*

Course Duration

5 Days

Number of Participants

8 Minimum and 16 Maximum

Course Prerequisites

Basic understanding of electrical theory and circuits and experience in electrical maintenance or operations is recommended.

Training Methodology

The training methodology combines lectures, discussions, group exercises and practical's

Course Materials

A set of soft copy notes will be provided.

Course Certification

An APUA/ANCEE and Centre of Excellence Certified Certificate of Competence/Attendance will be awarded on successful completion of the course.



05

MONITORING AND CONTROL OF GRID CONNECTED PHOTOVOLTAIC INSTALLATIONS

Course Description and Objectives

This training course covers monitoring and controlling grid-connected PV systems, focusing on performance evaluation, troubleshooting, maintenance, and safe installation practices.

Who should attend

Solar PV Technicians and Maintenance personnel, Engineers and other suitably qualified personnel.

Course Outline

- *PV System Fundamentals.*
- *Design & Sizing.*
- *Installation & Commissioning.*
- *Monitoring & Performance Analysis.*
- *Maintenance.*
- *Advanced Controls.*

Course Duration

5 Days

Number of Participants

8 Minimum and 16 Maximum

Course Prerequisites

Basic working knowledge of electrical power systems.

Training Methodology

The training methodology combines lectures, group exercises and hands on practical application of the topics.

Course Materials

A set of soft copy notes will be provided.

Course Certification

An APUA/ANCEE and Centre of Excellence Certified Certificate of Competence/Attendance will be awarded on successful completion of the course.



06

OPERATION AND MAINTENANCE OF HYDROELECTRIC AND PHOTOVOLTAIC POWER PLANTS

Course Description and Objectives

This course provides comprehensive training on the operational, maintenance, and safety practices for hydroelectric and photovoltaic (PV) power plants. Participants learn to optimize performance, diagnose issues, and ensure structural/electrical safety for both utility-scale solar and hydro assets.

Who should attend

O&M Technicians & Operators responsible for day-to-day plant upkeep Engineers and other suitably qualified personnel.

Course Outline

Hydroelectric Power Plants

- *Hydro Operations.*
- *Generator & Electrical Systems.*
- *Maintenance & Safety.*
- *Civil Works Maintenance.*

Photovoltaic (PV) Power Plants

- *PV Components & Design.*
- *Operation & Grid Integration.*
- *O&M Strategies.*
- *Inspection & Testing.*

Course Duration

20 Days

Number of Participants

8 Minimum and 16 Maximum

Course Prerequisites

A basic understanding of electricity and Power Plants operations

Training Methodology

The training methodology combines lectures, discussions, group exercises and illustrations

Course Materials

A set of soft copy notes will be provided.

Course Certification

An APUA/ANCEE and Centre of Excellence Certified Certificate of Competence/Attendance will be awarded on successful completion of the course.



ECONOMIC ANALYSIS OF RENEWABLE ENERGY PROJECTS

Course Description and Objectives

The Economic Analysis of Renewable Energy Projects course provides participants with tools for modeling, financing, and assessing the bankability of solar, wind, and hydro projects. It covers topics focusing on Levelized Cost of Energy (LCOE), Net Present Value (NPV), risk management, and Power Purchase Agreements (PPAs) through practical, data-driven exercises,

Who should attend

Engineers in the power utility, Project Developers & Consultants evaluating project viability, Financial Advisors & Investment Analysts structuring debt or equity and other suitably qualified personnel.

Course Outline

- *Renewable Energy Project Economics.*
- *Financial Modeling.*
- *Project Valuation & Risk.*
- *Financing Structure.*
- *Regulations.*
- *Technology Overview.*

Course Duration

3 Days

Number of Participants

8 Minimum and 16 Maximum

Course Prerequisites

Educational Background: A degree in finance, engineering, or economics. **Experience:** Basic understanding of project management or the energy industry. **Skills:** Proficiency in a computational software such as Excel for financial analysis.

Training Methodology

The training methodology combines lectures, discussions, group exercises and illustrations. .

Course Materials

A set of soft copy notes will be provided.

Course Certification

An APUA/ANCEE and Centre of Excellence Certified Certificate of Competence/Attendance will be awarded on successful completion of the course.



08

IMPLEMENTATION OF RENEWABLE ENERGY PROJECTS THROUGH PUBLIC PRIVATE PARTNERSHIPS (PPP)

Course Description and Objectives

This course provides comprehensive training on structuring, financing, and implementing renewable energy projects (solar, wind, hydro) using Public-Private Partnerships (PPPs). It covers legal frameworks, risk allocation, bankability, and tender processes to deliver sustainable infrastructure. Participants learn to design effective partnerships, manage project lifecycles, and evaluate tender proposals to meet development goals.

Who should attend

Energy officials, PPP unit managers, infrastructure planners, policy-makers, Project developers, financial controllers, Legal advisors, and environmental specialists.

Course Outline

- *Introduction to PPPs & Renewable Energy.*
- *Project Identification & Preparation.*
- *Legal & Regulatory Framework.*
- *Risk Allocation & Mitigation.*
- *Finance & Bankability.*
- *Procurement & Contract Management.*
- *Project Implementation & Monitoring.*

Course Duration

5 Days

Number of Participants

8 Minimum and 16 Maximum

Course Prerequisites

Knowledge of infrastructure development, project management, or project finance, a bachelor's degree in engineering, finance, law and familiarity with the energy sector.

Training Methodology

The training methodology combines lectures, discussions, practical activities..

Course Materials

A set of soft copy notes will be provided.

Course Certification

An APUA/ANCEE and Centre of Excellence Certified Certificate of Competence/Attendance will be awarded on successful completion of the course.



GRID INTEGRATION OF RENEWABLE ENERGY SOURCES

Course Description and Objectives

The Grid Integration of Renewable Energy Sources course provides essential skills for connecting variable solar, wind, and storage systems into existing power networks while maintaining reliability. It covers technical challenges, grid stability, and regulatory frameworks.

Who should attend

This course is intended for professionals in the power and energy sector, Power System Engineers and Technicians, Grid Operators and Utility Managers, Renewable Energy Project Developers & Managers, Energy Policy Makers and Regulatory Staff.

Course Outline

- *Fundamentals of Renewable Energy Systems.*
- *Grid Integration Challenges.*
- *Grid Codes and Regulatory Frameworks.*
- *Power System Modeling and Simulation.*
- *Smart Grid and Microgrid Integration.*
- *Economic and Planning Aspects.*

Course Duration

5 Days

Number of Participants

8 Minimum and 16 Maximum

Course Prerequisites

A Technical qualification in Electrical, Electrical & Electronics, Power, or Mechanical Engineering, experience in the power industry, foundational knowledge of power systems, power electronics, and electrical networks.

Training Methodology

The training methodology combines discussions, lectures, group exercises and practicals and simulations.

Course Materials

A set of soft copy notes will be provided.

Course Certification

An APUA/ANCEE and Centre of Excellence Certified Certificate of Competence/Attendance will be awarded on successful completion of the course.



OPERATIONS AND MAINTENANCE OFF-GRID SOLAR POWER SYSTEMS

Course Description and Objectives

The Operations and Maintenance (O&M) Off-Grid Solar Power Systems course provides technical skills to maintain, troubleshoot, and optimize standalone PV systems, batteries, and charge controllers. The course typically covers system components, inspection procedures, battery management, and safety protocols to ensure peak performance.

Who should attend

Operators, Artisans, Technicians and any suitably qualified personnel requiring a basic understanding of the operation and maintenance of Off-Grid Solar PV systems.

Course Outline

- *Fundamentals.*
- *System Components.*
- *Inspection & Maintenance.*
- *Troubleshooting & Testing.*
- *Safety & Compliance.*

Course Duration

5 Days

Number of Participants

8 Minimum and 16 Maximum

Course Prerequisites

Fundamental knowledge of electrical engineering principles (voltage, current, power), familiarity with power circuit analysis.

Training Methodology

Participants will gain both theoretical and practical knowledge of the topics. The emphasis is on the practical application of the topics and to enable participants apply all the knowledge gained in their operations.

Course Materials

A set of soft copy notes will be provided.

Course Certification

An APUA/ANCEE and Centre of Excellence Certified Certificate of Competence/Attendance will be awarded on successful completion of the course.



11

MAINTENANCE OF HYDRO ELECTRO MECHANICAL EQUIPMENT

Course Description and Objectives

The Maintenance of Hydro Electro-Mechanical Equipment course focuses on optimizing hydropower plant reliability through preventive/predictive maintenance of turbines, generators, governors, and auxiliary systems.

Who should attend

Mechanical and electrical maintenance technicians specializing in hydropower, Power plant operators personnel responsible for daily monitoring and troubleshooting, Plant Engineers involved in performance monitoring, reliability, and maintenance scheduling and other personnel responsible for hydroelectric infrastructure lifecycle.

Course Outline

- *Introduction to Hydropower*
- *Components.*
- *Mechanical Equipment Maintenance.*
- *Electrical Systems Maintenance.*
- *Operational Reliability.*
- *Troubleshooting and Condition Monitoring.*
- *Safety Procedures.*

Course Duration

5 Days

Number of Participants

8 Minimum and 16 Maximum

Course Prerequisites

Background in technical areas, such as mechanics or electrical engineering, basic understanding of hydroelectric plant operation and machinery maintenance with some basic mechanical or electrical safety understanding.

Training Methodology

The training methodology combines lectures, discussions, group exercises which will make up for 30% and practical lessons and simulations which will make for 70%.

Course Materials

A set of soft copy notes will be provided.

Course Certification

An APUA/ANCEE and Centre of Excellence Certified Certificate of Competence/Attendance will be awarded on successful completion of the course.



HYDROPOWER PLANT OPERATIONS

Course Description and Objectives

The Hydropower Plant Operations course provides technical knowledge on operating and maintaining hydro generation systems to improve efficiency, reliability, and safety in power generation.

Who should attend

Operations and maintenance technicians, Engineers and technologists working in power plants, Craft persons and apprentices and Supervisors in charge of plant plant operations.

Course Outline

- *Hydropower Fundamentals.*
- *Turbines & Generators.*
- *Plant Systems.*
- *Electrical Systems.*
- *Operations & Control.*
- *Maintenance & Troubleshooting.*
- *Safety.*

Course Duration

5 Days

Number of Participants

8 Minimum and 16 Maximum

Course Prerequisites

Basic knowledge of mechanics, electricity, or related technical fields and basic experience working in small or large hydropower plants.

Training Methodology

The training methodology combines lectures, discussions, group exercises which will make up for 30% and practical lessons and simulations which will make for 70%.

Course Materials

A set of soft copy notes will be provided.

Course Certification

An APUA/ANCEE and Centre of Excellence Certified Certificate of Competence/Attendance will be awarded on successful completion of the course.



WIND FARMS IN ISOLATED LOCATIONS

Course Description and Objectives

The Course allows the study on production of renewable energy using wind turbines in isolated based on the MADA/DFIG Module System.

Who should attend

Technical assistants, Technicians, Engineers and other suitably qualified personnel.

Course Outline

- *Structure and Operation of modern wind turbines.*
- *Physical Principles "From Wind to Mechanical Shaft".*
- *Different wind turbine concepts.*
- *Structure and Commissioning of a small wind turbine generator.*
- *Operations with different wind forces using a battery.*
- *Energy Storage, Wind Turbine optimization.*
- *Structure of a self-contained wind turbine for the production of 230V alternative.*
- *Hybrid system for self-sufficient power using wind power and photovoltaics.*

Course Duration

2 Days

Number of Participants

8 Minimum and 16 Maximum

Course Prerequisites

The training methodology combines lectures, discussions, group exercises which will make up for 30% and practical lessons and simulations which will make for 70%.

Training Methodology

Instructor-led lectures, Case studies and real-life examples, Practical exercises/simulations.

Course Materials

A set of soft copy notes will be provided.

Course Certification

An APUA/ANCEE and Centre of Excellence Certified Certificate of Competence/Attendance will be awarded on successful completion of the course.



SOLAR OPERATIONS AND MAINTENANCE STRATEGIES

Course Description and Objectives

The Protection for Control Engineers course provides essential training on safeguarding automation systems, focusing on relay coordination, safety instrumented systems (SIS) compliance, and fault analysis, often adhering to international standards. This course will also cover protection schemes, troubleshooting, and maintenance for automation.

Who should attend

Instrumentation and Control Engineers, Electrical Engineers and Technicians. Process Engineers and Operators involved in safety-critical systems.

Course Outline

- *Fundamentals of Protection.*
- *Safety Instrumented Systems (SIS).*
- *Control System Protection.*
- *Testing and Maintenance.*

Course Duration

3 Days

Number of Participants

8 Minimum and 16 Maximum

Course Prerequisites

Fundamental knowledge of electrical engineering, industrial automation, or instrumentation and experience in plant operations or maintenance is beneficial.

Training Methodology

Instructor-led lectures, Case studies and real-life examples, Practical exercises/simulations.

Course Materials

A set of soft copy notes will be provided.

Course Certification

An APUA/ANCEE and Centre of Excellence Certified Certificate of Competence/Attendance will be awarded on successful completion of the course.



HYDRO OPERATIONS AND MAINTENANCE STRATEGIES

Course Description and Objectives

The Hydro Operations and Maintenance (O&M) Strategies course provides key skills for maximizing hydropower asset lifespan and reliability for participants to implement modern, data-driven maintenance practices..

Who should attend

Hydropower Plant Managers and Directors, O&M Engineers and Technicians, Maintenance Planners, Coordinators, and Supervisors, Reliability Engineers and power Generation Technicians.

Course Outline

- *Asset Management Strategies.*
- *Operational Best Practices.*
- *Maintenance of Plant Equipment.*
- *Civil Structure Inspection.*
- *Condition Monitoring & Diagnosis.*
- *Work Management.*
- *Environmental & Safety Standards.*

Course Duration

5 Days

Number of Participants

8 Minimum and 16 Maximum

Course Prerequisites

A background in mechanical or electrical engineering and basic practical experience in power plant operation or maintenance.

Training Methodology

Instructor-led lectures, Case studies and real-life examples, Practical exercises/simulations.

Course Materials

A set of soft copy notes will be provided.

Course Certification

An APUA/ANCEE and Centre of Excellence Certified Certificate of Competence/Attendance will be awarded on successful completion of the course.



SOLAR ENERGY STORAGE SOLUTIONS AND BATTERY SYSTEMS

Course Description and Objectives

The Solar Energy Storage and Battery Systems course provides comprehensive training on designing, installing, and maintaining battery storage, covering lithium-ion technology, inverter configuration, and grid-connected safety standards.

Who should attend

Electricians & Technicians, Solar Installers & Engineers, Project Developers & Managers.

Course Outline

- *Fundamental Principles.*
- *Battery Technology.*
- *System Design.*
- *Installation & Safety.*
- *Maintenance & Testing.*
- *Project Evaluation.*

Course Duration

5 Days

Number of Participants

8 Minimum and 16 Maximum

Course Prerequisites

Basic understanding of Electrical Engineering principles, elementary understanding of electricity/physics, and experience in the electrical industry.

Training Methodology

Instructor-led lectures, Case studies and real-life examples, Practical exercises/simulations.

Course Materials

A set of soft copy notes will be provided.

Course Certification

An APUA/ANCEE and Centre of Excellence Certified Certificate of Competence/Attendance will be awarded on successful completion of the course.



PREVENTIVE MAINTENANCE AND TROUBLESHOOTING SOLAR PV SYSTEMS

Course Description and Objectives

This Preventive Maintenance and Troubleshooting Solar PV Systems course equips participants with essential skills to diagnose, maintain, and optimize solar PV systems to maximize system lifespan and performance.

Who should attend

Solar Technicians and Installers, Maintenance Engineers and Field Managers, Electrical Technicians and Engineers and Project Managers in Renewable Energy.

Course Outline

- *Solar PV System Fundamentals.*
- *Safety & Compliance.*
- *Site Survey & Commissioning.*
- *Preventive Maintenance (PM).*
- *Troubleshooting & Diagnostic Testing.*
- *System Performance Management.*

Course Duration

5 Days

Number of Participants

8 Minimum and 16 Maximum

Course Prerequisites

A basic understanding of electricity, knowledge or experience as an electrician or PV installer, Graduates in Electrical/Electronics Engineering and Technician.

Training Methodology

Instructor-led lectures, Case studies and real-life examples, Practical exercises/simulations.

Course Materials

A set of soft copy notes will be provided.

Course Certification

An APUA/ANCEE and Centre of Excellence Certified Certificate of Competence/Attendance will be awarded on successful completion of the course.



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ADVANCED GRID INTEGRATION WITH RENEWABLE ENERGY SOURCES

Course Description and Objectives

This advanced training focuses on integrating variable renewable energy (wind/solar) into power grids, covering grid stability, smart grids, and storage solutions.

Who should attend

Electrical Engineers and Power System Planners, Renewable Energy Project Developers, Grid Operators, Utility Managers, and Regulatory Personnel, and other suitably qualified Technical personnel.

Course Outline

- *Renewable Energy Basics & Integration Techniques.*
- *Grid Stability & Management.*
- *Grid Codes & Requirements.*
- *Modeling and Simulation.*
- *Advanced Technologies.*
- *Operational Challenges.*

Course Duration

5 Days

Number of Participants

8 Minimum and 16 Maximum

Course Prerequisites

Basic understanding of electrical engineering concepts and power systems.

Training Methodology

The training methodology combines lectures, discussions, group exercises and practical lessons.

Course Materials

A set of soft copy notes will be provided.

Course Certification

An APUA/ANCEE and Centre of Excellence Certified Certificate of Competence/Attendance will be awarded on successful completion of the course.



SMART GRID ENERGY MANAGEMENT SYSTEM

Course Description and Objectives

The Smart Grid Energy Management System course provides participants with expertise in modernizing electrical networks, covering smart metering, renewable integration, SCADA, IoT, AI analytics, and demand-side management. This courses focus on optimizing power distribution, enhancing efficiency, and implementing sustainable energy practices.

Who should attend

Electrical, electronic, data communication, power system and industrial automation engineers, grid operators, and smart meter technicians, and renewable energy project developers.

Course Outline

- *Smart Grid Fundamentals & Infrastructure.*
- *Energy Management & Optimization.*
- *Renewable Energy Integration.*
- *Security & Controls.*
- *Regulations & Standards.*

Course Duration

10 Days

Number of Participants

8 Minimum and 16 Maximum

Course Prerequisites

Experience in the power industry, utility management, or electrical systems and foundational IT knowledge.

Training Methodology

The training lectures, group exercises, practical simulations and illustrations.

Course Materials

A set of soft copy notes will be provided.

Course Certification

An APUA/ANCEE and Centre of Excellence Certified Certificate of Competence/Attendance will be awarded on successful completion of the course.



INTEGRATION OF RENEWABLE ENERGIES AND THE PLANNING OF ELECTRICAL DISTRIBUTION NETWORKS

Course Description and Objectives

This course covers integrating distributed renewable energy sources (solar, wind, storage) into distribution networks, addressing challenges in power quality, capacity planning, voltage regulation, and smart grid technology to meet sustainability goals.

Who should attend

Electrical Engineers and Power System Engineers, Utility planners, managers, and system operators, Renewable energy project developers and technical personnel in regulatory and energy policy roles.

Course Outline

- *Renewable Energy Sources (RES).*
- *Grid Integration Challenges.*
- *Distribution System Planning.*
- *Smart Grid and Microgrids.*
- *Regulatory & Economic Aspects.*

Course Duration

5 Days

Number of Participants

8 Minimum and 16 Maximum

Course Prerequisites

A background in electrical engineering and work experience in the power industry with basic understanding of electric power systems, power generation, and distribution network components. Familiarity with renewable technologies.

Training Methodology

The training combines lectures, discussions, simulations and illustrations.

Course Materials

A set of soft copy notes will be provided.

Course Certification

An APUA/ANCEE and Centre of Excellence Certified Certificate of Competence/Attendance will be awarded on successful completion of the course.



IMPACT OF THE INTEGRATION OF RENEWABLE ENERGIES INTO TRANSMISSION NETWORKS

Course Description and Objectives

The Impact of the Integration of Renewable Energies into Transmission Networks course provides technical and operational expertise on incorporating wind, solar, and storage into grid systems. It focuses on grid stability, flexibility, regulatory challenges, and modeling techniques.

Who should attend

Electrical Engineers in design, operations, maintenance, planning, Grid Integration Specialists, energy Regulators and Policymakers.

Course Outline

- *Grid Fundamentals.*
- *Renewable Generation Technology.*
- *Integration Challenges.*
- *Grid Operation & Control.*
- *Modelling and Simulation.*
- *Regulatory & Economics*

Course Duration

5 Days

Number of Participants

8 Minimum and 16 Maximum

Course Prerequisites

An Electrical Engineering qualification, Systems Engineering, or a closely related STEM qualification, an understanding of power systems, power generation, and power system operation and possible experience with power systems simulation software.

Training Methodology

The training combines lectures, discussions, simulations and illustrations.

Course Materials

A set of soft copy notes will be provided.

Course Certification

An APUA/ANCEE and Centre of Excellence Certified Certificate of Competence/Attendance will be awarded on successful completion of the course.



ENVIRONMENTAL AND SOCIAL IMPACT ASSESSMENT FOR RENEWABLE ENERGY PROJECTS

Course Description and Objectives

This 5-day training covers Environmental and Social Impact Assessment (ESIA) for renewable energy projects, focusing on ESG standards, risk mitigation, and compliance. It equips participants with tools for assessing solar, wind, and thermal impacts on ecology and society.

Who should attend

Project Managers and Developers leading the development, planning, and implementation of renewable projects, Environmental Officers, ESG Specialists, Technical personnel in the environmental impacts of infrastructure, personnel in Regulatory Authorities involved in reviewing and approving project proposals and those working on environmental due diligence for financing.

Course Outline

- *Introduction to ESIA and ESG.*
- *Regulatory Frameworks.*
- *Impact Assessment Methodologies.*
- *Technical Studies.*
- *Social Impact Management.*
- *Mitigation and Management Plans.*
- *Case Studies*

Course Duration

5 Days

Number of Participants

8 Minimum and 16 Maximum

Course Prerequisites

A foundational understanding of environmental science, ecology, engineering, or project management is generally required.

Training Methodology

The training methodology combines lectures, discussions, group exercises with emphasis on the practical application of the topics.

Course Materials

A set of soft copy notes will be provided.

Course Certification

An APUA/ANCEE and Centre of Excellence Certified Certificate of Competence/Attendance will be awarded on successful completion of the course.



ENHANCING EFFICIENCY OF POWER PLANTS, HYDRO, THERMAL AND RENEWABLE ENERGY SYSTEMS

Course Description and Objectives

This course provides comprehensive training on maximizing efficiency in thermal, hydro, and renewable energy systems through advanced technology, maintenance, and monitoring. Participants will learn to optimize plant performance, reduce emissions, and manage energy loads to enhance operational efficiency.

Who should attend

Energy engineers and technicians, Plant operators, managers, and maintenance personnel, Energy auditors and personnel in the renewable energy sector.

Course Outline

- *Thermal Power Plants.*
- *Hydropower Systems.*
- *Renewable Energy Systems.*
- *Energy Efficiency Techniques.*
- *Simulation & Practical Tools.*

Course Duration

5 Days

Number of Participants

8 Minimum and 16 Maximum

Course Prerequisites

Basic understanding of thermodynamics, fluid mechanics, and electrical engineering principles, experience in power plant operation.

Training Methodology

The training methodology combines lectures, group exercises, illustrations practical simulations.

Course Materials

A set of soft copy notes will be provided.

Course Certification

An APUA/ANCEE and Centre of Excellence Certified Certificate of Competence/Attendance will be awarded on successful completion of the course.



HAZARD IDENTIFICATION, RISK ASSESSMENT AND SAFETY TRAINING IN THE RENEWABLE SECTOR

Course Description and Objectives

The Hazard Identification, Risk Assessment and Safety Training in the Renewable Sector equips participants with techniques to identify hazards, assess risks (like working at heights, electrical, and environmental), and implement control measures ensuring safety compliance in wind, solar, and hydro energy projects.

Who should attend

Health, Safety, and Environment (HSE) Personnel, Engineers and other Technical Personnel, Project Managers and Supervisors responsible for operational safety, Compliance Officers and Safety Representatives.

Course Outline

- *Introduction to HIRA.*
- *Hazard Identification Techniques.*
- *Risk Assessment Methodologies.*
- *Risk Control and Management.*
- *Specialized Safety & Emergencies.*

Course Duration

5 Days

Number of Participants

8 Minimum and 16 Maximum

Course Prerequisites

Basic knowledge of health and safety principles and experience in technical or industrial environments.

Training Methodology

The training methodology combines lectures, discussions, group exercises and illustrations. Participants will gain both theoretical and practical knowledge of the topics.

Course Materials

A set of soft copy notes will be provided.

Course Certification

An APUA/ANCEE and Centre of Excellence Certified Certificate of Competence/Attendance will be awarded on successful completion of the course.



SOLAR PV INSTALLATION SUPERVISION

Course Description and Objectives

This Solar PV Installation Supervision course prepares participants to design, install, inspect, and commission grid-connected solar systems. It focuses on safety, regulations, inverter configuration, and project oversight.

Who should attend

Electricians, Renewable Energy Technicians, Engineers and Solar Installers and other suitably qualified personnel.

Course Outline

- *Solar PV System Fundamentals.*
- *Safety & Compliance.*
- *Site Analysis & Design.*
- *Installation Techniques.*
- *Testing & Commissioning.*

Course Duration

15 Days

Number of Participants

8 Minimum and 16 Maximum

Course Prerequisites

A recognized electrical qualification or electrical background, Knowledge of electrical installation regulations, Some experience in electrical installation or PV systems.

Training Methodology

Lecture Presentations using PowerPoint and Visual Aids, Use of didactic training equipment and practical hands-on Sessions with simulations.

Course Materials

A set of soft copy notes will be provided.

Course Certification

An APUA/ANCEE and Centre of Excellence Certified Certificate of Competence/Attendance will be awarded on successful completion of the course.



MINI GRID DESIGN

Course Description and Objectives

The Mini Grid Design course covers planning, sizing, and implementing renewable energy systems (solar, hydro) through modules on load analysis, component selection (PV/batteries), system optimization and financial modeling.

Who should attend

Solar Industry Professionals, Engineers, and System Designers, Rural Electrification Project Managers, Energy Consultants and Planners.

Course Outline

- *Introduction & Load Assessment.*
- *System Sizing & Component Sizing.*
- *Simulation & Optimization.*
- *Technical Design.*
- *Financial & Regulatory.*
- *Installation & Management.*

Course Duration

15 Days

Number of Participants

8 Minimum and 16 Maximum

Course Prerequisites

Bachelor's degree or diploma in Engineering, Physics, or related technical field, Basic understanding of solar photovoltaic (PV) technology, TVET certification in technical fields or equivalent industry experience.

Training Methodology

The training methodology combines lectures, group exercises and practical simulations.

Course Materials

A set of soft copy notes will be provided.

Course Certification

An APUA/ANCEE and Centre of Excellence Certified Certificate of Competence/Attendance will be awarded on successful completion of the course.



FINANCIAL MODELLING FOR RENEWABLE ENERGY PROJECTS

Course Description and Objectives

The Financial Modelling for Renewable Energy Projects course will give participants the skills to understand, develop and analyse financial models for renewable projects.

Who should attend

Participant's profile or target group are managers, accountants, engineers, and any suitably qualified personnel involved in Renewable Energy Project Planning and development.

Course Outline

- *Introduction to Renewable Energy*
- *Excel Refresher*
- *Financial Modelling for Solar and Small Hydropower Projects*
- *Selling Power*
- *Operating Costs*
- *Working Capital*
- *Property Plant and Equipment and Depreciation*
- *Taxation*
- *Equity, Dividends and Cash*
- *Sizing Debt*
- *Project Returns*
- *Development of Dashboards*

Course Duration

5 Days

Number of Participants

8 Minimum and 16 Maximum

Course Prerequisites

Fundamental Excel Skills (formulas, modeling context), Financial Literacy knowledge of financial statement analysis (Income Statement, Balance Sheet, Cash Flow).

Training Methodology

The training methodology combines lectures, group exercises and practical simulations and illustrations.

Course Materials

A set of soft copy notes will be provided.

Course Certification

An APUA/ANCEE and Centre of Excellence Certified Certificate of Competence/Attendance will be awarded on successful completion of the course.



CONSTRUCTION CONTRACTS AND POWER PURCHASE AGREEMENTS

Course Description and Objectives

The Construction Contracts and Power Purchase Agreements course is designed to enable participants to gain insight into processes to deal with Construction Contracts management and gain a comprehensive understanding of the key elements in the present-day environment where Power Purchase Agreements are an indispensable tool for the day-to-day operation of power utility companies.

Who should attend

Project Managers, Engineers, Procurement Practitioners, Contract Managers, Finance Practitioners, and any suitably qualified personnel involved in contract management, and power project management.

Course Outline

- *Contract models*
- *Contract preparation and negotiations*
- *Tender documents and their legal implication*
- *The Power Purchase Agreement*
- *Financial Provisions*
- *Risk Allocation and Mitigation*
- *Other PPA Provisions*
- *Default and Termination*

Course Duration

5 Days

Number of Participants

8 Minimum and 16 Maximum

Course Prerequisites

Basic understanding of the energy sector or electricity market, Fundamental knowledge of contract structures, Familiarity with project finance terminology.

Training Methodology

The training methodology combines lectures, discussions, group exercises and illustrations.

Course Materials

A set of soft copy notes will be provided.

Course Certification

An APUA/ANCEE and Centre of Excellence Certified Certificate of Competence/Attendance will be awarded on successful completion of the course.



BUSINESS PLANNING FOR INDEPENDENT POWER PRODUCERS

Course Description and Objectives

This course aims to give participants a broad understanding of what goes into the business planning for an Independent Power Production Plant ('IPP'). It gives an overview of the regional energy sector, studies and documentation required, financing options and market structures.

Who should attend

Suitably qualified personnel involved in leadership for business operations at various levels of responsibility.

Course Outline

- *Overview of the Regional Energy Sector*
- *Project Preparation*
- *Off-Grid Sector*
- *Transmission, Generation, and the System Operator*
- *Power Purchase Agreements*
- *Financing Sources*
- *Power Pools and Power Trading*

Course Duration

5 Days

Number of Participants

8 Minimum and 16 Maximum

Course Prerequisites

Basic understanding of the power sector or general project finance principles, experience in energy, infrastructure development, finance, or corporate strategy.

Training Methodology

The training methodology combines lectures, discussions, group exercises and illustrations.

Course Materials

A set of soft copy notes will be provided.

Course Certification

An APUA/ANCEE and Centre of Excellence Certified Certificate of Competence/Attendance will be awarded on successful completion of the course.



ASSET MANAGEMENT, BUSINESS GOVERNANCE AND COMPLIANCE

Course Description and Objectives

This course provides technicians with the skills to install, maintain, and troubleshoot High Voltage (HV/HTB) SF6 circuit breakers with pneumatic operating mechanisms, covering levels 1-3. It combines theoretical lectures with hands-on training for routine maintenance, diagnostics, and component repair.

Who should attend

Participant's profile or target group are engineers, technicians, accountants, business managers and any suitably qualified personnel requiring in the running of the operations of the company during its life span.

Course Outline

- *Introduction to Asset Management & ISO 55000 Frameworks.*
- *Risk Management & Compliance.*
- *Governance Frameworks & Ethical Leadership.*
- *Asset Lifecycle & Financial Performance.*
- *Operational Efficiency & Digital Tracking.*
- *Internal Investigations & Auditing*
- *Structuring of a renewable energy entity- SPV and why this is preferred*
- *Management of Project Agreements*

Course Duration

5 Days

Number of Participants

8 Minimum and 16 Maximum

Course Prerequisites

Experience in risk management, financial control, or general management, Basic understanding of accounting, auditing, or corporate finance.

Training Methodology

The training methodology combines lectures, group discussions and simulations.

Course Materials

A set of soft copy notes will be provided.

Course Certification

An APUA/ANCEE and Centre of Excellence Certified Certificate of Competence/Attendance will be awarded on successful completion of the course.



FEASIBILITY STUDIES OF SOLAR PV PROJECTS

Course Description and Objectives

The Feasibility Studies of Solar PV Projects course provides a detailed understanding of how to design and develop a utility scale solar PV project. The course provides a detailed understanding of solar energy, components, solar-powered schemes, and systems' optimization to ensure that the plant is technically and economically feasible.

Who should attend

Participants' profile or target group are project managers, developers, engineers, and any suitably qualified personnel involved in Renewable Energy Project Planning and development.

Course Outline

- *Introduction to Solar Energy*
- *Stakeholder Mapping*
- *Prefeasibility Stage: Solar PV System Planning*
- *Environmental and Social Impact key issues for utility scale Solar PV projects*
- *Feasibility Studies: Solar PV design*
- *Legal Regulatory and Other Compliance Requirements*
- *Solar Standards*
- *Scaling Solar Concept*
- *Procurement Process*
- *Financial Closure.*

Course Duration

15 Days

Number of Participants

8 Minimum and 16 Maximum

Course Prerequisites

Basic understanding of PV technology or renewable energy principles and a background in engineering, finance, or construction project management.

Training Methodology

The training methodology combines lectures, discussions, group exercises and illustrations.

Course Materials

A set of soft copy notes will be provided.

Course Certification

An APUA/ANCEE and Centre of Excellence Certified Certificate of Competence/Attendance will be awarded on successful completion of the course.



32

GREEN HYDROGEN PRODUCTION

Course Description and Objectives

This course provides fundamental knowledge on the safe inspection, maintenance, and refurbishment of High Voltage (HV) and Extra High Voltage (EHV) overhead lines. Participants will learn best practices for maintaining transmission infrastructure—such as towers, conductors, and insulators—to maximize reliability and safety.

Who should attend

Technical Experts in Chemical, Mechanical, Process, and Electrical Engineers, Project managers, developers, Senior and middle managers in energy, manufacturing, and transport.

Course Outline

- *Fundamentals.*
- *Renewable Energy Integration.*
- *Hydrogen Value Chain.*
- *Green Hydrogen Applications & Market Potential.*
- *Safety Considerations in Production & Environment Considerations.*
- *Project Development.*
- *Legal, Regulatory and Other Compliance Requirements.*

Course Duration

5 Days

Number of Participants

8 Minimum and 16 Maximum

Course Prerequisites

A Bachelor's degree in Engineering or Science, some experience in the energy sector, chemical process industry and Basic understanding of renewable energy principles.

Training Methodology

The training methodology combines lectures, discussions, group exercises and illustrations.

Course Materials

A set of soft copy notes will be provided.

Course Certification

An APUA/ANCEE and Centre of Excellence Certified Certificate of Competence/Attendance will be awarded on successful completion of the course.



33

GRID INTEGRATION OF RENEWABLE ENERGY SOURCES

Course Description and Objectives

The characteristics and behaviour of power systems change when the share of variable renewable energy sources increases in the total mix. Therefore, this course will consider the large-scale integration of renewable generation and its impacts on utility grid operation and control due to its generation variability. This course provides a platform for understanding the challenges and measures required to integrate renewable energy sources. The course is also focused on causes of power system instability, effects, and recovery measures when power from renewable energy sources is injected into the grid.

Who should attend

Participants' profile or target group are engineers, technicians, IPP Project Engineers and any suitably qualified personnel requiring an understanding of grid integration of renewable energy sources.

Course Outline

- *Introduction to Renewable Energy Sources and Grid Integration*
- *Power Systems: Basic Concepts, System Operation and Power System Equipment for Grid Integration*
- *Integration of Alternative Sources of Energy*
- *Grid Operation and Control*
- *Power Quality and Management*

Course Duration

5 Days

Number of Participants

8 Minimum and 16 Maximum

Course Prerequisites

A Bachelor's degree or Diploma in Electrical, Electrical & Electronics, Mechanical, or Power Engineering, Understanding of basic electrical circuits, power system dynamics, and some simulation tools.

Training Methodology

The training methodology combines lectures, discussions, group exercises and illustrations.

Course Materials

A set of soft copy notes will be provided.

Course Certification

An APUA/ANCEE and Centre of Excellence Certified Certificate of Competence/Attendance will be awarded on successful completion of the course.



34

GREEN HYDROGEN PRODUCTION

Course Description and Objectives

This course will cover the fundamental principles, technology, and applications of green hydrogen production from water. The course will focus on the use of renewable energy sources, electrolysis technology, and storage and transportation of hydrogen.

Who should attend

Participants' profile or target group are managers, policymakers, engineers and any other qualified personnel involved in power generation.

Course Outline

- *Introduction to Solar Energy*
- *Introduction to Green Hydrogen Production*
- *Green Hydrogen Applications and Market Potential*
- *Renewable Energy Sources for Green Hydrogen Production*
- *Safety Considerations in Green Hydrogen Production*
- *Environmental Considerations in Green Hydrogen Production*
- *Legal, Regulatory and Other Compliance Requirements.*

Course Duration

5 Days

Number of Participants

8 Minimum and 16 Maximum

Course Prerequisites

At least a degree or diploma in Engineering, Chemistry, Physics, or related fields, familiarity with renewable energy systems, a basic understanding of electrical energy, chemical processes, or chemical engineering principles.

Training Methodology

The training methodology combines lectures, discussions, group exercises and practical illustrations and simulations.

Course Materials

A set of soft copy notes will be provided.

Course Certification

An APUA/ANCEE and Centre of Excellence Certified Certificate of Competence/Attendance will be awarded on successful completion of the course.



35

OFF - GRID SOLAR SYSTEM DESIGN AND INSTALLATION

Course Description and Objectives

The overall aim of this course is to train engineers, technicians and students in basic electrical fundamentals and skills in designing, installing, operating, and maintaining off-grid solar photovoltaic (PV) systems specifically solar mini grid.

Who should attend

Participants' profile or target group are engineers, technicians, and any suitably qualified personnel requiring a basic understanding of the concepts, principles, and practices of off-grid solar system design and installation.

Course Outline

- *Role of Solar Energy in Sustainable Development*
- *Fundamentals of Solar Energy*
- *Basics of Electricity*
- *Solar Cell Modules*
- *Batteries*
- *Charge Controllers, Load Management, Inverters*
- *Lamps and Appliances*
- *Wiring and Fittings*
- *Installing Solar Electric Systems*
- *Maintaining and Servicing Solar Electric Systems*
- *Designing Off-grid Solar Energy Systems.*

Course Duration

5 Days

Number of Participants

8 Minimum and 16 Maximum

Course Prerequisites

Prior knowledge of basic electrical principles or experience with grid-connected systems.

Training Methodology

The training methodology combines lectures, discussions, group exercises and illustrations.

Course Materials

A set of soft copy notes will be provided.

Course Certification

An APUA/ANCEE and Centre of Excellence Certified Certificate of Competence/Attendance will be awarded on successful completion of the course.



36

OPERATIONS AND MAINTENANCE OF SOLAR PV SYSTEMS

Course Description and Objectives

The Operations and Maintenance (O&M) of Solar PV Systems course typically trains personnel to safely inspect, troubleshoot, and optimize PV system performance to ensure system reliability.

Who should attend

Participants' profile or target group are operators, artisans, technicians, and any suitably qualified personnel requiring a basic understanding of the operation and maintenance of Solar PV Systems.

Course Outline

- *Components of a Solar PV Systems*
- *Overview of Operation and Maintenance of Solar PV Systems*
- *Troubleshooting Techniques*
- *Off-grid Solar PV Systems Maintenance*
- *System Performance and Plant Operations*
- *Workplace Risk Management.*

Course Duration

5 Days

Number of Participants

8 Minimum and 16 Maximum

Course Prerequisites

Working knowledge of solar PV systems, and some basic understanding of electrical components (AC/DC) and tools.

Training Methodology

The training methodology combines lectures, discussions, group exercises and illustrations.

Course Materials

A set of soft copy notes will be provided.

Course Certification

An APUA/ANCEE and Centre of Excellence Certified Certificate of Competence/Attendance will be awarded on successful completion of the course.



37

PLANNING RENEWABLE ENERGY PROJECTS

Course Description and Objectives

This course introduces participants to concepts of planning for renewable energy projects starting with a general overview of renewable technologies and the project cycle including practical application examples.

Who should attend

Participants' profile or target group are engineers, technicians, and any suitably qualified personnel involved in Renewable Energy Project Planning.

Course Outline

- *Fundamentals.*
- *Renewable Energy Integration.*
- *Hydrogen Value Chain.*
- *Green Hydrogen Applications & Market Potential.*
- *Safety Considerations in Production & Environment Considerations.*
- *Project Development.*
- *Legal, Regulatory and Other Compliance Requirements.*

Course Duration

5 Days

Number of Participants

8 Minimum and 16 Maximum

Course Prerequisites

The course requires no prior knowledge of renewable energy technologies or projects. Knowledge in GIS is an advantage, yet not required.

Training Methodology

The training methodology combines lectures, discussions, group exercises and illustrations.

Course Materials

A set of soft copy notes will be provided.

Course Certification

An APUA/ANCEE and Centre of Excellence Certified Certificate of Competence/Attendance will be awarded on successful completion of the course.



38

HYDRAULICS AND TURBINE REGULATIONS

Course Description and Objectives

The course introduces the key issues relating to the energy market and regulation, as they affect sustainable energy development. It focuses on the policies and regulations including opportunities and barriers in developing the renewable energy sector. Further, the course provides an understanding and awareness of the benefits of renewable energy and knowledge of policy and regulating models, mechanisms, and practices available to support the development and deployment of sustainable energy technologies.

Who should attend

Participants' profile or target group are suitably qualified personnel involved in policymaking, policy analysis, project development, regulation and standard development.

Course Outline

- *Fundamentals.*
- *Renewable Energy Integration.*
- *Hydrogen Value Chain.*
- *Green Hydrogen Applications & Market Potential.*
- *Safety Considerations in Production & Environment Considerations.*
- *Project Development.*
- *Legal, Regulatory and Other Compliance Requirements.*
-

Course Duration

5 Days

Number of Participants

8 Minimum and 16 Maximum

Course Prerequisites

A Bachelor's degree in Engineering, science or environmental Science, some experience in the energy sector and basic understanding of renewable energy principles.

Training Methodology

The training methodology combines lectures, discussions, group exercises and illustrations.

Course Materials

A set of soft copy notes will be provided.

Course Certification

An APUA/ANCEE and Centre of Excellence Certified Certificate of Competence/Attendance will be awarded on successful completion of the course.



39

INTRODUCTION TO RENEWABLE ENERGY

Course Description and Objectives

An Introduction to Renewable Energy course provides a foundational understanding of solar, wind, and hydropower technologies, policy, and energy markets. It focuses on sustainability, energy efficiency, and project applications.

Who should attend

Professionals transitioning into the green energy sector, Engineers and technicians and personnel aiming to understand environmental impacts of energy.

Course Outline

- *Introduction to Energy Systems.*
- *Solar Technology.*
- *Wind Energy.*
- *Other Renewables.*
- *Energy Management & Sustainability.*

Course Duration

3 Days

Number of Participants

8 Minimum and 20 Maximum

Course Prerequisites

Basic understanding of renewable energy principles.

Training Methodology

The training methodology combines lectures, discussions, group exercises and illustrations.

Course Materials

A set of soft copy notes will be provided.

Course Certification

An APUA/ANCEE and Centre of Excellence Certified Certificate of Competence/Attendance will be awarded on successful completion of the course.



40

DESIGN ELEMENTS ON RENEWABLE ENERGIES

Course Description and Objectives

The Design Elements on Renewable Energies course focuses on the engineering, planning, and implementation of sustainable technologies like solar, wind, and storage.

Who should attend

Electrical, civil, and mechanical engineers involved in energy development, Technicians and others assessing new green technologies.

Course Outline

*Introduction & Fundamentals.
Solar Energy Technologies.
Wind Energy Systems.
Energy Storage & Microgrids.
Alternative Technologies.
System Design & Economics.*

Course Duration

5 Days

Number of Participants

10 Minimum and 16 Maximum

Course Prerequisites

Basic knowledge of electricity generation, basic engineering, or physics and some technical background.

Training Methodology

The training methodology combines lectures, discussions, group exercises and illustrations.

Course Materials

A set of soft copy notes will be provided.

Course Certification

An APUA/ANCEE and Centre of Excellence Certified Certificate of Competence/Attendance will be awarded on successful completion of the course.



41

SOLAR ENERGY CONVERSION AND PV SYSTEM INTEGRATION

Course Description and Objectives

This course covers comprehensive solar PV technology, including design, installation, grid connection, and maintenance. Participants gain skills in site assessment, component selection, safety standards, and energy storage,

Who should attend

Electrical engineers, technicians, and contractors, Project managers and renewable energy professionals.

Course Outline

- *PV Fundamentals.*
- *System Components.*
- *Site & System Design.*
- *Installation & Safety.*
- *Grid Integration.*
- *Maintenance & Economics.*

Course Duration

3 Days

Number of Participants

8 Minimum and 16 Maximum

Course Prerequisites

Basic understanding of electrical systems and knowledge of solar installations.

Training Methodology

The training methodology combines lectures, discussions, group exercises and illustrations.

Course Materials

A set of soft copy notes will be provided.

Course Certification

An APUA/ANCEE and Centre of Excellence Certified Certificate of Competence/Attendance will be awarded on successful completion of the course.



42

IMPACT OF PV INSTALLATIONS ON THE GRID

Course Description and Objectives

The Impact of PV Installations on the Grid course provides engineers and technicians with advanced knowledge to design, analyze, and safely integrate grid-connected solar PV systems and troubleshooting grid issues.

Who should attend

Engineers and Technicians in Technical fields and other suitably qualified personnel..

Course Outline

- *Grid Integration Principles.*
- *PV Technology & Components.*
- *Grid-Connected System Design.*
- *Protection & Safety.*
- *Performance Monitoring & Maintenance.*
- *Regulatory Framework.*
-

Course Duration

10 Days

Number of Participants

8 Minimum and 16 Maximum

Course Prerequisites

Knowledge of the basics of PV systems basic understanding of renewable energy principles.ss.

Training Methodology

The training methodology combines lectures, discussions, group exercises and illustrations.

Course Materials

A set of soft copy notes will be provided.

Course Certification

An APUA/ANCEE and Centre of Excellence Certified Certificate of Competence/Attendance will be awarded on successful completion of the course.



43

RISKS AND SAFETY OF PV INSTALLATIONS

Course Description and Objectives

The Risks and Safety of PV Installations course focuses on mitigating electrical hazards (arc flash, shock), fall protection, and fire safety during solar installation to ensure safe installation practices.

Who should attend

Electricians and electrical technicians, Solar PV installers, Site supervisors and project managers, Safety officers and health & safety inspectors and Maintenance personnel.

Course Outline

- *Introduction to PV Systems.*
- *Hazard Identification & Risk Assessment.*
- *Electrical Safety Protocols.*
- *Installation Safety & Best Practices.*
- *Fire Safety & Emergency Response.*
- *Regulations & Compliance.*

Course Duration

5 Days

Number of Participants

10 Minimum and 16 Maximum

Course Prerequisites

Electrical experience or training, basics of solar PV and knowledge of occupational health and safety.

Training Methodology

The training methodology combines lectures, discussions, group exercises and illustrations.

Course Materials

A set of soft copy notes will be provided.

Course Certification

An APUA/ANCEE and Centre of Excellence Certified Certificate of Competence/Attendance will be awarded on successful completion of the course.



44

THERMODYNAMIC SOLAR POWER PLANTS

Course Description and Objectives

A Thermodynamic Solar Power Plant (Concentrating Solar Power - CSP) course provides comprehensive training on converting solar energy into high-temperature heat for electricity generation.

Who should attend

Renewable Energy Developers and project managers specializing in solar projects, Electrical/Mechanical Engineers, and Plant Operators in CSP.

Course Outline

- *Introduction to Solar Thermal Systems.*
- *CSP Technologies (High-Temperature Applications).*
- *Thermal Energy Storage (TES).*
- *Power Block Engineering.*
- *System Design & Optimization.*
- *Economics & Environment.*

Course Duration

10 Days

Number of Participants

10 Minimum and 16 Maximum

Course Prerequisites

Knowledge of thermodynamics (laws of thermodynamics, heat transfer, phase changes), basic understanding of fluid mechanics, basic engineering principles (physics and chemistry) and some understanding of renewable energy systems.

Training Methodology

The training methodology combines lectures, discussions, group exercises and illustrations.

Course Materials

A set of soft copy notes will be provided.

Course Certification

An APUA/ANCEE and Centre of Excellence Certified Certificate of Competence/Attendance will be awarded on successful completion of the course.



45

BIOMASS

Course Description and Objectives

This Biomass course provide comprehensive training on converting organic materials into energy, covering feedstock, conversion technologies (thermochemical/biochemical), sustainability, and economics.

Who should attend

Any suitably qualified personnel and those interested in understating Biomass technology.

Course Outline

- *Biomass Resources & Feedstock.*
- *Conversion Technologies.*
- *Handling & Operations.*
- *Environmental & Economic Impact.*
- *Policy & Future Trends*

Course Duration

5 Days

Number of Participants

10 Minimum and 16 Maximum

Course Prerequisites

There are no prerequisites required.

Training Methodology

The training methodology combines lectures, discussions, group exercises and illustrations.

Course Materials

A set of soft copy notes will be provided.

Course Certification

An APUA/ANCEE and Centre of Excellence Certified Certificate of Competence/Attendance will be awarded on successful completion of the course.



46

GEO THERMAL

Course Description and Objectives

The Geothermal energy course provides comprehensive training on exploring, developing, and managing geothermal resources for power generation and direct heat use.

Who should attend

Geologists, geophysicists, and geochemists specializing in subsurface exploration, Engineers in drilling, production, mechanical, power generation and renewable energy, policy makers in energy ministries and regulatory bodies.

Course Outline

- *Introduction to Geothermal Energy.*
- *Geothermal Exploration.*
- *Drilling & Well Completion.*
- *Reservoir Engineering & Modeling.*
- *Power Generation & Heat Use.*
- *Project Economics & Risk Management.*

Course Duration

5 Days

Number of Participants

10 Minimum and 16 Maximum

Course Prerequisites

A background in engineering, geoscience, or environmental science, experience in the energy sector (oil & gas, renewable energy) and fundamental knowledge of thermodynamics, geology, or fluid mechanics.

Training Methodology

The training methodology combines lectures, discussions, group exercises and illustrations.

Course Materials

A set of soft copy notes will be provided.

Course Certification

An APUA/ANCEE and Centre of Excellence Certified Certificate of Competence/Attendance will be awarded on successful completion of the course.



47

SIZING OF PV SYSTEMS

Course Description and Objectives

The Sizing of PV Systems course provides essential skills for designing, installing, and maintaining solar photovoltaic systems, covering load analysis, array sizing, and component selection (batteries, inverters).

Who should attend

Electricians and electrical inspectors, renewable energy engineers and technicians, solar project developers and managers and other suitably qualified personnel.

Course Outline

- *Solar Fundamentals.*
- *Load Analysis.*
- *System Sizing Calculations.*
- *Components & Design.*
- *Grid-Connected & Stand-Alone.*
- *Installation & Commissioning.*
- *Regulations.*

Course Duration

5 Days

Number of Participants

12 Minimum and 16 Maximum

Course Prerequisites

Basic understanding of electrical principles and safety, basic understating of renewable energy systems.

Training Methodology

The training methodology combines lectures, discussions, group exercises and illustrations.

Course Materials

A set of soft copy notes will be provided.

Course Certification

An APUA/ANCEE and Centre of Excellence Certified Certificate of Competence/Attendance will be awarded on successful completion of the course.



48

INJECTION OF SOLAR ENERGY INTO THE LV GRID

Course Description and Objectives

The course on the injection of solar energy into the LV grid is designed to offer in-depth knowledge of solar energy technologies, technical requirements for grid connection, regulatory frameworks, licensing pathways, and environmental considerations.

Who should attend

Energy Regulators and Licensing Officers, Utility and Grid Operators, Engineers (Electrical, Renewable Energy, Civil), Policymakers and Planners.

Course Outline

- *Solar PV Fundamentals and Technology Overview*
- *Grid Connection Technologies and Architecture*
- *Grid Impact and Technical Challenges*
- *Licensing and Regulatory Requirements*
- *Financial, Economic, and Legal Frameworks*
- *Policy, Planning, and Sectoral Development*
- *Case Studies and Practical Sessions*

Course Duration

5 Days

Number of Participants

12 Minimum and 16 Maximum

Course Prerequisites

Knowledge of electrical engineering principles, experience with photovoltaic systems, and familiarity with power quality requirements and grid regulations.

Training Methodology

The training methodology combines lectures, discussions, group exercises and illustrations.

Course Materials

A set of soft copy notes will be provided.

Course Certification

An APUA/ANCEE and Centre of Excellence Certified Certificate of Competence/Attendance will be awarded on successful completion of the course.



49

INSTALLATION AND MAINTENANCE OF STAND – ALONE PV SYSTEMS

Course Description and Objectives

The Installation and Maintenance of Stand-Alone PV Systems course provides essential training for designing, installing, and maintaining off-grid solar systems, covering battery storage, inverter technology, and safety regulations.

Who should attend

Electricians and electrical inspectors, solar installers, Engineers and technicians specializing in renewable energy.

Course Outline

- *System Design & Components.*
- *Installation Techniques.*
- *Off-Grid Inverters & Battery Storage.*
- *Maintenance & Troubleshooting.*
- *Regulatory Standards & Safety.*

Course Duration

5 Days

Number of Participants

10 Minimum and 16 Maximum

Course Prerequisites

Basic knowledge of solar PV and renewable energy systems.

Training Methodology

The training methodology combines lectures, discussions, group exercises and illustrations.

Course Materials

A set of soft copy notes will be provided.

Course Certification

An APUA/ANCEE and Centre of Excellence Certified Certificate of Competence/Attendance will be awarded on successful completion of the course.



50

METHODOLOGY FOR THE DEVELOPMENT OF A PV AND DIESEL HYBRID POWER PLANT

Course Description and Objectives

This training course equips professionals with practical skills to design, size, install, and manage integrated PV-diesel systems that balance renewable generation with conventional backup power. Participants learn how to reduce fuel consumption, improve system reliability, and optimize lifecycle costs while maintaining operational resilience.

Who should attend

Electrical and power engineers, Renewable energy and hybrid system designers, Diesel generator technicians and operators, Operations and maintenance engineers and other suitably qualified personnel.

Course Outline

- *Foundations of PV-Diesel Hybrid Systems, System Architectures and Configurations*
- *Load Analysis and Energy Profiling, Solar PV System Design*
- *Diesel Generator Integration, Hybrid Control and Dispatch Strategies*
- *Power Electronics and Control Systems, Electrical Protection and Safety*
- *Energy Storage Options and Roles, Installation and Construction Practices*
- *Commissioning and Testing, Operations and Maintenance*
- *Fuel Management and Efficiency, Reliability, Resilience, and Power Quality*

- *Techno-Economic Analysis, Scaling and Hybrid System Optimization*
- *Applied PV-Diesel Hybrid Practicum*

Course Duration

15 Days

Number of Participants

10 Minimum and 16 Maximum

Course Prerequisites

Basic knowledge of solar PV and diesel engines.

Training Methodology

The course is taught through a mix of theory, practical activities, group discussion and case studies

Course Materials

A set of soft copy notes will be provided.

Course Certification

An APUA/ANCEE and Centre of Excellence Certified Certificate of Competence/Attendance will be awarded on successful completion of the course.



51

STANDARDS AND TECHNICAL SPECIFICATIONS FOR PV INSTALLATIONS

Course Description and Objectives

The Standards and Technical Specifications for PV Installations course provide essential training on designing, installing, and maintaining solar PV systems in compliance with safety codes and the need to validate competence in solar standards.

Who should attend

Solar PV Installers and Technicians, Electrical Technicians and Contractors, Engineers and Project Managers.

Course Outline

- *Safety Standards & Regulations.*
- *PV System Components.*
- *Design & Engineering.*
- *Installation Practices.*
- *Commissioning & Maintenance.*
-

Course Duration

5 Days

Number of Participants

10 Minimum and 16 Maximum

Course Prerequisites

A background in electrical contracting or a relevant electrical trade certificate, experience in the electrical or solar sector, awareness and familiarity with safety standards or regulations.

Training Methodology

The training methodology combines lectures, discussions, group exercises and illustrations.

Course Materials

A set of soft copy notes will be provided.

Course Certification

An APUA/ANCEE and Centre of Excellence Certified Certificate of Competence/Attendance will be awarded on successful completion of the course.



PV AND WIND POWER HYBRID SYSTEM

Course Description and Objectives

A Photovoltaic (PV) and Wind Power Hybrid System course provides comprehensive knowledge on designing, sizing, modeling, and maintaining combined renewable energy systems to maximize efficiency.

Who should attend

Renewable energy technicians and engineers, Project managers and developers, Technical staff from government agencies and system integrators.

Course Outline

- *Fundamentals of Renewable Energy.*
- *Solar PV Technology.*
- *Wind Technology.*
- *Hybrid System Integration.*
- *System Analysis and Economics.*
- *Installation and Safety.*

Course Duration

5 Days

Number of Participants

8 Minimum and 16 Maximum

Course Prerequisites

Basic understanding of electrical systems and familiarity with, or experience in, the renewable energy sector.

Training Methodology

The training methodology combines lectures, discussions, group exercises and illustrations.

Course Materials

A set of soft copy notes will be provided.

Course Certification

An APUA/ANCEE and Centre of Excellence Certified Certificate of Competence/Attendance will be awarded on successful completion of the course.



53

STUDY AND DEVELOPMENT OF REINTEGRATION OF RENEWABLE ENERGY FOR THE PRODUCTION OF ELECTRICAL ENERGY

Course Description and Objectives

This course focuses on integrating renewable energy (wind, solar, hydro, gas, steam) into electrical grids, covering technical, economic, and regulatory challenges, along with storage and smart grid technology.

Who should attend

Electricians and electrical inspectors, solar installers, Engineers in Transmission and Distribution and technicians specializing in renewable energy.

Course Outline

- *Fundamentals of Renewable Technologies.*
- *Grid Integration & Smart Grids.*
- *Energy Storage Systems.*
- *Economic Analysis and Regulatory Framework.*
- *Power Electronics & Control Systems*

Course Duration

20 Days

Number of Participants

8 Minimum and 16 Maximum

Course Prerequisites

Basic knowledge of electrical power system operations and renewable energy systems.

Training Methodology

The training methodology combines lectures, discussions, group exercises and illustrations.

Course Materials

A set of soft copy notes will be provided.

Course Certification

An APUA/ANCEE and Centre of Excellence Certified Certificate of Competence/Attendance will be awarded on successful completion of the course.



55

QUALITY OF RENEWABLE ENERGY AND ENERGY EFFICIENCY

Course Description and Objectives

This quality renewable energy and energy efficiency course provides technical knowledge, project development skills, and management strategies to improve efficiency and to improve technical capacity.

Who should attend

Those responsible for energy policies, regulation, and management, Engineers, technicians, project managers, and energy managers in the energy sector.

Course Outline

- *Fundamental Concepts.*
- *Energy Efficiency & Auditing.*
- *Project Development & Feasibility.*
- *Standards & Quality Management.*

Duration

2Days

Number of Participants

10 Minimum and 20 Maximum

Course Prerequisites

A basic understanding of physics and engineering principles basic working experience working in the energy, mechanical, or electrical sectors.

Training Methodology

The training methodology combines lectures, discussions, group exercises and illustrations.

Course Materials

A set of soft copy notes will be provided.

Course Certification

An APUA/ANCEE and Centre of Excellence Certified Certificate of Competence/Attendance will be awarded on successful completion of the course.



56

SIZING AND INSTALLATION OF SOLAR PV PUMPS

Course Description and Objectives

This training covers designing, sizing, and installing solar photovoltaic water pumping systems, including hydraulic principles, site assessment, component selection (pumps, controllers, PV arrays), and hands-on installation, bridging theoretical knowledge with practical, safe, and efficient solar water solutions.

Who should attend

Solar Technicians and Installers, Electrical and Mechanical Engineers, Water Technicians and Plumbers, Project Managers in Agriculture or Renewable Energy.

Course Outline

- *Introduction to Solar Water Pumping.*
- *Site Evaluation.*
- *Hydraulics and Pump Sizing.*
- *System Sizing & PV Configuration.*
- *Installation & Maintenance.*

Course Duration

10 Days

Number of Participants

10 Minimum and 12 Maximum

Course Prerequisites

Basic knowledge of Solar PV power system operations and renewable energy systems.

Training Methodology

The training methodology combines lectures, discussions, group exercises and illustrations.

Course Materials

A set of soft copy notes will be provided.

Course Certification

An APUA/ANCEE and Centre of Excellence Certified Certificate of Competence/Attendance will be awarded on successful completion of the course.



57

VOLTAGE REGULATION SYSTEM FOR HYDRAULIC POWER PLANTS

Course Description and Objectives

This training covers the design, operation, and tuning of Automatic Voltage Regulators (AVR) and excitation systems in hydroelectric power plants to ensure grid stability and voltage control.

Who should attend

Electrical Power System Engineers, Hydro-power Plant Operators and Technicians, Renewable Energy Project Developers and Planners, Control System Designers and Commissioning Engineers.

Course Outline

- *Introduction to Hydrogenerator Excitation.*
- *Automatic Voltage Regulator (AVR) Components.*
- *Reactive Power Control (Q-V Loop).*
- *Excitation System Limits & Protection.*
- *System Stability & Optimization.*

Course Duration

5 Days

Number of Participants

8 Minimum and 16 Maximum

Course Prerequisites

Working knowledge of AC three-phase electrical circuits, basic understanding of power generation, transmission, and synchronous generators.

Training Methodology

The training methodology combines lectures, discussions, group exercises and illustrations.

Course Materials

A set of soft copy notes will be provided.

Course Certification

An APUA/ANCEE and Centre of Excellence Certified Certificate of Competence/Attendance will be awarded on successful completion of the course.



58

OPERATION AND MAINTENANCE OF WIND FARMS

Course Description and Objectives

A comprehensive Operation and Maintenance (O&M) of Wind Farms course covers Wind turbine technology, maintenance strategies (preventive/predictive), safety protocols, and performance optimization for both onshore and offshore farms.

Who should attend

Technicians, Electrical and Mechanical Engineers, Project Managers in Renewable Energy.

Course Outline

- *Introduction to Wind Energy.*
- *Wind Turbine Components & Technology.*
- *O&M Strategies.*
- *Site Operation & Monitoring.*
- *Safety & Compliance.*
- *Asset Management & Economics.*
- *Offshore-Specific Modules.*

Course Duration

15 Days

Number of Participants

10 Minimum and 16 Maximum

Course Prerequisites

Basic knowledge of wind energy and renewable energy systems.

Training Methodology

The training methodology combines lectures, discussions, group exercises and illustrations.

Course Materials

A set of soft copy notes will be provided.

Course Certification

An APUA/ANCEE and Centre of Excellence Certified Certificate of Competence/Attendance will be awarded on successful completion of the course.



59

OPERATION AND MAINTENANCE OF PV POWER PLANTS

Course Description and Objectives

An Operation and Maintenance (O&M) of PV Power Plants course provides technical training on inspecting, testing, troubleshooting, and repairing solar PV systems to ensure optimal performance.

Who should attend

Solar Technicians and Installers, Electrical and Mechanical Engineers, Project Managers in Renewable Energy.

Course Outline

- *PV fundamentals.*
- *Safety protocols.*
- *System Fundamentals.*
- *Maintenance Procedures.*
- *Troubleshooting.*
- *Performance Monitoring.*

Course Duration

15 Days

Number of Participants

10 Minimum and 16 Maximum

Course Prerequisites

Basic knowledge of Solar PV power system operations and renewable energy systems.

Training Methodology

The training methodology combines lectures, discussions, group exercises and illustrations.

Course Materials

A set of soft copy notes will be provided.

Course Certification

An APUA/ANCEE and Centre of Excellence Certified Certificate of Competence/Attendance will be awarded on successful completion of the course.

CATALOGUE 2026



CLIMATE CHANGE





INTRODUCTION TO CLIMATE CHANGE COURSES

Climate change courses provide foundational knowledge on climate science, policy, and action, green house gas (GHG) mitigation, climate change adaptation, environmental impact and finance.



01

ADVANCED ENVIRONMENTAL AND SOCIAL IMPACT ASSESSMENT

Course Description and Objectives

The Advanced Environmental and Social Impact Assessment (ESIA) course provides in-depth, practical knowledge on evaluating and managing complex environmental and social risks for large projects. It goes beyond basic EIA to cover international standards, stakeholder engagement, and strategic planning.

Who should attend

Environmental/Sustainability engineers and consultants, Project Managers and Developers, in infrastructure, energy, mining, and oil & gas sectors, Government regulators/licensing officers tasked with reviewing and approving ESIA reports and ESG and Compliance Officers.

Course Outline

- *Advanced ESIA Frameworks & International Standards.*
- *Advanced Impact Assessment Methodologies.*
- *Social & Human Impact Focus.*
- *Mitigation and Management Systems.*
- *Consultation, Monitoring, and Reporting.*

Course Duration

5 Days

Number of Participants

8 Minimum and 16 Maximum

Course Prerequisites

A bachelor's degree in environmental science, engineering, sociology, biology, or related fields, some experience in conducting, managing, or reviewing basic Environmental Impact Assessments, understanding of basic environmental law and the general 5-step EIA process (screening, scoping, etc.).

Training Methodology

The training methodology combines lectures, discussions, group exercises and illustrations. Participants will gain both theoretical and practical knowledge of the topics.

Course Materials

A set of soft copy notes will be provided.

Course Certification

An APUA/ANCEE and Centre of Excellence Certified Certificate of Competence/Attendance will be awarded on successful completion of the course.



02

RESERVOIR ENGINEERING AND MANAGEMENT

Course Description and Objectives

The Reservoir Engineering and Management course provides an integrated approach to optimizing hydrocarbon recovery, covering the full life cycle of a field, from data collection to final abandonment. It bridges theoretical rock/fluid properties with practical simulation and economic analysis to maximize profitability and minimize risks.

Who should attend

Petroleum, Production & Reservoir Engineers, Geologists and Geophysicists, Operations Engineers, Petrophysicists and other suitably qualified personnel..

Course Outline

- *Reservoir Management Fundamentals & Planning.*
- *Geological and Fluid Characterization.*
- *Reservoir Drive Mechanisms & Performance.*
- *Field Development & Simulation.*
- *Recovery Enhancement & Economics.*

Course Duration

5 Days

Number of Participants

8 Minimum and 16 Maximum

Course Prerequisites

Familiarity with basic petroleum exploration and production principles, a bachelor's degree in engineering or science (Petroleum, Geology, Mechanical, Chemical).

Training Methodology

The training methodology combines lectures, discussions, group exercises and illustrations. Participants will gain both theoretical and practical knowledge of the topics.

Course Materials

A set of soft copy notes will be provided.

Course Certification

An APUA/ANCEE and Centre of Excellence Certified Certificate of Competence/Attendance will be awarded on successful completion of the course.



UNDERSTANDING THE ENVIRONMENTAL FOOTPRINT OF RENEWABLE ENERGY TECHNOLOGIES

Course Description and Objectives

This course provides a comprehensive analysis of the environmental impacts associated with renewable energy, balancing the benefits of clean energy with the ecological, social, and economic consequences of its deployment. It covers the entire life cycle of technologies like solar, wind, and bioenergy, including manufacturing, operation, and decommissioning.

Who should attend

Environmental and Sustainability Managers, Renewable Energy Project Managers & Developers, Environmental Engineers, Policy Makers & Regulatory Authority personnel, Land Use Planners & Ecology Specialists and ESG (Environmental, Social, and Governance) Professionals.

Course Outline

- *Fundamentals of Renewable Energy.*
- *Environmental Impact Assessment (EIA).*
- *Life Cycle Assessment (LCA).*
- *Ecological Impact & Land Use.*
- *Water and Resource Utilization.*
- *Policy & Sustainability Metrics.*
- *Mitigation & Best Practices.*

Course Duration

5 Days

Number of Participants

8 Minimum and 16 Maximum

Course Prerequisites

A degree in engineering, environmental science, or related fields, a foundational understanding of renewable energy technologies, environmental science, or sustainability concepts.

Training Methodology

The training methodology combines lectures, discussions, group exercises and illustrations. Participants will gain both theoretical and practical knowledge of the topics.

Course Materials

A set of soft copy notes will be provided.

Course Certification

An APUA/ANCEE and Centre of Excellence Certified Certificate of Competence/Attendance will be awarded on successful completion of the course.



CLIMATE CHANGE AND GREEN GROWTH

Course Description and Objectives

This Climate Change and Green Growth course is designed to equip professionals with the knowledge to align economic development with environmental sustainability and covers climate science, policy frameworks, mitigation strategies, and sustainable finance.

Who should attend

Policy and Decision Makers, urban planners, and environmental policymakers, ESG specialists, risk managers, analysts and other suitably qualified personnel.

Course Outline

- *Foundations of Climate Change & Science.*
- *International Legal and Policy Frameworks.*
- *Climate Change Mitigation and Green Growth Strategy.*
- *Adaptation and Climate Resilience.*
- *Climate Finance and Investments.*
- *Planning and Action Plans*

Course Duration

5 Days

Number of Participants

8 Minimum and 16 Maximum

Course Prerequisites

A degree in economics, environmental science, law, geography, engineering, or business studies, a basic understanding of environmental concepts or economic principles.

Training Methodology

The training methodology combines lectures, discussions, group exercises and practicals.

Course Materials

A set of soft copy notes will be provided.

Course Certification

An APUA/ANCEE and Centre of Excellence Certified Certificate of Competence/Attendance will be awarded on successful completion of the course.



05

CLIMATE RISK ASSESSMENT FOR ENERGY INFRASTRUCTURE

Course Description and Objectives

The Climate Risk Assessment for Energy Infrastructure course is designed to equip professionals with the knowledge to identify, analyze, and manage risks from climate change on energy systems (generation, transmission, and distribution).

Who should attend

Engineers & Technical Staff, Climate risk analysts, environmental officers, Project Developers & Managers for renewable energy (wind, solar, hydro), risk managers, credit analysts, and insurance specialists in the energy sector and other suitably qualified personnel.

Course Outline

- *Understanding Climate Risk and Vulnerability.*
- *Climate Data, Trends, and Projections.*
- *Risk Assessment Methodologies.*
- *Mitigation and Adaptation Strategies.*
- *Governance, Finance, and Regulation.*
- *Case Studies and Exercises.*

Course Duration

5 Days

Number of Participants

8 Minimum and 16 Maximum

Course Prerequisites

A Bachelor of Science in Earth Science, Geology, or Chemistry, degree or diploma in engineering, fundamental understanding of chemistry (thermodynamics, aqueous chemistry) and mineralogy, basic understanding of geological field methods and some experience with Excel and data management applications.

Training Methodology

The training methodology combines lectures, group exercises and hands on practical application of the topics.

Course Materials

A set of soft copy notes will be provided.

Course Certification

An APUA/ANCEE and Centre of Excellence Certified Certificate of Competence/Attendance will be awarded on successful completion of the course.



GRID RESILIENCE AND ADAPTATION STRATEGIES

Course Description and Objectives

This course provides a comprehensive overview of how to harden electricity infrastructure against climate-driven stresses, improve reliability, and adapt to modern, decentralized energy systems.

Who should attend

Electrical and Mechanical engineers, planners, and grid operators, personnel responsible for utility asset management, Officials focusing on energy security and climate policies, Professionals working on ESG (Environmental, Social, and Governance) goals, personnel specializing in disaster risk reduction and emergency response and professionals working on renewable energy projects in vulnerable regions.

Course Outline

- *Foundations of Grid Resilience & Reliability.*
- *Resilient Infrastructure & Grid Modernization.*
- *Adaptation and Distributed Energy Resources (DERs).*
- *Planning, Policy, and Finance*

Course Duration

5 Days

Number of Participants

8 Minimum and 16 Maximum

Course Prerequisites

Basic understanding of electric power systems, transmission, and distribution.

Training Methodology

The training methodology combines lectures, discussions, group exercises and illustrations. Participants will gain both theoretical and practical knowledge of the topics.

Course Materials

A set of soft copy notes will be provided.

Course Certification

An APUA/ANCEE and Centre of Excellence Certified Certificate of Competence/Attendance will be awarded on successful completion of the course.



07

ENERGY SYSTEM MODELING UNDER CLIMATE CHANGE SCENARIOS

Course Description and Objectives

The Energy System Modeling under Climate Change Scenarios course provides the skills to analyze how energy infrastructure can transition to net-zero while adapting to climate impacts. It integrates engineering, economics, and climate science to create long-term energy pathways. Software tools such as PLEXOS, PSSE will be used with climate inputs for practical purposes.

Who should attend

Environmental planners, energy analysts, policy developers, renewable energy project developers, researchers in climate change, engineering, economics, or environmental studies and personnel from ministries of energy, environment, or urban planning.

Course Outline

- *Fundamentals of Energy Systems.*
- *Climate Change & Energy Interaction.*
- *Modeling Approaches.*
- *Scenario Development & Analysis.*
- *Integrated Assessment Models (IAMs).*
- *Techno-Economic Analysis.*
- *Policy & Mitigation.*

Course Duration

5 Days

Number of Participants

8 Minimum and 16 Maximum

Course Prerequisites

A degree in engineering, environmental science, economics, or related fields, basic understanding of energy systems, economic concepts (microeconomics), and climate change science, and familiarity with data analysis (Excel) tools or software.

Training Methodology

The training methodology combines lectures, discussions, group exercises and illustrations.

Course Materials

A set of soft copy notes will be provided.

Course Certification

An APUA/ANCEE and Centre of Excellence Certified Certificate of Competence/Attendance will be awarded on successful completion of the course.



08

CLIMATE CHANGE MITIGATION AND ADAPTATION STRATEGIES

Course Description and Objectives

The Climate Change Mitigation and Adaptation Strategies course equips participants with the knowledge to reduce greenhouse gas emissions (mitigation) and adjust to the impacts of a changing climate (adaptation). This course will enable the participants to integrate climate change measures in operations and management of energy systems.

Who should attend

Environmental planners, energy analysts, policy developers, renewable energy project developers, researchers in climate change, engineering, economics, or environmental studies and personnel from ministries of energy, environment, or urban planning.

Course Outline

- *Climate Change Science & Impacts.*
- *Mitigation Strategies (Reducing Emissions).*
- *Adaptation Strategies (Building Resilience).*
- *Policy, Governance & International Frameworks.*
- *Climate Finance & Risk Management.*
- *Tools & Implementation.*

Course Duration

5 Days

Number of Participants

8 Minimum and 16 Maximum

Course Prerequisites

A degree in engineering, environmental science, economics, or related fields, basic understanding of energy systems and climate change science.

Training Methodology

The training methodology combines lectures, discussions, group exercises and illustrations.

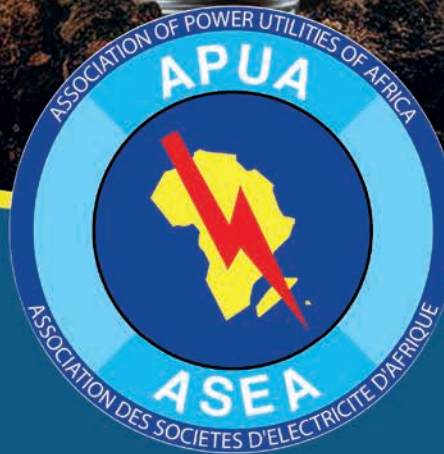
Course Materials

A set of soft copy notes will be provided.

Course Certification

An APUA/ANCEE and Centre of Excellence Certified Certificate of Competence/Attendance will be awarded on successful completion of the course.

CATALOGUE 2026



ENERGY EFFICIENCY





INTRODUCTION TO ENERGY EFFICIENCY COURSES

Energy efficiency courses offer specialized training in industrial, building, energy management, sustainable practices, and renewable energy systems to reduce energy consumption.



01

CERTIFIED ENERGY AUDITOR

Course Description and Objectives

The purpose of this training is to enhance the capacity of the energy auditing professionals to enable them to perform a cost benefit analysis and have the presentation tools and skills to present the energy audit recommendations and financial performance to policy makers, industry executives and financial decision makers.

Who should attend

Participants' profile or target group are engineers, technologists, technicians, crafts persons and any suitably qualified personnel requiring an understanding of energy audits.

Course Outline

- *Introduction to Energy Management and Audits*
- *Energy Consumption Data Collection and Analysis*
- *Electrical Metering and Tariffs*
- *Demand Side Management*
- *Industrial and Commercial Facilities and Equipment and Energy Saving Opportunities*
- *Building Envelopes*
- *Climate Change and GHG Emissions Mitigation through Energy efficiency*
- *Energy Audit Methodology*
- *Conducting an Energy Audit.*
-

Course Duration

10 Days

Number of Participants

8 Minimum and 16 Maximum

Course Prerequisites

AA foundational understanding of energy management principles and standards in practice.

Training Methodology

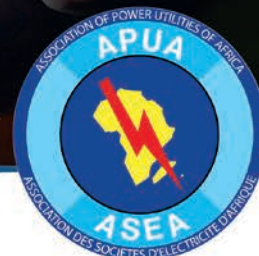
The training methodology combines lectures, discussions, group exercises and illustrations. Participants will gain both theoretical and practical knowledge of the topics.

Course Materials

A set of soft copy notes will be provided.

Course Certification

An APUA/ANCEE and Centre of Excellence Certified Certificate of Competence/Attendance will be awarded on successful completion of the course.



ENERGY EFFICIENCY MANAGEMENT

Course Description and Objectives

The Energy Efficiency Management Course provides participants with technical theory and practice in order to enable them comprehend the principles of energy management and conservation of energy equipment in industry.

Who should attend

Participants' profile or target group are engineers, technologists, technicians, crafts persons and any suitably qualified personnel requiring an understanding of energy efficiency management.

Course Outline

- *Introduction to Energy Management and Audits*
- *Energy Consumption Data Collection and Analysis*
- *Electrical Metering and Tariffs*
- *Demand Side Management*
- *Electric Motors*
- *Lighting Systems*
- *Insulation*
- *Heat Recovery Systems*
- *Fans*
- *Pumping Systems*
- *Conducting an Energy Audit.*

Course Duration

10 Days

Number of Participants

8 Minimum and 16 Maximum

Course Prerequisites

A foundational understanding of energy management principles and standards in practice.

Training Methodology

The training methodology combines lectures, discussions, group exercises and illustrations. Participants will gain both theoretical and practical knowledge of the topics.

Course Materials

A set of soft copy notes will be provided.

Course Certification

An APUA/ANCEE and Centre of Excellence Certified Certificate of Competence/Attendance will be awarded on successful completion of the course.



INDUSTRIAL ENERGY EFFICIENCY

Course Description and Objectives

The course will deliver training modules on the application of ISO 50006 methodologies for establishing baselines and performance indicators. It will also engage with ISO 50001 as a means of developing energy management systems that intensive commercial and industrial facilities and municipalities in most SADC countries could use to create industry champions. The ultimate aim is initial savings realized through the implementation of low- and no-cost measures.

Who should attend

Technical personnel, Engineering Consultants, Tertiary Education Personnel, and other suitably qualified personnel.

Course Outline

- *Energy Management Systems (EnMS)*
- *Energy Performance Measurement and Indicators (EnPI)*
- *Steam System Optimisation*
- *Compressed Air Systems Optimisation*
- *Electric Motor Systems Optimisation*
- *Fan Systems Optimisation*
- *Pump Systems Optimisation*
- *Designing Off-grid Solar Energy Systems*

Course Duration

15 Days

Number of Participants

8 Minimum and 16 Maximum

Course Prerequisites

A foundational understanding of energy management principles and standards in practice.

Training Methodology

The training methodology combines both theoretical and practical knowledge of the topics. The emphasis is on the practical application of the topics.

Course Materials

A set of soft copy notes will be provided.

Course Certification

An APUA/ANCEE and Centre of Excellence Certified Certificate of Competence/Attendance will be awarded on successful completion of the course.



04

ENERGY EFFICIENCY IN BUILDING DESIGN

Course Description and Objectives

The Energy efficiency in building design course covers principles of reducing energy consumption through sustainable design, building physics, passive design, and HVAC optimization and supports participants aiming to specialize in sustainable, cost-effective, and energy-efficient building solutions.

Who should attend

Architects and Designers, Engineers, Technologists, Technicians, Crafts persons, Construction Managers, Energy Consultants and any suitably qualified personnel.

Course Outline

- *Fundamental Principles.*
- *Building Envelope.*
- *Systems and Technology.*
- *Renewable Energy Integration.*
- *Energy Audit and Modelling.*
- *Renovation/Retrofitting.*

Course Duration

10 Days

Number of Participants

8 Minimum and 16 Maximum

Course Prerequisites

At least a Bachelor's degree or Diploma in Architecture, Engineering or equivalent and foundational knowledge in building physics, construction technology, or related fields.

Training Methodology

The training methodology combines lectures, discussions, group exercises and practicals.

Course Materials

A set of soft copy notes will be provided.

Course Certification

An APUA/ANCEE and Centre of Excellence Certified Certificate of Competence/Attendance will be awarded on successful completion of the course.



05

EFFICIENCY CALCULATION OF THERMAL POWER PLANTS (STEAM, DIESEL, GAS TURBINE)

Course Description and Objectives

This course provides comprehensive training on calculating the efficiency and performance of steam, diesel, and gas turbine power plants. Participants will learn to apply thermodynamic principles to analyze heat rates, fuel consumption, and component performance for optimizing plant operations.

Who should attend

Technicians, Engineers, Maintenance and operation Supervisors, Power Station Managers and other suitably qualified staff.

Course Outline

- *Fundamental Concepts.*
- *Steam Power Plants.*
- *Gas Turbine Power Plants.*
- *Diesel Engines.*
- *Performance Metrics.*
- *Optimization.*

Course Duration

5 Days

Number of Participants

8 Minimum and 16 Maximum

Course Prerequisites

A foundational understanding of Thermal Power Plants operation

Training Methodology

The training methodology combines lectures, group exercises and hands on practical application of the topics.

Course Materials

A set of soft copy notes will be provided.

Course Certification

An APUA/ANCEE and Centre of Excellence Certified Certificate of Competence/Attendance will be awarded on successful completion of the course.



06

SMART METERING AND AMR/AMI TECHNOLOGIES IMPLEMENTATION

Course Description and Objectives

This Smart Metering and AMR/AMI Implementation course provides a comprehensive overview of modern grid technologies, focusing on smart meter design, communication networks (RF/PLC), AMI infrastructure, meter data management (MDM), and security to also reduce non-technical losses.

Who should attend

Metering, transmission, distribution, and network engineers and technicians, IT & Data Personnel managing meter data systems, and personnel responsible for AMI deployment.

Course Outline

- *Introduction to AMI/AMR.*
- *Smart Grid & Metering Technology.*
- *Communication Networks.*
- *Meter Data Management (MDM).*
- *Implementation & Deployment.*
- *Cyber Security & System Integrity.*
- *Data Analysis & Demand Side Management.*

Course Duration

5 Days

Number of Participants

8 Minimum and 16 Maximum

Course Prerequisites

Basic knowledge of electrical principles or power systems and IT.

Training Methodology

The training methodology combines lectures, discussions, group exercises and illustrations. Participants will gain both theoretical and practical knowledge of the topics.

Course Materials

A set of soft copy notes will be provided.

Course Certification

An APUA/ANCEE and Centre of Excellence Certified Certificate of Competence/Attendance will be awarded on successful completion of the course.



07

ADVANCED NON-TECHNICAL LOSS REDUCTION TECHNIQUES

Course Description and Objectives

This course focuses on reducing non-technical losses in the electricity sector, emphasizing revenue protection strategies and smart metering techniques. Participants will gain a deep understanding of revenue protection, metering and billing loss reduction, and non-technical loss reduction strategies. They will also learn to implement smart metering revenue protection and utilize metering security measures.

Who should attend

The course is suitable for those involved in smart metering, utility revenue protection, and loss control management.

Course Outline

- *Revenue Protection.*
- *Metering and Billing Loss Reduction.*
- *Non-Technical Loss Reduction Strategies.*
- *Implementing Smart Metering Revenue Protection.*

Course Duration

5 Days

Number of Participants

8 Minimum and 16 Maximum

Course Prerequisites

A foundational understanding of electrical principles, mechanical systems, and Power metering technologies. .

Training Methodology

The training methodology combines lectures, discussions, group exercises and illustrations.

Course Materials

A set of soft copy notes will be provided.

Course Certification

An APUA/ANCEE and Centre of Excellence Certified Certificate of Competence/Attendance will be awarded on successful completion of the course.



08

ADVANCED METHODS OF CALCULATING TECHNICAL AND NON-TECHNICAL LOSSES

Course Description and Objectives

This advanced course provides technical participants with methods to identify, calculate, and mitigate electrical energy losses. It covers load flow simulations, technical loss estimation (losses, transformer losses), and non-technical loss detection (theft, metering errors) using smart grid data. The training focuses on balancing energy, validating data, and applying regulatory practices for loss reduction.

Who should attend

Electrical Engineers, Distribution System Operators (DSOs) and Engineers, Revenue Protection and Commercial Loss Analysts and Energy Planners.

Course Outline

- *Introduction to Electrical Losses.*
- *Technical Loss Calculation Methods.*
- *Non-Technical Loss (NTL) Analysis.*
- *Advanced Analytical Techniques.*
- *Mitigation and Economics.*

Course Duration

5 Days

Number of Participants

8 Minimum and 16 Maximum

Course Prerequisites

Basic understanding of power system engineering principles, Knowledge of electric distribution network operations, familiarity with data analysis and metering concepts and basic understanding of electrical modeling software.

Training Methodology

The training methodology combines lectures, discussions, practical activities.

Course Materials

A set of soft copy notes will be provided.

Course Certification

An APUA/ANCEE and Centre of Excellence Certified Certificate of Competence/Attendance will be awarded on successful completion of the course.



ENERGY EFFICIENCY MANAGEMENT

Course Description and Objectives

The Energy Efficiency Management course provide participants with technical theory and practical skills to enable them optimize energy use, reduce costs, and implement sustainable practices.

Who should attend

Engineers & Technicians in Mechanical, electrical, and HVAC technicians, personnel responsible for building maintenance and personnel managing energy consumption in industrial or commercial settings.

Course Outline

- *Introduction to Energy Management.*
- *Energy Auditing & Assessment.*
- *Technical Systems Optimization.*
- *Building Enclosure & HVAC.*
- *Energy Management Systems (EnMS).*
- *Project Development & Finance.*

Course Duration

5 Days

Number of Participants

8 Minimum and 16 Maximum

Course Prerequisites

The training methodology combines discussions, lectures, group exercises and practicals and simulations. The emphasis is on the practical application of the topics and as a result participant will go back to the workplace with both the ability and the confidence to apply the techniques learned to their duties.

Training Methodology

The training methodology combines lectures, discussions, practical activities.

Course Materials

A set of soft copy notes will be provided.

Course Certification

An APUA/ANCEE and Centre of Excellence Certified Certificate of Competence/Attendance will be awarded on successful completion of the course.



10

ENHANCING EFFICIENCY OF POWERPLANTS – HYDRO, THERMAL AND RENEWABLE ENERGY SYSTEMS

Course Description and Objectives

This course focuses on maximizing power generation efficiency through technological upgrades, optimized operations, and integration of renewable systems, aimed at lowering operating costs and emissions.

Who should attend

Energy Engineers & Auditors, Technical Power Plant Operators & Maintenance personnel, Project Personnel responsible for renewable project design and integration and Environmental Compliance Officers.

Course Outline

- *Fundamental Principles.*
- *Thermal Power Efficiency.*
- *Hydropower Systems.*
- *Renewable Energy Integration.*
- *System Optimization.*

Course Duration

5 Days

Number of Participants

8 Minimum and 16 Maximum

Course Prerequisites

A basic understanding of mechanical or electrical engineering principles, knowledge of thermodynamics, heat transfer, or fluid mechanics and experience with industrial power plant operations.

Training Methodology

Participants will gain both theoretical and practical knowledge of the topics. The emphasis is on the practical application of the topics and to enable participants apply all the knowledge gained in their operations.

Course Materials

A set of soft copy notes will be provided.

Course Certification

An APUA/ANCEE and Centre of Excellence Certified Certificate of Competence/Attendance will be awarded on successful completion of the course.



ENERGY AUDIT AND CONSERVATION IN DISTRIBUTION SYSTEMS

Course Description and Objectives

This course provides a comprehensive guide to auditing, analyzing, and improving energy efficiency in electrical distribution systems, including motors, lighting, and HVAC.

Who should attend

Energy Engineers and Managers, Facilities Managers and Engineers, Building Services Engineers, Plant Managers and Maintenance Personnel and other suitably qualified personnel.

Course Outline

- *Energy Auditing Overview.*
- *Distribution System Audit.*
- *System Analysis.*
- *Energy Conservation.*
- *Economic Analysis.*
- *Reporting.*

Course Duration

5 Days

Number of Participants

8 Minimum and 16 Maximum

Course Prerequisites

Basic understanding of mechanical and electrical engineering principles, familiarity with electrical machines (motors, transformers).

Training Methodology

The training methodology combines lectures, discussions, group exercises and practical lessons.

Course Materials

A set of soft copy notes will be provided.

Course Certification

An APUA/ANCEE and Centre of Excellence Certified Certificate of Competence/Attendance will be awarded on successful completion of the course.



DISTRIBUTION TECHNICAL LOSS REDUCTION

Course Description and Objectives

The Distribution Technical Loss Reduction course focuses on identifying, calculating, and minimizing energy lost through physical components such as transformers and lines.

Who should attend

Crafts persons, Technicians, Technologists, Engineers and other suitably qualified personnel.

Course Outline

- *Introduction to Power Distribution Losses.*
- *Causes of Technical Losses.*
- *Loss Estimation Methods.*
- *Reduction Techniques.*
- *Network Reconfiguration & Optimization.*
- *Transformer Optimization.*
- *Voltage Optimization.*
- *Reactive Power Management.*
- *Best Practices & Technology.*

Course Duration

5 Days

Number of Participants

8 Minimum and 16 Maximum

Course Prerequisites

Basic understanding of electricity distribution systems, Background in electrical engineering principles (e.g., Ohm's Law, power factor, 3-phase systems) and familiarity with substation and distribution network components.

Training Methodology

The training methodology combines lectures, simulations and practical knowledge of the topics.

Course Materials

A set of soft copy notes will be provided.

Course Certification

An APUA/ANCEE and Centre of Excellence Certified Certificate of Competence/Attendance will be awarded on successful completion of the course.



ENERGY EFFICIENCY IN ELECTRICAL UTILITIES

Course Description and Objectives

The Energy Efficiency in Electrical Utilities course focuses on optimizing energy use in industrial systems, covering topics like electric motors, HVAC, lighting, compressed air, and pumps to achieve significant savings and facilitates for practical auditing skills and energy-efficient technologies.

Who should attend

Engineers and Technicians in electrical, mechanical, and energy, energy managers and Auditors involved in facility energy conservation and policy makers focused on energy efficiency standards.

Course Outline

- *Introduction to Electrical Systems.*
- *Energy Management Basics.*
- *Electric Motors.*
- *Compressed Air Systems.*
- *HVAC & Refrigeration Systems.*
- *Pumps & Pumping Systems.*
- *Fans & Blowers.*
- *Lighting Systems.*
- *Electrical Utilities Maintenance.*
- *Case Studies & Practical Exercises.*

Course Duration

10 Days

Number of Participants

8 Minimum and 16 Maximum

Course Prerequisites

Typically a degree or diploma in electrical, mechanical, or industrial engineering and some experience in technical, engineering, or facility management.

Training Methodology

Instructor-led lectures, Case studies and real-life examples, Practical exercises/simulations

Course Materials

A set of soft copy notes will be provided.

Course Certification

An APUA/ANCEE and Centre of Excellence Certified Certificate of Competence/Attendance will be awarded on successful completion of the course.



14

ENERGY AUDIT AND MANAGEMENT

Course Description and Objectives

The Energy Audit and Management course provides essential skills for evaluating building systems (HVAC, lighting, motors), identifying energy-saving measures, and performing financial analysis for sustainability and seeking to reduce consumption.

Who should attend

Facilities and Energy Managers, Engineers and Consultants involved in energy audits and other suitably qualified personnel.

Course Outline

- *Energy Management Principles.*
- *Energy Audit Methodology.*
- *Systems Analysis.*
- *Financial Analysis.*
- *ISO 50001.*
- *Implementation.*

Course Duration

5 Days

Number of Participants

8 Minimum and 16 Maximum

Course Prerequisites

Basic Mathematics, a diploma or degree in engineering/architectural and some knowledge of energy standards.

Training Methodology

Instructor-led lectures, Case studies and real-life examples, Practical exercises/simulations.

Course Materials

A set of soft copy notes will be provided.

Course Certification

An APUA/ANCEE and Centre of Excellence Certified Certificate of Competence/Attendance will be awarded on successful completion of the course.



ISO 14064 GREEN HOUSE GAS ACCOUNTING

Course Description and Objectives

The ISO 14064 Green House Gas (GHG) Accounting course provides comprehensive training on quantifying, monitoring, reporting, and validating/verifying carbon footprints for better energy management.

Who should attend

Engineers, technologists, technicians, environmental managers responsible for environmental reporting, Internal and external Auditors seeking to become qualified GHG Lead Verifiers/Validators and technical, managerial, or administrative personnel responsible for emissions reporting.

Course Outline

- *Introduction to Climate Change & GHG Principles.*
- *ISO 14064-1 (Organization Level).*
- *ISO 14064-2 (Project Level).*
- *ISO 14064-3 (Validation & Verification).*
- *Practical Application.*

Course Duration

5 Days

Number of Participants

8 Minimum and 16 Maximum

Course Prerequisites

Basic understanding of environmental management systems, climate change principles, and green house gas emissions.

Training Methodology

Instructor-led lectures, Case studies and real-life examples, Practical exercises/simulations.

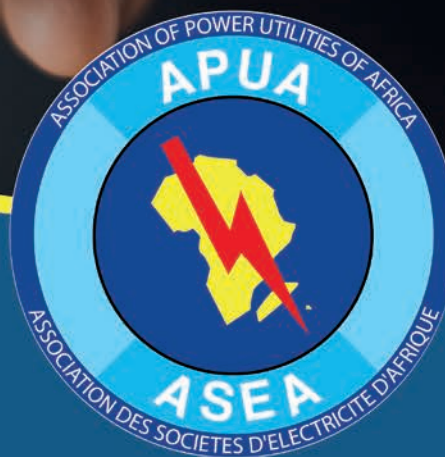
Course Materials

A set of soft copy notes will be provided.

Course Certification

An APUA/ANCEE and Centre of Excellence Certified Certificate of Competence/Attendance will be awarded on successful completion of the course.

CATALOGUE 2026



ELECTRICITY REGULATION





INTRODUCTION TO ELECTRICITY REGULATION COURSES

Electricity regulation courses provide a foundational understanding of power sector economics, utility ratemaking, and market policies. These courses are designed for utility professionals, policymakers, and legal experts.



01

THE BASICS OF FREE MARKET REGULATION

Course Description and Objectives

The Free Electricity Market Regulation course teaches how liberalized power sectors operate. It covers how wholesale supply and demand dictate prices instead of state monopolies, rules for grid access, and consumer protection. The goal is to provide a comprehensive understanding of energy economics and regulatory compliance.

Who should attend

Energy Sector personnel including managers, project developers, and energy traders, Policy Makers from Government, regulators, and ministry analysts, System Operators in Transmission (TSO) and Distribution (DSO) and other suitably qualified personnel.

Course Outline

- *Fundamentals of Power Systems.*
- *Restructuring & Market Design.*
- *Wholesale Market Operations.*
- *Network Regulation.*
- *Renewable Integration.*
- *Retail Competition & Consumer Protection.*

Course Duration

5 Days

Number of Participants

8 Minimum and 16 Maximum

Course Prerequisites

An undergraduate degree in economics, law, engineering and science related field, an interest in the energy landscape and familiarity with basic corporate finance or general government/utility operations.

Training Methodology

The training methodology combines lectures, discussions, group exercises and illustrations. Participants will gain both theoretical and practical knowledge of the topics.

Course Materials

A set of soft copy notes will be provided.

Course Certification

An APUA/ANCEE and Centre of Excellence Certified Certificate of Competence/Attendance will be awarded on successful completion of the course.



02

THE REGULATORY FUNDAMENTALS OF THE ELECTRICITY SECTOR

Course Description and Objectives

The Regulatory Fundamentals of the Electricity Sector course provides a deep dive into the legal, economic, and operational frameworks governing power systems. It teaches participants how to balance fair competition, grid reliability, and sustainable pricing.

Who should attend

Power and natural gas market planners, and system operators, personnel from national regulatory authorities and government energy ministries, legal and utility Commercial Teams, Investors and developers of renewable energy projects and other suitably qualified personnel.

Course Outline

- *Principles & Models.*
- *Generation & Markets.*
- *Networks & Pricing.*
- *Transmission & Distribution.*
- *Compliance & Dispute Resolution.*

Course Duration

5 Days

Number of Participants

8 Minimum and 16 Maximum

Course Prerequisites

Basic familiarity with the power industry (generation, transmission, and distribution) and basic understanding of tariff design and microeconomic principles.

Training Methodology

The training methodology combines lectures, discussions, group exercises and illustrations. Participants will gain both theoretical and practical knowledge of the topics.

Course Materials

A set of soft copy notes will be provided.

Course Certification

An APUA/ANCEE and Centre of Excellence Certified Certificate of Competence/Attendance will be awarded on successful completion of the course.



POWER SECTOR REGULATION

Course Description and Objectives

A Power Sector Regulation course trains participant in the economic, technical, and legal frameworks governing electricity markets. It equips professionals to design tariffs, ensure grid compliance, manage market reforms, and facilitate sustainable energy transitions.

Who should attend

Personnel at national energy regulatory bodies, commissions, and government ministries, executives, planners, and legal counsels at electricity generation, transmission, and distribution utilities and other suitably qualified personnel.

Course Outline

- *Engineering & Physical Foundations.*
- *The Rationale for Regulation.*
- *Market Design & Competition.*
- *Tariff Methodologies.*
- *Quality of Service Regulation.*
- *Energy Transition & Sustainability.*
- *Dispute Resolution.*

Course Duration

5 Days

Number of Participants

8 Minimum and 16 Maximum

Course Prerequisites

At least a Bachelor's degree (or equivalent work experience) in engineering, economics, law, or public policy and basic experience in the energy sector, legal or utility operations.

Training Methodology

The training methodology combines both theoretical and practical knowledge of the topics. The emphasis is on the practical application of the topics.

Course Materials

A set of soft copy notes will be provided.

Course Certification

An APUA/ANCEE and Centre of Excellence Certified Certificate of Competence/Attendance will be awarded on successful completion of the course.



04

EFFECTIVE COMPLIANCE REPORTING

Course Description and Objectives

The Effective Compliance Reporting course provides participants with the frameworks to assess, construct, and deliver clear compliance and risk reports to boards, auditors, and regulators. The training focuses on improving report readability, integrating new regulatory risks, and avoiding regulatory penalties.

Who should attend

This training is highly beneficial for professionals in governance, risk management, and legal operations, including Internal auditors and quality assurance personnel, personnel involved in regulatory affairs and corporate governance, Board members, audit committee members, and senior management who receive and act upon compliance reports and other suitably qualified personnel.

Course Outline

- *Foundations of Compliance.*
- *Compliance Monitoring Programs (CMP).*
- *Report Structure & Design.*
- *Data Interpretation & Presentation.*
- *Modern Risk Integration.*

Course Duration

5 Days

Number of Participants

8 Minimum and 16 Maximum

Course Prerequisites

A basic understanding of corporate operations or legal frameworks and an active role in compliance monitoring, risk management, or internal auditing.

Training Methodology

The training methodology combines lectures, discussions, group exercises and practicals.

Course Materials

A set of soft copy notes will be provided.

Course Certification

An APUA/ANCEE and Centre of Excellence Certified Certificate of Competence/Attendance will be awarded on successful completion of the course.



THE BASICS OF MARKET REGULATION WITH A VERTICAL INTEGRATED ELECTRICITY UTILITY

Course Description and Objectives

The market regulation course focused on vertically integrated electricity utilities explores the economic and operational rules governing power companies that control generation, transmission, and distribution. It equips participants with the skills to balance utility investment recovery, grid reliability, and consumer pricing within traditional or hybrid energy markets.

Who should attend

Mid- to senior-level executives, board members, and operational managers from Power utilities, personnel from state or national energy regulatory bodies, Government officials from energy and finance ministries, independent power producers (IPPs) and other suitably qualified personnel.

Course Outline

- *Fundamentals of Electricity Economics.*
- *Regulatory Frameworks & Oversight.*
- *Cost of Service & Rate Making.*
- *Investment & Asset Management.*
- *Transition & Unbundling.*

Course Duration

5 Days

Number of Participants

8 Minimum and 16 Maximum

Course Prerequisites

A basic foundational understanding of the energy or utility sector, and foundational knowledge in economics, engineering, law, or business.

Training Methodology

The training methodology combines lectures, group exercises and hands on practical application of the topics.

Course Materials

A set of soft copy notes will be provided.

Course Certification

An APUA/ANCEE and Centre of Excellence Certified Certificate of Competence/Attendance will be awarded on successful completion of the course.



06

FUNDAMENTALS OF REGULATION: RELATIONSHIP BETWEEN NATIONAL REGULATOR AND REGIONAL REGULATOR

Course Description and Objectives

This course examines the dynamic interaction between national and regional/federal authorities, exploring jurisdictional overlaps, policy harmonization, and enforcement coordination. It equips participants to navigate multi-level governance, resolve regulatory conflicts, and ensure compliance coherence across different geographic and administrative boundaries.

Who should attend

Compliance officers, legal advisors, and policy analysts, Government officials and policymakers interfacing with regional bodies, risk management personnel and auditors operating across multiple jurisdictions and other suitably qualified personnel.

Course Outline

- *Foundations of Multi-Level Governance.*
- *Overlaps, Conflicts, and Preemption.*
- *Policy Harmonization and Mutual Recognition.*
- *Information Sharing and Enforcement Coordination.*
- *Practical Case Studies and Negotiations.*

Course Duration

5 Days

Number of Participants

8 Minimum and 16 Maximum

Course Prerequisites

A fundamental understanding of public administration or basic administrative law, familiarity with domestic legislative processes and standard-setting frameworks and basic knowledge of economic or social regulation.

Training Methodology

The training methodology combines lectures, discussions, group exercises and illustrations.

Course Materials

A set of soft copy notes will be provided.

Course Certification

An APUA/ANCEE and Centre of Excellence Certified Certificate of Competence/Attendance will be awarded on successful completion of the course.



FUNDAMENTALS OF ELECTRICITY REGULATION

Course Description and Objectives

The Fundamentals of Electricity Regulation course equips participants with a practical understanding of the economic, legal, and technical frameworks governing power systems and utility operations. It provides essential knowledge on rate structures, market design, and regulatory compliance.

Who should attend

This training is highly beneficial for a diverse range of public and private sector participants, including personnel from National Regulatory Authorities (NRAs) and policy/energy department personnel, managers, strategy project managers, and engineers at utilities, Independent Power Producers (IPPs), and renewable energy developers and other suitably qualified personnel.

Course Outline

- *Introduction to Utility Economics & Law.*
- *Network Regulation (Transmission & Distribution).*
- *Electricity Market Design.*
- *Retail Markets & Consumer Protection.*
- *Emerging Trends & The Energy Transition*

Course Duration

3 Days

Number of Participants

8 Minimum and 16 Maximum

Course Prerequisites

A basic understanding of corporate/business concepts (e.g., pricing, contracts, or basic economics), a general familiarity with the utility industry or a related engineering/legal discipline.

Training Methodology

The training methodology combines lectures, discussions, group exercises and illustrations.

Course Materials

A set of soft copy notes will be provided.

Course Certification

An APUA/ANCEE and Centre of Excellence Certified Certificate of Competence/Attendance will be awarded on successful completion of the course.



08

ELECTRICITY SERVICE QUALITY STANDARDS

Course Description and Objectives

The Electricity Service Quality Standards course equips participants with the skills to understand, measure, and enforce grid reliability. The course covers both commercial quality (customer service) and technical quality (voltage characteristics, outages, and compliance with regulations).

Who should attend

Electrical Engineers and Technicians in power systems and infrastructure planners, power plant personnel responsible for maintenance, distribution, and grid performance, personnel ensuring adherence to national and international grid codes and personnel from national regulatory institutions and energy ministries.

Course Outline

- *Introduction to Service Quality.*
- *Power Quality Standards.*
- *Voltage Characteristics.*
- *Supply Reliability Indices.*
- *Measurement & Monitoring.*
- *Regulatory Compliance & Enforcement.*

Course Duration

5 Days

Number of Participants

8 Minimum and 16 Maximum

Course Prerequisites

A basic understanding of power electrical theory and familiarity with generation, transmission, and distribution grid architectures.

Training Methodology

The training methodology combines lectures, discussions, practical activities.

Course Materials

A set of soft copy notes will be provided.

Course Certification

An APUA/ANCEE and Centre of Excellence Certified Certificate of Competence/Attendance will be awarded on successful completion of the course.



NETWORK MANAGEMENT, NETWORK CODING AND THIRD-PARTY ACCESS TO THE NETWORK

Course Description and Objectives

This course trains participants to monitor, optimize, and secure modern distributed architectures. It bridges the gap between foundational network administration and advanced data routing, teaching you how to securely expose network services to external applications.

Who should attend

Network Engineers, Cybersecurity Analysts and IT Managers responsible for network policies and secure vendor access and other suitably qualified personnel.

Course Outline

- *Network Management Foundations, Monitoring and Protocols.*
- *Configuration Management & Automation.*
- *Network Coding Principles and Coding Schemes.*
- *Fundamentals of Data Routing.*
- *Third-Party Access & Security.*
- *Identity & Access Management (IAM).*
- *API Security & Rate Limiting.*
- *Compliance & Data Privacy.*

Course Duration

5 Days

Number of Participants

8 Minimum and 16 Maximum

Course Prerequisites

Basic experience managing routing and switching hardware and fundamental understanding of scripts or coding.

Training Methodology

The training methodology combines discussions, lectures, group exercises and practicals and simulations.

Course Materials

A set of soft copy notes will be provided.

Course Certification

An APUA/ANCEE and Centre of Excellence Certified Certificate of Competence/Attendance will be awarded on successful completion of the course.



GENERAL ELECTRICITY INTERCONNECTIONS EXCHANGE CONTRACTS

Course Description and Objectives

The General Electricity Interconnections Exchange Contracts course provides a comprehensive framework for planning cross-border power grids, navigating regulatory barriers, and drafting power exchange agreements (e.g., PPAs, wheeling agreements). It equips participants to structure contracts, manage capacity allocations, and handle pricing, liability, and dispute resolution across interconnected utility systems.

Who should attend

This training is highly specialized and designed for participants involved in commercial power trading and grid management including Grid operators, utility managers, and transmission system operators (TSOs), Energy lawyers, corporate counsel, and regulatory authority personnel, Government energy officials, public policy advisors, and other suitably qualified personnel.

Course Outline

- *Fundamentals of Grid Interconnection.*
- *Regulatory & Policy Frameworks.*
- *Types of Interconnection & Exchange Contracts:*
- *Power Purchase Agreements (PPAs) and Wheeling Agreements.*
- *Capacity allocation and congestion management mechanisms. [1]*

- *Key Commercial & Contractual Clauses.*
- *Risk Allocation & Liability.*
- *Case Studies:*

Course Duration

3 Days

Number of Participants

8 Minimum and 16 Maximum

Course Prerequisites

Industrial experience of work in the energy, power, or utility sectors, an understanding of basic power system concepts, familiarity with deregulated vs. regulated electricity markets and basic pricing mechanisms and a general awareness of commercial contracts and standard power purchase agreements.

Training Methodology

Participants will gain both theoretical and practical knowledge of the topics.

Course Materials

A set of soft copy notes will be provided.

Course Certification

An APUA/ANCEE and Centre of Excellence Certified Certificate of Competence/Attendance will be awarded on successful completion of the course.



ELECTRICITY NETWORK OPERATOR CONCESSION CONTRACTS

Course Description and Objectives

This training course equips participants with the specialized skills to design, negotiate, and manage public-private partnership (PPP) and concession agreements for power transmission and distribution. It focuses on risk allocation, tariff setting, and performance monitoring.

Who should attend

This training is tailored for mid-to-senior level professionals involved in the commercial, legal, and operational sides of the energy sector, including contract managers handling energy portfolios, energy lawyers and legal counsel specializing in infrastructure and PPPs, power utility executives and directors overseeing network operations, and Government Officials and regulators drafting, evaluating, and enforcing concession agreements.

Course Outline

- *Foundations of Network Concessions.*
- *Structuring the Concession Agreement.*
- *Economics, Tariffs, & Financing.*
- *Risk Management & Contract Execution.*

Course Duration

5 Days

Number of Participants

8 Minimum and 16 Maximum

Course Prerequisites

Basic working experience in contract administration, procurement, or commercial management within the energy or power utility sector, familiarity with basic energy industry terminology, public utility models, and standard project finance concepts and foundational awareness of standard contract structures (like BOT, BOOT, or O&M contracts).

Training Methodology

The training methodology combines lectures, discussions, group exercises which will make up for 30% and practical lessons and simulations which will make for 70%.

Course Materials

A set of soft copy notes will be provided.

Course Certification

An APUA/ANCEE and Centre of Excellence Certified Certificate of Competence/Attendance will be awarded on successful completion of the course.



12

PUBLIC PRIVATE PARTNERSHIPS IN THE ENERGY SECTOR

Course Description and Objectives

A Public-Private Partnerships (PPP) in the Energy Sector course equips professionals with the frameworks, financial models, and risk allocation strategies needed to develop and manage clean energy and infrastructure projects. It explores how governments and private entities collaborate to achieve public energy targets.

Who should attend

The course is designed for professionals from both the public and private sectors who are involved in the planning, financing, or execution of energy infrastructure.

Course Outline

- *PPP & Energy Fundamentals.*
- *Project Identification & Pre-feasibility.*
- *Risk Allocation & Management.*
- *Project Structuring & Financing.*
- *Procurement & Contract Management.*
- *Case Studies & Best Practices.*

Course Duration

5 Days

Number of Participants

8 Minimum and 16 Maximum

Course Prerequisites

Foundational knowledge of corporate or project finance terminology, a general understanding of energy markets, utility operations, or infrastructure development and basic familiarity with contracts and tendering processes.

Training Methodology

The training methodology combines lectures, discussions, group exercises which will make up for 30% and practical lessons and simulations which will make for 70%.

Course Materials

A set of soft copy notes will be provided.

Course Certification

An APUA/ANCEE and Centre of Excellence Certified Certificate of Competence/Attendance will be awarded on successful completion of the course.



PRICING METHODOLOGY IN ELECTRICITY

Course Description and Objectives

The Pricing Methodology in Electricity course equips energy participants with the regulatory, engineering, and financial tools to calculate, allocate, and regulate electricity tariffs. The course content spans cost-of-service studies, revenue requirement determinations, and dynamic rate design frameworks to ensure pricing recovers costs while promoting market efficiency.

Who should attend

This training is primarily tailored for professionals involved in the regulated and unregulated energy sectors and other suitably qualified personnel.

Course Outline

- *Fundamentals of Power Sector Economics.*
- *Cost-of-Service (COS) Methodologies.*
- *Functionalization.*
- *Classification.*
- *Allocation.*
- *Tariff Design and Rate Structures.*
- *Mathematics of Rates and Billing.*

Course Duration

4 Days

Number of Participants

8 Minimum and 16 Maximum

Course Prerequisites

Basic understanding of supply and demand curves, marginal costs, and market failures, familiarity with financial statements, return on investment, and capital depreciation, basic comprehension of power systems and some working knowledge of spreadsheets for practical cost allocation and tariff modeling exercises.

Training Methodology

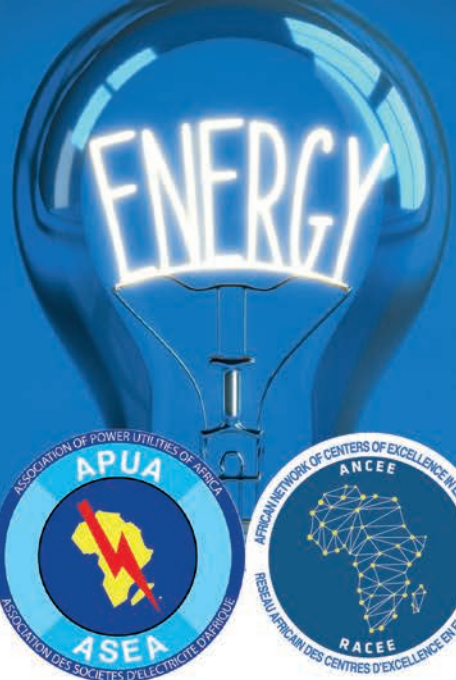
Instructor-led lectures, Case studies and real-life examples, Practical exercises/simulations.

Course Materials

A set of soft copy notes will be provided.

Course Certification

An APUA/ANCEE and Centre of Excellence Certified Certificate of Competence/Attendance will be awarded on successful completion of the course.



14

PRICING METHODOLOGY IN ELECTRICITY: INTRODUCTION TO LOAD FLOW

Course Description and Objectives

This course bridges steady-state electrical engineering with electricity economics, teaching how power grid physics (load flow) dictate wholesale power costs, transmission tariffs, and market structures. It covers essential pricing models—such as Locational Marginal Pricing (LMP)—used to optimize system operations, manage network congestion, and ensure grid reliability.

Who should attend

Power systems and electrical engineers, energy analysts, economists, system operators, utility managers, capacity-building personnel, personnel involved in energy trading, rate design, and policy-making and other suitably qualified personnel.

Course Outline

- *Power System Fundamentals.*
- *Load Flow (Power Flow) Analysis.*
- *Optimization Techniques.*
- *Electricity Pricing Methodologies:*
- *Cost-of-Service regulation vs. Market-based pricing,*
- *Locational Marginal Pricing (LMP) and congestion management,*
- *Pricing of Ancillary Services (e.g., spinning reserves, voltage support).*
- *Case Studies & Simulations:*

Course Duration

5 Days

Number of Participants

8 Minimum and 16 Maximum

Course Prerequisites

A bachelor's degree in electrical engineering, economics, or equivalent industry experience.

Training Methodology

Instructor-led lectures, Case studies and real-life examples, Practical exercises/simulations

Course Materials

A set of soft copy notes will be provided.

Course Certification

An APUA/ANCEE and Centre of Excellence Certified Certificate of Competence/Attendance will be awarded on successful completion of the course.



ROLE AND OPERATION OF AN ELECTRICITY MARKET OBSERVATORY

Course Description and Objectives

An Electricity Market Observatory course equips energy professionals with the skills to track, analyze, and forecast regulatory impacts, infrastructure investments, and pricing dynamics within the power sector. It provides the essential data-driven insights needed to navigate the complex shift toward decentralized and renewable energy systems.

Who should attend

Energy Regulators and Policymakers from government energy ministries or national regulatory authorities, professionals assessing market trends, forecasting supply/demand, or evaluating power purchase agreements (PPAs), Transmission System Operators (TSOs) and Distribution System Operators (DSOs) managing grid integration and other suitably qualified personnel.

Course Outline

- *Asset Management Strategies.*
- *Operational Best Practices.*
- *Maintenance of Plant Equipment.*
- *Civil Structure Inspection.*
- *Condition Monitoring & Diagnosis.*
- *Work Management.*
- *Environmental & Safety Standards.*

Course Duration

5 Days

Number of Participants

8 Minimum and 16 Maximum

Course Prerequisites

A foundational degree in Economics, Engineering, Statistics, or Public Policy, a basic understanding of microeconomics and basic familiarity with energy sector terminology

Training Methodology

Instructor-led lectures, Case studies and real-life examples, Practical exercises/simulations.

Course Materials

A set of soft copy notes will be provided.

Course Certification

An APUA/ANCEE and Centre of Excellence Certified Certificate of Competence/Attendance will be awarded on successful completion of the course.



REGULATION OF COMPETITION IN ELECTRICITY

Course Description and Objectives

The Regulation of Competition in Electricity course equips energy professionals with the economic and legal skills to balance free-market competition and structural regulations. It explores market power monitoring, unbundling of services, antitrust practices and pricing policies.

Who should attend

Personnel from National Regulatory Authorities (NRAs), personnel at Transmission System Operators (TSOs) and Distribution System Operators (DSOs), personnel from Power Generation utilities and other suitably qualified personnel.

Course Outline

- *Fundamentals of Energy Economics.*
- *Wholesale & Retail Market Design.*
- *Network Regulation & Access.*
- *Competition Policy vs. Regulation.*
- *The Energy Transition.*

Course Duration

5 Days

Number of Participants

8 Minimum and 16 Maximum

Course Prerequisites

Basic principles of microeconomics, foundational concepts in Industrial Organization or regulatory theory and a general understanding of how the energy sector/utility market operates.

Training Methodology

Instructor-led lectures, Case studies and real-life examples, Practical exercises/simulations.

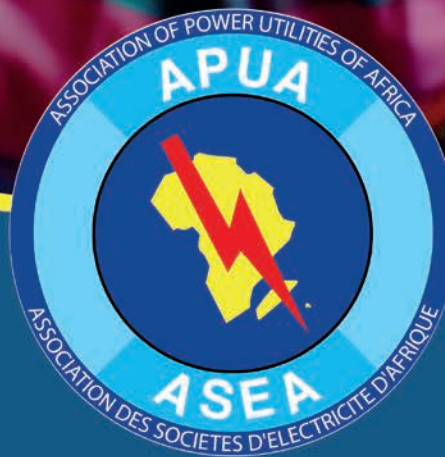
Course Materials

A set of soft copy notes will be provided.

Course Certification

An APUA/ANCEE and Centre of Excellence Certified Certificate of Competence/Attendance will be awarded on successful completion of the course.

CATALOGUE 2026



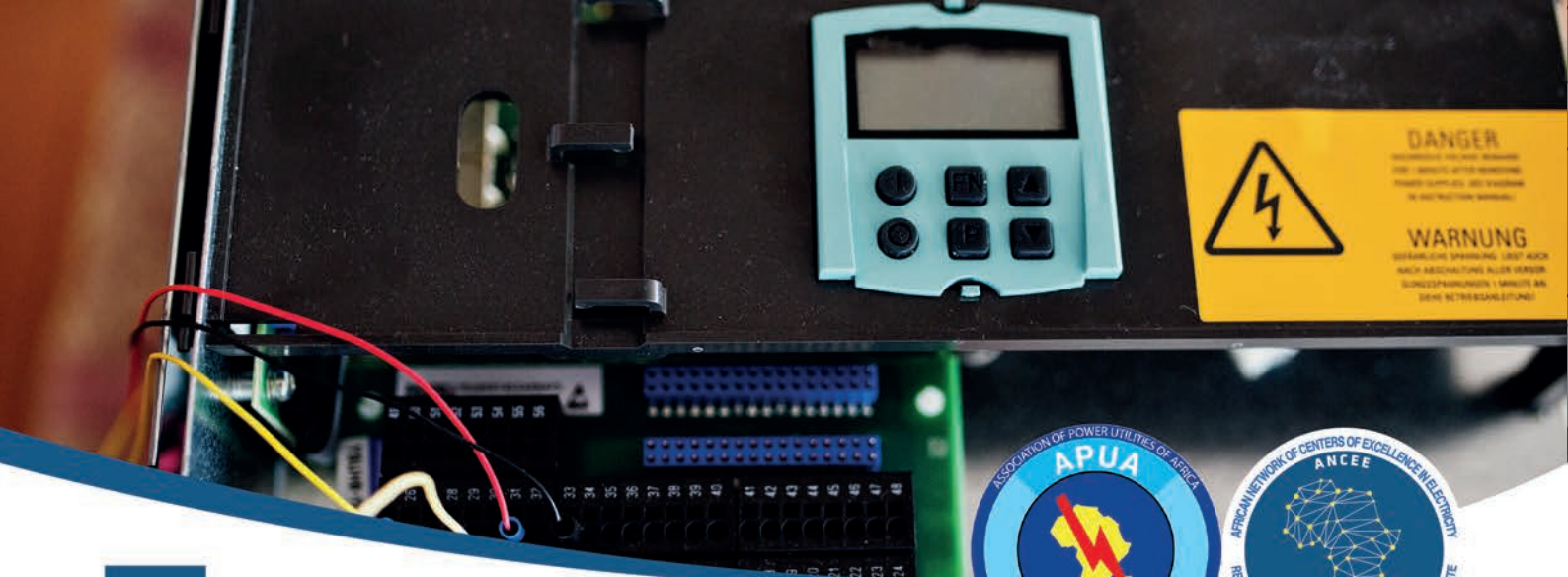
PROTECTION, TELECOMS, METERING AND DIGITIZATION





INTRODUCTION TO PROTECTION, TELECOMS, METERING AND DIGITIZATION COURSES

This category of courses outlines key training areas in the modernization of electrical systems, covering protection, telecom, metering, and digitalization. These courses are essential for utility personnel aiming to understand how traditional power systems are transforming into smart grids. The courses in this category represents the areas in the Electricity Power System that will equip the participants with skills to manage current and next-generation electrical power systems and innovations that are shaping the power generation, transmission and distribution systems and will cover topics ranging from Smart Metering Architecture, Cybersecurity, Smart Grid Systems and Power Line Communications.



01

DIRECT CURRENT AND AUXILIARY SUPPLIES

Course Description and Objectives

The Direct Current (DC) and Auxiliary Supplies course provides comprehensive training on the design, operation, and maintenance of DC power systems used in industrial, utility, and telecommunication environments. It covers battery systems, rectifiers, chargers, and DC distribution boards essential for critical power supply, especially during AC power failures.

Who should attend

Electrical Maintenance Technicians and Inspectors, Substation Engineers and Utility Personnel, Power Plant Operators, Project Engineers responsible for critical infrastructure and other suitably qualified personnel.

Course Outline

- *DC Fundamentals.*
- *DC Power System Components.*
- *Auxiliary Power Systems.*
- *System Sizing and Design.*
- *Protection and Safety.*
- *Maintenance and Troubleshooting.*
- *Voltage Regulation & Distribution.*

Course Duration

15 Days

Number of Participants

8 Minimum and 16 Maximum

Course Prerequisites

A fundamental understanding of electrical concepts, experience in a technical role involving electrical power or control systems and the ability to read and interpret electrical schematics.

Training Methodology

The training methodology combines lectures, discussions, group exercises and illustrations. Participants will gain both theoretical and practical knowledge of the topics.

Course Materials

A set of soft copy notes will be provided.

Course Certification

The training methodology combines lectures, discussions, group exercises and illustrations. Participants will gain both theoretical and practical knowledge of the topics..



METERING AND MEASUREMENTS

Course Description and Objectives

This Metering and Measurements course provides in-depth knowledge of meter technology, and calibration methods to ensure accurate measurement, reduce losses, and comply with international standards. The course will provide the participants the necessary theory and practical knowledge to be able to effectively perform all tasks in a metering department.

Who should attend

Electrical and Mechanical Engineers in Instrumentation, Process, Production, Control, Technicians in Maintenance, Instrumentation, and other suitably qualified personnel.

Course Outline

- *Fundamentals of Measurement.*
- *Flow Metering Technologies (Primary Devices).*
- *Secondary Instrumentation and Sampling.*
- *Proving and Calibration.*
- *Flow Computers and System Design.*

Course Duration

10 Days

Number of Participants

8 Minimum and 16 Maximum

Course Prerequisites

A general understanding of process engineering, instrumentation fundamentals.

Training Methodology

The training methodology combines lectures, discussions, group exercises and illustrations. Participants will gain both theoretical and practical knowledge of the topics.

Course Materials

A set of soft copy notes will be provided.

Course Certification

An APUA/ANCEE and Centre of Excellence Certified Certificate of Competence/Attendance will be awarded on successful completion of the course.



03

PROTECTION AND AUTOMATION

Course Description and Objectives

This Protection and Automation course will provide technical participants with the skills to design, configure, and maintain modern power system protection schemes, intelligent electronic devices (IEDs), and substation automation systems within the MV/HV power system.

Who should attend

Electrical/Protection Engineers involved in design, maintenance, or commissioning, Substation Engineers & Technicians responsible for automation and monitoring, Control Systems Personnel working with SCADA and RTUs, and System Operators involved in power generation and transmission.

Course Outline

- *Fundamentals of Power System Protection.*
- *Equipment Protection Strategies.*
- *Numerical Relays and IEDs.*
- *Substation Automation and Communication.*
- *Hands-on Training/Simulation.*

Course Duration

15 Days

Number of Participants

8 Minimum and 16 Maximum

Course Prerequisites

A Bachelor of Engineering degree or equivalent technical qualification in electrical engineering, basic understanding of protection philosophies and protective relaying, or previous experience in electrical maintenance and familiarity with microprocessor relays and substation automation concepts.

Training Methodology

The training methodology combines both theoretical and practical knowledge of the topics. The emphasis is on the practical application of the topics.

Course Materials

A set of soft copy notes will be provided.

Course Certification

An APUA/ANCEE and Centre of Excellence Certified Certificate of Competence/Attendance will be awarded on successful completion of the course.



04

OUTAGE MANAGEMENT

Course Description and Objectives

This Outage Management System (OMS) or Shutdown, Turnaround, and Outage (STO) Management course typically focuses on maximizing efficiency, safety, and reliability during power disruptions or industrial maintenance.

Who should attend

Maintenance, Planning, Reliability and cost and Project Control Engineers, Plant, Turnaround, and Reliability Managers, Operations Personnel in Control Rooms and Dispatching, and personnel in Support Roles of Safety (HSE), Procurement, and Material Co-ordinating.

Course Outline

- *Foundations of OMS (Outage Management Systems).*
- *Outage Detection and Prediction.*
- *Crew Management and Optimization.*
- *Communication and Reporting.*
- *Practical Application and Integration*
- *Strategy and Planning of STO (Shutdown, Turnaround and Outage).*
- *STO Scheduling and Control, STO Execution and Monitoring, STO Post-Outage Evaluation*

Course Duration

10 Days

Number of Participants

8 Minimum and 16 Maximum

Course Prerequisites

A background in maintenance, operations, or engineering within process industries (power, chemical, mining), anticipated involvement in shutdown, turnaround, or outage projects and some basic knowledge of Computerized Maintenance Management Systems (CMMS) or project management software.

Training Methodology

The training methodology combines lectures, discussions, group exercises and practicals.

Course Materials

A set of soft copy notes will be provided.

Course Certification

An APUA/ANCEE and Centre of Excellence Certified Certificate of Competence/Attendance will be awarded on successful completion of the course.



05

POWER SYSTEM PROTECTION

Course Description and Objectives

The Power System Protection course aims to provide an overview of the principles and schemes for protecting power lines, transformers, buses, and generators. The course provides basic guidelines for relay protection and setting calculation. It also reviews power system faults and instrument transformers. It will facilitate to get skills for calculating settings and testing of protection operation conditions.

Who should attend

Engineers & Technical Staff, Climate risk analysts, environmental officers, Project Developers & Managers for renewable energy (wind, solar, hydro), risk managers, credit analysts, and insurance specialists in the energy sector and other suitably qualified personnel..

Course Outline

- *Fundamentals of Power System Protection*
- *Current and Voltage Transformers*
- *Protection Relays, Protection Coordination, Circuit Breakers*
- *DC-Supply and Chargers*
- *Generator Protection, Transformer Protection, Line Protection, Busbar Protection.*

Course Duration

5 Days

Number of Participants

8 Minimum and 16 Maximum

Course Prerequisites

A bachelor's degree or diploma in Electrical Engineering, some industrial experience in power systems, a good understanding of electrical circuits, power system fundamentals, and basic fault analysis.

Training Methodology

The training methodology combines lectures, group exercises and hands on practical application of the topics.

Course Materials

A set of soft copy notes will be provided.

Course Certification

An APUA/ANCEE and Centre of Excellence Certified Certificate of Competence/Attendance will be awarded on successful completion of the course.



06

HIGH VOLTAGE SUBSTATION PROTECTION AND CONTROL

Course Description and Objectives

The course provides basic guidelines for relay protection and setting calculation. It also reviews power system faults and instrument transformers. It also briefly provides introduction to communication within digital substations.

Who should attend

Participants' profile or target group are engineers, technicians, and any suitably qualified personnel requiring an understanding of power system protection and control.

Course Outline

- *Introduction to Protection Systems*
- *Protection schemes*
- *Fault Types and Fault Level Calculations*
- *Current and Voltage Transformers*
- *Protection Relays, Protection Coordination*
- *Circuit Breakers, DC-Supply and Chargers*
- *Power Transformer Protection, Line Protection, Busbar Protection*
- *Inter-tripping*
- *Application of Supervisory Control and Data Acquisition (SCADA).*

Course Duration

20 Days

Number of Participants

8 Minimum and 16 Maximum

Course Prerequisites

A degree in Electrical Engineering or equivalent experience, familiarity with AC/DC circuit theory and power system analysis, basic knowledge of electrical drawings.

Training Methodology

The training methodology combines lectures, discussions, group exercises and illustrations. Participants will gain both theoretical and practical knowledge of the topics.

Course Materials

A set of soft copy notes will be provided.

Course Certification

An APUA/ANCEE and Centre of Excellence Certified Certificate of Competence/Attendance will be awarded on successful completion of the course.



METERING SOLUTIONS TECHNOLOGY AND INSTALLATIONS

Course Description and Objectives

The MSTI course has been designed to prepare personnel involved in metering installation and management. The course is expected to streamline and technically enhance both theoretical knowledge and practical skills of target trainees in metering technology.

Who should attend

Participants' profile or target group are Technicians, Technologists, Engineers, and other suitably qualified personnel involved in metering installation and management.

Course Outline

- *Introduction to Metering*
- *The Prepayment Metering System Architecture*
- *Metrology*
- *Three Phase Smart Post-Paid and Three Phase Hybrid (Both Post and Prepaid)*
- *Auxiliary Metering Equipment*
- *Power and Energy Measurements*
- *Meter Installations, Commissioning and Safety Precautions*
- *Metering Maintenance and Energy Audits (Revenue Protection)*
-

Course Duration

10 Days

Number of Participants

8 Minimum and 16 Maximum

Course Prerequisites

Technician qualification in electrical, basic knowledge of electrical principles or prior experience in meter reading or installation, familiarity with electrical wiring, safe isolation procedures, and hand tools.

Training Methodology

The training methodology combines lectures, discussions, group exercises and illustrations. .

Course Materials

A set of soft copy notes will be provided.

Course Certification

An APUA/ANCEE and Centre of Excellence Certified Certificate of Competence/Attendance will be awarded on successful completion of the course.



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POWER QUALITY AND SYSTEM STABILITY

Course Description and Objectives

The Power Quality and System Stability course provides comprehensive training on maintaining a stable, reliable, and high-quality electrical grid. It covers the analysis of power system dynamics, voltage/frequency control, and mitigation of disturbances, particularly with the integration of renewable energy sources.

Who should attend

Participants' profile or target group are Managers, engineers, technicians or any suitably qualified personnel involved in power quality, power system stability and grid operation.

Course Outline

- *Fundamentals of Power Quality and Stability.*
- *Power System Modeling and Analysis.*
- *Transient (Angle) Stability*
- *Small-Signal (Small-Perturbation) Stability.*
- *Voltage and Frequency Stability.*
- *Power Quality Disturbances and Mitigation.*
- *Modern Grid Challenges.*
- *Practical Applications and Simulation*
- *Hands-on simulation tools: DigSILENT PowerFactory, MATLAB/Simulink, ETAP, PSS/E.*

Course Duration

10 Days

Number of Participants

8 Minimum and 16 Maximum

Course Prerequisites

A Bachelor's degree in Electrical Engineering or related field, understanding of load flow analysis and synchronous machine basics and some basic knowledge of simulation software.

Training Methodology

The training methodology combines lectures, discussions, group exercises and illustrations

Course Materials

A set of soft copy notes will be provided.

Course Certification

An APUA/ANCEE and Centre of Excellence Certified Certificate of Competence/Attendance will be awarded on successful completion of the course.



DIGITAL METERING SYSTEM IN DISTRIBUTION NETWORKS

Course Description and Objectives

The Digital Metering System in Distribution Networks course covers the technological, operational, and regulatory aspects of transitioning from manual to digital energy measurement. This course focus on enhancing grid efficiency, reducing technical losses, and enabling two-way communication.

Who should attend

Utility personnel involved in distribution, including engineers, operators, project managers handling metering infrastructure deployment, and regulatory compliance personnel.

Course Outline

- *Fundamentals: Smart grid transition, AMI vs. AMR, and system architectures.*
- *Technology & Components: Meter hardware, DSP, communication protocols (ZigBee, PLC, NB-IoT), and Data Collection Units.*
- *Data & Operations: Meter Data Management Systems (MDMS), load profiling, and billing integration.*
- *Security & Regulatory.*

Course Duration

3 Days

Number of Participants

8 Minimum and 16 Maximum

Course Prerequisites

A background in electrical engineering (or equivalent experience) and basic knowledge of distribution systems.

Training Methodology

The training methodology combines lectures, discussions, group exercises and illustrations.

Course Materials

A set of soft copy notes will be provided.

Course Certification

An APUA/ANCEE and Centre of Excellence Certified Certificate of Competence/Attendance will be awarded on successful completion of the course.



CONTROL AND COMMAND SYSTEM FOR DISTRIBUTION AND TRANSMISSION NETWORKS

Course Description and Objectives

The Control and Command System for Distribution and Transmission Networks training course focuses on the automation, monitoring, and management of electrical power networks. Key technologies covered include SCADA (Supervisory Control and Data Acquisition), Intelligent Electronic Devices (IEDs), and communication protocols such as IEC 61850.

Who should attend

Electrical and Power Systems Engineers, Substation Engineers and Technicians, SCADA and Automation Specialists, Grid Planners, System Operators and Dispatchers.

Course Outline

- *Fundamentals of Power Systems.*
- *Substation Automation and Control.*
- *SCADA Systems and Monitoring.*
- *Communication Protocols.*
- *Grid Protection and Stability.*
- *Smart Grids and Future Trends.*
- *Practical Applications.*

Course Duration

5 Days

Number of Participants

8 Minimum and 16 Maximum

Course Prerequisites

A degree in electrical engineering or equivalent practical experience, basic knowledge of power system protection and power systems, familiarity with three-phase AC circuits and medium/high-voltage systems.

Training Methodology

The training methodology combines lectures, discussions, group exercises and illustrations.

Course Materials

A set of soft copy notes will be provided.

Course Certification

An APUA/ANCEE and Centre of Excellence Certified Certificate of Competence/Attendance will be awarded on successful completion of the course.



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METERING SYSTEM IN TRANSMISSION NETWORKS

Course Description and Objectives

A specialized course on Metering Systems in Transmission Networks focuses on the high-precision measurement, communication, and settlement of energy at the bulk transmission level. The course avails participants with skills to provide accurate energy billing, revenue protection, and efficient grid operation.

Who should attend

Metering Engineers and Technicians responsible for installing and calibrating high-precision meters, Protection and Control Engineers, Substation Managers and Maintenance Teams, Transmission System Operators (TSOs) and Grid System Operators.

Course Outline

- *Fundamentals of Transmission Metering.*
- *Technical Specifications & Standards.*
- *Meter Communication & Data Management*
- *Commissioning, Testing, and Maintenance.*
- *Regulatory Compliance & Revenue Protection*
-

Course Duration

5 Days

Number of Participants

8 Minimum and 16 Maximum

Course Prerequisites

A degree or diploma in Electrical Engineering, or equivalent experience, basic understanding of electrical energy, transmission lines, and high-voltage grid components, familiarity with protection systems.

Training Methodology

The training methodology combines lectures, discussions, group exercises and illustrations.

Course Materials

A set of soft copy notes will be provided.

Course Certification

An APUA/ANCEE and Centre of Excellence Certified Certificate of Competence/Attendance will be awarded on successful completion of the course.



IMPACT OF RENEWABLE ENERGY ON THE DISTRIBUTION NETWORK PROTECTION

Course Description and Objectives

This specialized course on the Impact of Renewable Energy on the Distribution Network Protection Plan addresses the technical challenges introduced by inverter-based resources (IBRs) such as solar PV and wind, which shift distribution networks from radial (single-source) to multi-directional (multi-source) systems.

Who should attend

Protection engineers, T&D engineers, planners and other suitably qualified personnel.

Course Outline

- *Fundamentals of Distributed Generation (DG).*
- *Challenges to Traditional Protection, Blinding of Protection.*
- *Nuisance Tripping.*
- *Bidirectional Power Flow.*
- *Short Circuit Level Changes.*
- *Impact of Inverter-Based Resources (IBRs).*
- *Protection Mitigation Strategies.*
- *Grid Codes and Standards.*
- *Simulation & Case Studies.*

Course Duration

5 Days

Number of Participants

8 Minimum and 16 Maximum

Course Prerequisites

A Bachelor's degree in Electrical Engineering or related field, understanding of load flow analysis, power system protection, synchronous machine basics and some basic knowledge of simulation software.

Training Methodology

The training methodology combines lectures, discussions, group exercises and illustrations.

Course Materials

A set of soft copy notes will be provided.

Course Certification

An APUA/ANCEE and Centre of Excellence Certified Certificate of Competence/Attendance will be awarded on successful completion of the course.



INTRODUCTION TO SMART GRIDS AND DIGITIZATION OF ELECTRICAL NETWORKS

Course Description and Objectives

This course provides a comprehensive overview of the modernization of electrical grids, focusing on the integration of digital technologies, renewable energy, and communication infrastructure. It covers the transition from traditional, one-way power systems to intelligent, two-way, and automated networks.

Who should attend

Electrical engineers, power systems engineers, electronic engineers, and automation engineers, ICT professionals, IoT specialists, data scientists working on energy projects and other suitably qualified personnel.

Course Outline

- *Fundamentals of Smart Grids.*
- *Smart Grid Architecture & Infrastructure.*
- *Communication Technologies.*
- *Distributed Energy Resources (DERs).*
- *Digitalization and Smart Metering.*
- *Grid Automation and Control.*
- *Data Analytics and AI, Cyber Security and Reliability.*
- *Future Trends and Policies.*

Course Duration

2 Days

Number of Participants

8 Minimum and 16 Maximum

Course Prerequisites

A bachelor's degree in Electrical Engineering, Electronics Engineering, or a related field, a basic understanding of power system fundamentals and power electronics.

Training Methodology

The training methodology combines lectures, discussions, group exercises and illustrations.

Course Materials

A set of soft copy notes will be provided.

Course Certification

An APUA/ANCEE and Centre of Excellence Certified Certificate of Competence/Attendance will be awarded on successful completion of the course.



MASTERING THE IEC 61850 COMMUNICATION PROTOCOL

Course Description and Objectives

The Mastering the IEC 61850 communication protocol course is essential for modernizing power systems. The course focuses on applying the standard in real-world substation automation, including data modeling, GOOSE messaging, and system configuration.

Who should attend

Protection and Control Engineers, Substation Automation Engineers, SCADA Personnel and Engineers, Utility System Integration Engineers and other suitably qualified personnel.

Course Outline

- *Introduction to IEC 61850 Basics.*
- *Substation Data Modeling.*
- *Communication Architecture & Services.*
- *Substation Configuration Language (SCL).*
- *System Design & Engineering.*
- *Network Requirements.*
- *Testing & Troubleshooting.*
- *Cybersecurity in Digital Substation.*

Course Duration

5 Days

Number of Participants

8 Minimum and 16 Maximum

Course Prerequisites

A fundamental understanding of power systems and substation automation, basic knowledge of Ethernet networking and serial communication, familiarity with standard SCADA protocols

Training Methodology

The training methodology combines lectures, discussions, group exercises and illustrations.

Course Materials

A set of soft copy notes will be provided.

Course Certification

An APUA/ANCEE and Centre of Excellence Certified Certificate of Competence/Attendance will be awarded on successful completion of the course.



SMART GRID STORAGE MANAGEMENT SYSTEMS

Course Description and Objectives

This course on Smart Grid Storage Management Systems focuses on integrating energy storage technologies (batteries, hydrogen, thermal) with intelligent grid infrastructure to improve reliability, flexibility, and renewable energy adoption.

Who should attend

Electrical, Power Systems, Renewable Energy, Mechanical, and Control engineers, Grid operators, planning engineers and other suitably qualified personnel.

Course Outline

- *Introduction to Smart Grid & Energy Storage.*
- *Battery Energy Storage Systems (BESS).*
- *Grid Integration & Control.*
- *Management Systems & Technology.*
- *Economics, Policy, and Safety.*

Course Duration

10 Days

Number of Participants

8 Minimum and 16 Maximum

Course Prerequisites

A Bachelor's degree or diploma in Electrical/Electronics Engineering, Mechanical Engineering, Computer Science, or a related technical discipline, fundamental understanding of electrical power systems, power electronics, or basic control theory.

Training Methodology

The training methodology combines lectures, discussions, group exercises and illustrations.

Course Materials

A set of soft copy notes will be provided.

Course Certification

An APUA/ANCEE and Centre of Excellence Certified Certificate of Competence/Attendance will be awarded on successful completion of the course.



SMART GRID ENERGY MANAGEMENT SYSTEM

Course Description and Objectives

A Smart Grid Energy Management System (SGEMS) course is designed to equip participants with the knowledge to modernize electricity networks using digital technology, integrating renewable energy and optimizing efficiency. The course focuses partly on the two-way flow of electricity and information, covering infrastructure from generation to Distribution to the customer.

Who should attend

Electrical and Power Systems Engineers, Utility and Grid Operators, Engineers in Renewable Energy and other suitably qualified personnel.

Course Outline

- *Introduction to Smart Grids & Digital Energy.*
- *Renewable Energy & Distributed Generation (DER).*
- *Smart Metering & Communication Networks.*
- *Energy Management Systems (EMS) & Automation.*
- *Grid Operations & Reliability.*
- *Cybersecurity & Data Analytics.*
-

Course Duration

5 Days

Number of Participants

8 Minimum and 16 Maximum

Course Prerequisites

A bachelor's degree or diploma in Electrical Engineering, Electronics Engineering, or a related field, fundamental understanding of electrical systems, power generation, and distribution.

Training Methodology

The training methodology combines lectures, discussions, group exercises and illustrations.

Course Materials

A set of soft copy notes will be provided.

Course Certification

An APUA/ANCEE and Centre of Excellence Certified Certificate of Competence/Attendance will be awarded on successful completion of the course.



SMART GRID ADVANCED METERING INFRASTRUCTURE AND METER DATA MANAGEMENT

Course Description and Objectives

A specialized course on Metering Systems in Transmission Networks focuses on the high-precision measurement, communication, and settlement of energy at the bulk transmission level. The course avails participants with skills to provide accurate energy billing, revenue protection, and efficient grid operation.

Who should attend

Metering Engineers and Technicians responsible for installing and calibrating high-precision meters, Protection and Control Engineers, Substation Managers and Maintenance Teams, Transmission System Operators (TSOs) and Grid System Operators.

Course Outline

- *Fundamentals of Transmission Metering.*
- *Technical Specifications & Standards.*
- *Meter Communication & Data Management*
- *Commissioning, Testing, and Maintenance.*
- *Regulatory Compliance & Revenue Protection*

Course Duration

5 Days

Number of Participants

8 Minimum and 16 Maximum

Course Prerequisites

A degree or diploma in Electrical Engineering, or equivalent experience, basic understanding of electrical energy, transmission lines, and high-voltage grid components, familiarity with protection systems.

Training Methodology

The training methodology combines lectures, discussions, group exercises and illustrations.

Course Materials

A set of soft copy notes will be provided.

Course Certification

An APUA/ANCEE and Centre of Excellence Certified Certificate of Competence/Attendance will be awarded on successful completion of the course.



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INTRODUCTION TO INTELLIGENT NETWORKS AND INTEREST OF SMART GRIDS

Course Description and Objectives

This introductory course provides a comprehensive overview of how digital technology is transforming traditional electrical grids into intelligent, automated, and sustainable systems. It covers the fundamentals of Smart Grid (SG) architecture, renewable energy integration, communication infrastructures, and key components like Advanced Metering Infrastructure (AMI).

Who should attend

Electrical/Power Engineers and Technicians, IT and Communication personnel working in energy systems management, renewable energy personnel focused on grid integration and any other suitably qualified personnel.

Course Outline

- *Introduction to Smart Grids.*
- *Architecture & Components.*
- *Communication Technologies.*
- *Distribution Automation.*
- *Renewable Energy & Storage.*
- *Demand Side Management.*
- *Microgrids & Distributed Generation.*
- *Security and Future Trends.*
-

Course Duration

5 Days

Number of Participants

8 Minimum and 16 Maximum

Course Prerequisites

Basic Electrical Engineering, power system components, circuit theory, a basic understanding of generation, transmission, and distribution of electricity.

Training Methodology

The training methodology combines lectures, discussions, group exercises and illustrations. Participants will gain both theoretical and practical knowledge of the topics.

Course Materials

A set of soft copy notes will be provided.

Course Certification

An APUA/ANCEE and Centre of Excellence Certified Certificate of Competence/Attendance will be awarded on successful completion of the course.



DIGITIZATION OF SMART GRIDS

Course Description and Objectives

The Digitization of Smart Grids course provides in-depth knowledge and practical skills in transforming traditional power networks into intelligent, data-driven systems. It covers the convergence of operational technology (OT) and information technology (IT) to enhance grid resilience, efficiency, and renewable integration.

Who should attend

Electrical and Power Systems Engineers, Grid Operators, Renewable Energy Project Developers, Regulatory Officers and Policymakers, automation Engineers and other suitably qualified personnel.

Course Outline

- *Introduction to Digitization & Smart Grids.*
- *Smart Metering & Communication Infrastructure.*
- *Grid Automation & Control Systems.*
- *Renewable Integration & DER Management.*
- *Data Analytics & Artificial Intelligence.*
- *Cybersecurity & Privacy.*
- *Emerging Trends & Sustainability.*

Course Duration

5 Days

Number of Participants

8 Minimum and 16 Maximum

Course Prerequisites

bachelor's degree or diploma in Electrical Engineering, Computer Science, or a related field, basic understanding of power systems, energy systems, or digital communications.

Training Methodology

The training methodology combines lectures, discussions, group exercises and illustrations. Participants will gain both theoretical and practical knowledge of the topics.

Course Materials

A set of soft copy notes will be provided.

Course Certification

An APUA/ANCEE and Centre of Excellence Certified Certificate of Competence/Attendance will be awarded on successful completion of the course.



ELECTRICAL POWER QUALITY

Course Description and Objectives

The Electrical Power Quality course is designed to provide participants with the knowledge and tools needed to diagnose, measure, and mitigate issues in electrical networks. The course focuses on identifying power disturbances—such as harmonics, sags, swells, and transients—and implementing solutions that comply with international standards.

Who should attend

Electrical Engineers, involved in design and maintenance, utility engineers responsible for distribution and transmission networks and other suitably qualified personnel.

Course Outline

- *Introduction to Power Quality.*
- *Voltage Disturbances.*
- *Harmonics & Distortion.*
- *Transients and Grounding.*
- *Measurement Techniques.*
- *Mitigation Solutions*

Course Duration

5 Days

Number of Participants

8 Minimum and 16 Maximum

Course Prerequisites

Basic understanding of electrical theory and Power Systems and relevant experience in the electrical utility industry.

Training Methodology

The training methodology combines lectures, discussions, group exercises and illustrations. Participants will gain both theoretical and practical knowledge of the topics.

Course Materials

A set of soft copy notes will be provided.

Course Certification

An APUA/ANCEE and Centre of Excellence Certified Certificate of Competence/Attendance will be awarded on successful completion of the course.



OPTIMIZATION OF ELECTRICAL SYSTEMS

Course Description and Objectives

This training focuses on enhancing the efficiency, reliability, and cost-effectiveness of industrial and utility electrical networks. It covers modern technologies like AI, IoT, and renewable energy integration to optimize power delivery from generation to end-users.

Who should attend

Electrical Power System Engineers and Technicians, Plant and Maintenance Engineers and other suitably qualified personnel.

Course Outline

- *Foundations of Power System Optimization.*
- *Network Optimization and Reconfiguration.*
- *Advanced Optimization Techniques.*
- *Smart Grid and Renewable Integration.*
- *Practical Application and Tools.*

Course Duration

10 Days

Number of Participants

8 Minimum and 16 Maximum

Course Prerequisites

A degree or diploma in electrical engineering or related field, basic knowledge of electrical power systems, including generation, transmission, and distribution and some experience with electrical design or simulation software.

Training Methodology

The training methodology combines lectures, discussions, group exercises and illustrations. Participants will gain both theoretical and practical knowledge of the topics.

Course Materials

A set of soft copy notes will be provided.

Course Certification

An APUA/ANCEE and Centre of Excellence Certified Certificate of Competence/Attendance will be awarded on successful completion of the course.



USE OF ELECTRICAL NETWORKS ANALYSER

Course Description and Objectives

The Use of Electrical Networks Analyser training course is designed to equip participants with the skills needed to measure, diagnose, and optimize electrical power systems. This training typically focuses on power quality survey techniques, fault detection, and analyzing network performance.

Who should attend

Electrical Engineers and Technicians, Maintenance and Commissioning Engineers, Power Systems Engineers and other suitably qualified personnel.

Course Outline

- *Fundamentals of Network Analysis.*
- *Power Quality Measurements.*
- *Analyzer Operation & Calibration.*
- *Data Analysis & Troubleshooting.*
- *Practical Applications & Hands-on Training*
- *Case studies of power quality issues.*

Course Duration

5 Days

Number of Participants

8 Minimum and 16 Maximum

Course Prerequisites

Basic understanding of AC/DC circuits, Ohm's law, and Kirchhoff's laws, an electrical or instrumentation qualification and some experience with power systems or industrial electrical equipment.

Training Methodology

The training methodology combines lectures, discussions, group exercises and illustrations. Participants will gain both theoretical and practical knowledge of the topics.

Course Materials

A set of soft copy notes will be provided.

Course Certification

An APUA/ANCEE and Centre of Excellence Certified Certificate of Competence/Attendance will be awarded on successful completion of the course.



INDUSTRIAL MEASUREMENT SENSORS

Course Description and Objectives

This Industrial Measurement Sensors course is designed to provide comprehensive, practical knowledge of how to select, install, calibrate, and maintain sensors and transducers within modern industrial, automation, and manufacturing environments.

Who should attend

Instrumentation and Control Engineers and Technicians, Automation and Mechatronics Engineers, Maintenance and Reliability Engineers, Process and Plant Engineers, Plant Operators and Technical Supervisors, System Integrators and other suitably qualified personnel.

Course Outline

- *Fundamentals.*
- *Pressure & Level.*
- *Temperature Measurement.*
- *Flow Measurement.*
- *Position & Motion.*
- *Signal Conditioning & Data Acquisition.*
- *Calibration & Troubleshooting.*
- *Modern Trends.*

Course Duration

5 Days

Number of Participants

8 Minimum and 16 Maximum

Course Prerequisites

Basic understanding of electrical theory and Power Systems.

Training Methodology

The training methodology combines lectures, discussions, group exercises and illustrations. Participants will gain both theoretical and practical knowledge of the topics.

Course Materials

A set of soft copy notes will be provided.

Course Certification

An APUA/ANCEE and Centre of Excellence Certified Certificate of Competence/Attendance will be awarded on successful completion of the course.



INSTRUMENTATION AND CALIBRATION IN POWER PLANTS

Course Description and Objectives

This Instrumentation and Calibration in Power Plants course is designed to equip technical professionals with the skills needed to install, maintain, and calibrate field instruments that monitor critical parameters like pressure, temperature, flow, and level, ensuring safe and efficient power generation.

Who should attend

Instrumentation and Control Technicians and Engineers, Plant Maintenance Personnel and Mechanics, Power Plant Operators, Electrical, Mechanical, and Chemical Engineers.

Course Outline

- *Fundamentals & Calibration Principles.*
- *Pressure & Differential Pressure Calibration.*
- *Temperature Measurement & Calibration.*
- *Level & Flow Measurement.*
- *Smart Transmitters & HART Protocol.*
- *Control Valves & Final Control Elements.*
- *Troubleshooting and Maintenance..*

Course Duration

5 Days

Number of Participants

8 Minimum and 16 Maximum

Course Prerequisites

A foundational understanding of electricity and process instrumentation principles, familiarity with basic instruments and their functions in a feedback/control loop.

Training Methodology

The training methodology combines lectures, discussions, group exercises and illustrations. Participants will gain both theoretical and practical knowledge of the topics.

Course Materials

A set of soft copy notes will be provided.

Course Certification

An APUA/ANCEE and Centre of Excellence Certified Certificate of Competence/Attendance will be awarded on successful completion of the course.



INDUSTRIAL PROGRAMMABLE AUTOMATES

Course Description and Objectives

The Industrial Programmable Logic Controller (PLC) course is designed to teach the fundamentals and advanced techniques of automation, enabling participants to design, program, troubleshoot, and maintain industrial control systems. The course typically focuses on ladder logic, hardware integration, and industry-standard software.

Who should attend

Line Maintenance Technicians and Linesmen, Field Engineers and Maintenance Planners, Substation/Overhead Line Construction Personnel, Utility Safety Personnel and Supervisors.

Course Outline

- *Introduction to Automation.*
- *PLC Hardware Components.*
- *Ladder Logic Fundamentals.*
- *Advanced Programming.*
- *Data Handling.*
- *Industrial Networks & Communication.*
- *Troubleshooting & Maintenance.*
- *HMI & SCADA Programming.*
- *Industrial Applications.*

Course Duration

15 Days

Number of Participants

8 Minimum and 16 Maximum

Course Prerequisites

Understanding of AC/DC circuits, sensors, and relays, familiarity with Windows-based software for programming software and a diploma or equivalent experience in a technical field.

Training Methodology

The training methodology combines lectures, discussions, group exercises and illustrations. Participants will gain both theoretical and practical knowledge of the topics.

Course Materials

A set of soft copy notes will be provided.

Course Certification

An APUA/ANCEE and Centre of Excellence Certified Certificate of Competence/Attendance will be awarded on successful completion of the course.



MAINTENANCE AND CONTROL OF PROGRAMMABLE AUTOMATES

Course Description and Objectives

The Maintenance and Control of Programmable Automates (PLC/PAC) course is designed to equip industrial personnel with the practical skills needed to maintain, troubleshoot, and optimize automated manufacturing systems. It focuses on bridging the gap between theoretical PLC knowledge and practical, hands-on troubleshooting of hardware, software, and I/O devices to maximize system uptime.

Who should attend

Maintenance Technicians & Electricians, Automation Technicians & Mechatronics Technicians, Plant Engineers & Maintenance Supervisors and other suitably qualified personnel.

Course Outline

- *PLC Fundamentals.*
- *Hardware Setup & Wiring.*
- *Programming Basics.*
- *Intermediate Programming.*
- *Troubleshooting & Maintenance.*
- *Industrial Networking.*
-

Course Duration

10 Days

Number of Participants

8 Minimum and 16 Maximum

Course Prerequisites

Basic knowledge of AC/DC circuits, motors, and electrical schematics.

Training Methodology

The training methodology combines lectures, discussions, group exercises and illustrations. Participants will gain both theoretical and practical knowledge of the topics

Course Materials

A set of soft copy notes will be provided.

Course Certification

An APUA/ANCEE and Centre of Excellence Certified Certificate of Competence/Attendance will be awarded on successful completion of the course.



INDUSTRIAL AUTOMATION

Course Description and Objectives

This Industrial Automation course provides comprehensive training on the design, programming, and maintenance of automated systems in manufacturing and process industries, focusing on technologies like PLCs, SCADA, and robotics. It bridges the gap between theoretical electrical/mechanical knowledge and practical, hands-on industry application.

Who should attend

Engineers and Technicians in Electrical, Electronics, Mechanical, Instrumentation, Robotics, and Control engineers and other suitably qualified personnel.

Course Outline

- *Introduction to Automation.*
- *Field Instrumentation & Sensors.*
- *PLC Programming & Hardware.*
- *HMI & SCADA Systems.*
- *Industrial Networking.*
- *Motor Control & Drives.*
- *Robotics & Motion Control.*
- *Safety & Maintenance.*

Course Duration

5 Days

Number of Participants

8 Minimum and 16 Maximum

Course Prerequisites

A diploma or degree in engineering (electrical, electronics, instrumentation, mechanical, or mechatronics) and basic knowledge of electrical engineering, electronics, and computers.

Training Methodology

The training methodology combines lectures, discussions, group exercises and illustrations. Participants will gain both theoretical and practical knowledge of the topics.

Course Materials

A set of soft copy notes will be provided.

Course Certification

An APUA/ANCEE and Centre of Excellence Certified Certificate of Competence/Attendance will be awarded on successful completion of the course.



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DIGITAL CONTROL OF HTB STATIONS

Course Description and Objectives

This 5-day training on HTB/HTA Substation Architecture and Digital Control focuses on the modernization of High Voltage (HTB) and Medium Voltage (HTA) substations, covering digital control systems, protective relaying, automated, and secure communication protocols. The course emphasizes practical skills for implementing and maintaining digital control systems in power transmission.

Who should attend

Electrical Engineers and Technicians, Substation Maintenance Personnel, Control and Protection Engineers, Power System Operators and other suitably qualified personnel.

Course Outline

- *Introduction to Substation Automation.*
- *Digital Control System Components.*
- *Communication Protocols.*
- *Protection & Control.*
- *Safety & Maintenance.*

Course Duration

10 Days

Number of Participants

8 Minimum and 16 Maximum

Course Prerequisites

Basic understanding of power systems and substation components, knowledge of fundamental control systems or electronics and familiarity with electrical safety standards.

Training Methodology

The training methodology combines lectures, discussions, group exercises and illustrations. Participants will gain both theoretical and practical knowledge of the topics.

Course Materials

A set of soft copy notes will be provided.

Course Certification

An APUA/ANCEE and Centre of Excellence Certified Certificate of Competence/Attendance will be awarded on successful completion of the course.



TECHNOLOGY AND OPERATION IAT AND IATCT

Course Description and Objectives

The Technology and Operation (IAT and IATCT) courses typically refers to Information Assurance Technology (IAT) and equips participants with skills to secure, monitor, and defend corporate information systems and ensures understanding of network protocols, risk management, and system-level security.

Who should attend

IT professionals, system administrators, network engineers, and information security technicians and other suitably qualified personnel.

Course Outline

- *Technical support.*
- *Basic security troubleshooting, operating system security.*
- *Network environment security.*
- *Implementing cybersecurity measures, firewalls, threat identification.*
- *Enclave security.*
- *Advanced network analysis.*
- *Incident response.*
- *Complex risk management.*
-

Course Duration

5 Days

Number of Participants

8 Minimum and 16 Maximum

Course Prerequisites

Fundamental IT knowledge, basic knowledge of IT/Security and cybersecurity.

Training Methodology

The training methodology combines lectures, discussions, group exercises and illustrations. Participants will gain both theoretical and practical knowledge of the topics.

Course Materials

A set of soft copy notes will be provided.

Course Certification

An APUA/ANCEE and Centre of Excellence Certified Certificate of Competence/Attendance will be awarded on successful completion of the course.



REMOTE CONTROL OF DISTRIBUTION NETWORKS

Course Description and Objectives

The course on the Remote Control of Distribution Networks focuses on modernizing electrical grids through automation, SCADA (Supervisory Control and Data Acquisition) systems, and digital communication to improve reliability, efficiency, and real-time management.

Who should attend

Distribution Network Operators and Engineers, SCADA and Control Room Operators, Substation Engineers and Technicians, Protection & Control Engineers, engineers working on substation automation and other suitably qualified personnel.

Course Outline

- *Introduction to Smart Distribution.*
- *SCADA and Communication Systems.*
- *Remote Control and Automation Functions.*
- *Protection and Control in Modern Networks.*
- *Operations.*
- *Cyber Security.*
- *Future Trends.*

Course Duration

5 Days

Number of Participants

8 Minimum and 16 Maximum

Course Prerequisites

A foundational understanding of electrical power distribution systems and power protection theory, familiarity with protection and control application theory, basic understanding of networking, SCADA, or substation automation systems.

Training Methodology

The training methodology combines lectures, discussions, group exercises and illustrations. Participants will gain both theoretical and practical knowledge of the topics.

Course Materials

A set of soft copy notes will be provided.

Course Certification

An APUA/ANCEE and Centre of Excellence Certified Certificate of Competence/Attendance will be awarded on successful completion of the course.



PROTECTION AND DIGITAL CONTROL

Course Description and Objectives

The Protection and Digital Control course focuses on the principles, technologies, and application of modern numerical relays and digital control systems to safeguard electrical power equipment. It bridges traditional power engineering with digital technology to manage faults in transmission, distribution, and industrial networks.

Who should attend

Electrical Protection Engineers, Power Utility Engineers and Technicians, Substation Engineers, System Operators, Maintenance and Operations personnel and other suitably qualified personnel.

Course Outline

- *Fundamentals.*
- *Digital Relay Technology.*
- *Protection Schemes.*
- *Digital Substation & Communication.*
- *System Protection.*
- *Control Systems.*
- *Testing & Maintenance.*

Course Duration

5 Days

Number of Participants

8 Minimum and 16 Maximum

Course Prerequisites

A degree or diploma in electrical engineering, basic knowledge of electrical power systems, circuit theory, and power system analysis.

Training Methodology

The training methodology combines lectures, discussions, group exercises and illustrations. Participants will gain both theoretical and practical knowledge of the topics.

Course Materials

A set of soft copy notes will be provided.

Course Certification

An APUA/ANCEE and Centre of Excellence Certified Certificate of Competence/Attendance will be awarded on successful completion of the course.



32

SPEEDTRONIC MARK VI LEVEL 2 TURBINE CONTROL SYSTEM

Course Description and Objectives

The Speedtronic Mark VI Level 2 Turbine Control System course is designed for participants looking to gain in-depth knowledge of GE turbine control systems, transitioning from basic operation to advanced troubleshooting, logic modification, and hardware maintenance, build confidence in identifying and resolving turbine trips, alarms, and hardware/software faults.

Who should attend

Instrumentation and Control Engineers and Technicians, Electrical Maintenance Technicians, Control System Engineers and Engineers responsible for maintenance and other suitably qualified personnel.

Course Outline

- *Hardware & Fundamentals.*
- *Operator Interface (HMI).*
- *Gas Turbine Control.*
- *Communications & Data.*
- *Advanced Troubleshooting.*
- *Practical Toolbox ST Usage.*
- *Advanced Simulation Exercises.*

Course Duration

10 Days

Number of Participants

8 Minimum and 16 Maximum

Course Prerequisites

Basic background in power generation or turbine maintenance.

Training Methodology

The training methodology combines lectures, discussions, group exercises and illustrations. Participants will gain both theoretical and practical knowledge of the topics.

Course Materials

A set of soft copy notes will be provided.

Course Certification

An APUA/ANCEE and Centre of Excellence Certified Certificate of Competence/Attendance will be awarded on successful completion of the course.



33

MARK VI OPERATING COMMAND AND CONTROL SYSTEM

Course Description and Objectives

The GE Mark VI Operating Command and Control System course is a specialized training program designed to equip operators, technicians, and engineers with the skills needed to operate, maintain, and troubleshoot GE gas turbines using the Speedtronic Mark VI system. The course emphasizes understanding the control hardware and using the HMI (Human-Machine Interface) to maximize system availability and reduce downtime.

Who should attend

Instrumentation and Control Technicians, Operations and Maintenance Engineers, Power Plant Operators and Shift Supervisors, Technical Service Engineers, and other suitably qualified personnel.

Course Outline

- *System Overview.*
- *HMI and Software Tools.*
- *Gas Turbine Control & Protection.*
- *Troubleshooting & Calibration.*
- *Maintenance & Practical Labs.*
- *Practical Simulator Exercise.*

Course Duration

10 Days

Number of Participants

8 Minimum and 16 Maximum

Course Prerequisites

A background in power generation or turbine operation, basic understanding of gas turbine fundamentals and control loops and familiarity with HMI operating environments.

Training Methodology

The training methodology combines lectures, discussions, group exercises and illustrations. Participants will gain both theoretical and practical knowledge of the topics.

Course Materials

A set of soft copy notes will be provided.

Course Certification

An APUA/ANCEE and Centre of Excellence Certified Certificate of Competence/Attendance will be awarded on successful completion of the course.



34

REGULATION IN TG POWER PLANTS

Course Description and Objectives

The course on Regulation in Thermal Generation (TG) Power Plants focuses on the control systems, governing mechanisms, and regulatory frameworks required for the safe, efficient, and stable operation of power plants.

Who should attend

Operation Engineers and Technicians responsible for daily operations and maintenance of boilers and turbines, Control and Instrumentation Technicians involved in maintaining DCS and PLC systems, Project Engineers involved in new power plant design, construction and other suitably qualified personnel.

Course Outline

- *Introduction to TG Power Plants.*
- *Turbine Governing and Control.*
- *Boiler Controls.*
- *Protection and Interlocks.*
- *Digital Control Systems (DCS).*
- *Regulatory Compliance.*

Course Duration

10 Days

Number of Participants

8 Minimum and 16 Maximum

Course Prerequisites

A degree or diploma in Mechanical, Electrical, or Control and Instrumentation engineering, basic knowledge of power generation principles and familiarity with thermal power plant machinery.

Training Methodology

The training methodology combines lectures, discussions, group exercises and illustrations. Participants will gain both theoretical and practical knowledge of the topics.

Course Materials

A set of soft copy notes will be provided.

Course Certification

An APUA/ANCEE and Centre of Excellence Certified Certificate of Competence/Attendance will be awarded on successful completion of the course.



35

GRID SYNCHRO AND ALTERNATOR REGULATION

Course Description and Objectives

The Grid Synchronization and Alternator Regulation course provides comprehensive training on safely connecting synchronous generators to an electrical grid and regulating their output (voltage, frequency, and load). This training covers both theoretical principles and practical, real-time application in power plants and industrial settings.

Who should attend

Electrical engineers and technicians working in power generation plants, Protection and control engineers, Plant operators and control room personnel, Commissioning engineers for power plant projects and other suitably qualified personnel.

Course Outline

- *Introduction to Synchronous Generators & Grid Dynamics.*
- *Requirements for Synchronization.*
- *Synchronization Methods.*
- *Alternator Regulation & Control.*
- *Grid Interaction & Stability.*
- *Troubleshooting and Practical Exercises.*

Course Duration

5 Days

Number of Participants

8 Minimum and 16 Maximum

Course Prerequisites

Basic understanding of AC power systems (voltage, current, power factor, power), familiarity with the working principle of synchronous generators (alternators) and fundamentals of electrical circuits.

Training Methodology

The training methodology combines lectures, discussions, group exercises and illustrations. Participants will gain both theoretical and practical knowledge of the topics..

Course Materials

A set of soft copy notes will be provided.

Course Certification

An APUA/ANCEE and Centre of Excellence Certified Certificate of Competence/Attendance will be awarded on successful completion of the course.



36

ALTERNATOR VOLTAGE REGULATION

Course Description and Objectives

The Alternator Voltage Regulation course focuses on the electrical systems that maintain a generator's output voltage stability. The course covers the principles of excitation, the components of AVR's, and troubleshooting techniques for industrial and power generation applications.

Who should attend

Electrical Engineers and Technicians, Power Plant Operators, Maintenance Engineers, Commissioning Engineers and other suitably qualified personnel.

Course Outline

- *Fundamentals of Voltage Regulation.*
- *Automatic Voltage Regulators (AVR's) Components.*
- *Excitation Systems.*
- *AVR Operating Modes and Control.*
- *Troubleshooting and Maintenance.*
- *Advanced Topics (Industry Specific).*

Course Duration

5 Days

Number of Participants

8 Minimum and 16 Maximum

Course Prerequisites

A basic understanding of electrical engineering principles (voltage, current, resistance), knowledge of AC/DC circuits and fundamentals of electromagnetism and familiarity with alternator or generator components.

Training Methodology

The training methodology combines lectures, discussions, group exercises and illustrations. Participants will gain both theoretical and practical knowledge of the topics.

Course Materials

A set of soft copy notes will be provided.

Course Certification

An APUA/ANCEE and Centre of Excellence Certified Certificate of Competence/Attendance will be awarded on successful completion of the course.



37

LV ELECTRONIC METER

Course Description and Objectives

The Low Voltage (LV) Electronic Meter course is designed to equip participants with the knowledge and skills to install, maintain, and troubleshoot modern digital, smart, and electro-mechanical metering devices. It covers both single-phase and three-phase systems while emphasizing safety procedures.

Who should attend

Electric Meter Technicians, Apprentice Meter Technicians, Line Personnel & Utility Maintenance Technicians and other suitably qualified personnel.

Course Outline

- *Safety & Legislation.*
- *Basic Electricity & Metering Concepts.*
- *Meter Types & Components.*
- *Installation & Commissioning.*
- *Testing & Troubleshooting.*
- *Communication Systems.*

Course Duration

5 Days

Number of Participants

8 Minimum and 16 Maximum

Course Prerequisites

Basic knowledge of electrical systems, familiarity with electrical principles and safety standards.

Training Methodology

The training methodology combines lectures, discussions, group exercises and illustrations. Participants will gain both theoretical and practical knowledge of the topics.

Course Materials

A set of soft copy notes will be provided.

Course Certification

An APUA/ANCEE and Centre of Excellence Certified Certificate of Competence/Attendance will be awarded on successful completion of the course.



38

HT DIGITAL METER

Course Description and Objectives

The High Tension (HT) Digital Metering Course is designed to equip participants with the skills required to install, test, commission, and maintain 3-phase, 4-wire static HT/LT trivector energy meters and incorporates DLMS protocol compliance, tampering detection, and smart meter technologies.

Who should attend

Metering Technicians and Technologists, Electrical Engineers and Maintenance personnel, Revenue Protection and other suitably qualified personnel.

Course Outline

- *Fundamental Principles.*
- *Instrument Transformers.*
- *HT Meter Technologies.*
- *Field Procedures.*
- *Data & Analysis.*
- *Troubleshooting & Maintenance.*

Course Duration

5 Days

Number of Participants

8 Minimum and 16 Maximum

Course Prerequisites

An Electrical Engineering diploma, degree, or equivalent vocational training, familiarity with 3-phase systems and basic electrical installations.

Training Methodology

The training methodology combines lectures, discussions, group exercises and illustrations. Participants will gain both theoretical and practical knowledge of the topics.

Course Materials

A set of soft copy notes will be provided.

Course Certification

An APUA/ANCEE and Centre of Excellence Certified Certificate of Competence/Attendance will be awarded on successful completion of the course.



39

MV OUTPUT PROTECTION

Course Description and Objectives

The Medium Voltage (MV) Output Protection course focuses on the protective strategies, relay settings, and hardware required to safeguard MV motors, drives (VFDs), and switchgear from electrical faults, switching surges, and insulation failures. This training is essential for ensuring the longevity and safety of critical equipment.

Who should attend

Electrical Maintenance Technicians and Engineers, Control and Instrumentation Engineers, Plant Safety Officers, Project Engineers responsible for MV substation and drive installation and other suitably qualified personnel.

Course Outline

- *MV System Fundamentals.*
- *Protection Principles.*
- *MV Motor Protection.*
- *Drive Output Specifics.*
- *Fault Analysis.*
- *Safety Interlocks & Procedures.*
- *Hands-on Practice.*

Course Duration

5 Days

Number of Participants

8 Minimum and 20 Maximum

Course Prerequisites

Working knowledge of electricity, electrical circuits, and industrial power systems, familiarity with electrical safety procedures and PPE requirements, basic understanding of protection relays and PLC systems and some practical experience in troubleshooting with multimeters or similar tools.

Training Methodology

The training methodology combines lectures, discussions, group exercises and illustrations. Participants will gain both theoretical and practical knowledge of the topics.

Course Materials

A set of soft copy notes will be provided.

Course Certification

An APUA/ANCEE and Centre of Excellence Certified Certificate of Competence/Attendance will be awarded on successful completion of the course.



40

PROTECTION OF HTB NETWORKS

Course Description and Objectives

The Protection of HTB Networks course teaches defensive security skills for protecting networks against common attacks and hardening techniques for networking devices to prevent unauthorized access, covering critical concepts for network security defenders.

Who should attend

Network administrators, security engineers, IT professionals responsible for network infrastructure and other suitably qualified personnel.

Course Outline

- *Network Security Basics.*
- *Firewall Management.*
- *Intrusion Detection/Prevention (IDS/IPS).*
- *Network Hardening.*
- *Traffic Analysis & Monitoring.*
- *Secure Network Architectures.*

Course Duration

5 Days

Number of Participants

8 Minimum and 16 Maximum

Course Prerequisites

Knowledge of networking fundamentals (OSI Model, TCP/IP, subnetting).

Training Methodology

The training methodology combines lectures, discussions, group exercises and illustrations. Participants will gain both theoretical and practical knowledge of the topics.

Course Materials

A set of soft copy notes will be provided.

Course Certification

An APUA/ANCEE and Centre of Excellence Certified Certificate of Competence/Attendance will be awarded on successful completion of the course.



41

CALCULATION OF HTB NETWORK PROTECTION SETTING

Course Description and Objectives

The HTB Network Protection Settings and related network traffic analysis course is designed to bridge the gap between understanding networking fundamentals and applying that knowledge to secure corporate networks, primarily focusing on defensive strategies and traffic analysis.

Who should attend

Security Analysts and professionals monitoring for security incidents, personnel responsible for reacting to security breaches, personnel responsible for network security settings and other suitably qualified personnel.

Course Outline

- *Network Foundations.*
- *Traffic Analysis Basics.*
- *Intermediate Traffic Analysis.*
- *Defensive Measures.*
- *Protocol Analysis.*
- *Log Management.*

Course Duration

5 Days

Number of Participants

8 Minimum and 16 Maximum

Course Prerequisites

Basic understanding of network protocols, IP addressing, and topologies and basic knowledge of how web traffic works.

Training Methodology

The training methodology combines lectures, discussions, group exercises and illustrations. Participants will gain both theoretical and practical knowledge of the topics.

Course Materials

A set of soft copy notes will be provided.

Course Certification

An APUA/ANCEE and Centre of Excellence Certified Certificate of Competence/Attendance will be awarded on successful completion of the course.



42

60KV NETWORK ELECTRICAL PROTECTION

Course Description and Objectives

A 60kV Network Electrical Protection course is designed to provide course participants with the knowledge to design, apply, and maintain protection schemes for 60kV transmission lines, transformers, and substation equipment. The training covers both traditional and modern numerical relay technologies.

Who should attend

Power system protection and control Engineers, operations Engineers involved in commissioning and testing, maintenance Engineers, substation electricians and technicians and other suitably qualified personnel.

Course Outline

- *Principles of Power System Protection.*
- *60kV Network Protection Schemes.*
- *Numerical Relays and Communication.*
- *Relay Coordination and Setting.*
- *Testing and Commissioning.*

Course Duration

5 Days

Number of Participants

8 Minimum and 16 Maximum

Course Prerequisites

A Bachelor of Engineering (Electrical) or a Diploma in Electrical Engineering, Power Engineering, a good understanding of electrical circuits, phasors, symmetrical components, and basic power systems and some relevant experience in utilities, industrial power systems, or maintenance.

Training Methodology

The training methodology combines lectures, discussions, group exercises and illustrations. Participants will gain both theoretical and practical knowledge of the topics.

Course Materials

A set of soft copy notes will be provided.

Course Certification

An APUA/ANCEE and Centre of Excellence Certified Certificate of Competence/Attendance will be awarded on successful completion of the course.



43

NUMERICAL COMMAND CONTROL IN POWER PLANTS

Course Description and Objectives

The Numerical Command Control in Power Plants course covers the automation techniques that manage boiler-turbine units as a single entity to maximize efficiency and stability. The course focuses on using computer numerical control to handle complex processes like load regulation, combustion control, and pressure management.

Who should attend

Power Plant Engineers and operators involved in commissioning and operations, Instrumentation and Control Technicians responsible for maintenance and troubleshooting and Engineers in Electrical, Mechanical, and Process involved in plant automation.

Course Outline

- *Introduction to Power Plant Control.*
- *Boiler-Turbine Coordination.*
- *Automatic Generation Control (AGC).*
- *Distributed Control Systems (DCS).*
- *Operation Modes & Troubleshooting.*
- *Simulation Exercises.*

Course Duration

5 Days

Number of Participants

10 Minimum and 16 Maximum

Course Prerequisites

Basic understanding of power plant fundamentals (Boiler, Turbine, Generator) and basic electrical and instrumentation knowledge.

Training Methodology

The training methodology combines lectures, discussions, group exercises and illustrations. Participants will gain both theoretical and practical knowledge of the topics.

Course Materials

A set of soft copy notes will be provided.

Course Certification

An APUA/ANCEE and Centre of Excellence Certified Certificate of Competence/Attendance will be awarded on successful completion of the course.



44

DIGITAL PROTECTION IN POWER PLANTS

Course Description and Objectives

The Digital Protection in Power Plants course is designed to transition participants from traditional analog/electromechanical protection methods to modern numerical, intelligent electronic device (IED)-based systems. It focuses on the protection of generators, transformers, and busbars within power generation environments using digital technology and international standards.

Who should attend

Protection and Control Engineers, Maintenance Engineers and Technicians, Power System Operators, Commissioning Engineers, Electrical Design Engineers, SCADA and Automation Engineers.

Course Outline

- *Principles of Protection Systems.*
- *Digital/Numerical Relay Architecture.*
- *Protection Algorithms.*
- *Generator and Motor Protection.*
- *Transformer and Busbar Protection.*
- *IEC 61850 Communication.*
- *Testing and Commissioning.*

Course Duration

5 Days

Number of Participants

10 Minimum and 16 Maximum

Course Prerequisites

A Bachelor's degree in Electrical Engineering or a similar technical field, fundamental knowledge of power systems and power system protection basic understanding of electrical machines, transformers, fault studies, and symmetric components.

Training Methodology

The training methodology combines lectures, discussions, group exercises and illustrations. Participants will gain both theoretical and practical knowledge of the topics.

Course Materials

A set of soft copy notes will be provided.

Course Certification

An APUA/ANCEE and Centre of Excellence Certified Certificate of Competence/Attendance will be awarded on successful completion of the course.



45

PROTECTION OF THE SPTE ELECTRICITY TRANSMISSION GENERATOR SYSTEM

Course Description and Objectives

The Protection of the SPTE (Generator & Transmission) Electricity Transmission System course is a specialized training designed for participants to master the protection principles, relaying schemes, and coordination methods necessary to safeguard electrical infrastructure. It typically focuses on protecting synchronous generators, high-voltage (HV) transmission lines, power transformers, and busbars against faults.

Who should attend

Protection and Control Engineers, Power System Protection Engineers, Substation Design Engineers, Commissioning and Maintenance Technicians/Engineers, System Operators and other suitably qualified personnel.

Course Outline

- *Fundamental Principles.*
- *Fault Analysis.*
- *Instrument Transformers.*
- *Generator Protection (SPTE Focus).*
- *Transmission Line Protection and Transformer and Busbar Protection.*
- *Numerical Relays & Substation Automation.*
- *Coordination & Settings.*

Course Duration

5 Days

Number of Participants

8 Minimum and 16 Maximum

Course Prerequisites

A [Bachelor of Engineering degree] (or equivalent experience) in Electrical Engineering, fundamental knowledge of power systems and circuit analysis, familiarity with three-phase system calculations and understanding of basic electrical machine operations.

Training Methodology

The training methodology combines lectures, discussions, group exercises and illustrations. Participants will gain both theoretical and practical knowledge of the topics.

Course Materials

A set of soft copy notes will be provided.

Course Certification

An APUA/ANCEE and Centre of Excellence Certified Certificate of Competence/Attendance will be awarded on successful completion of the course.



46

PROTECTION OF ELECTRICAL TRANSMISSION AND DISTRIBUTION NETWORK

Course Description and Objectives

The Protection of Electrical Transmission and Distribution Network course is designed to equip technical participants with the essential knowledge to design, analyze, and maintain protective systems that safeguard electrical grids from faults, minimizing downtime and ensuring safety.

Who should attend

Electrical Engineers and Technicians, Protection, Commissioning, and Maintenance Engineers, Substation Design Engineers, System Operators and Dispatchers, Personnel involved in renewable energy integration and other suitably qualified personnel.

Course Outline

- *Introduction to Power System Protection.*
- *Fault Analysis and Short Circuits.*
- *Protective Equipment.*
- *Protection Relays and Coordination.*
- *Specialized Protection Schemes.*
- *Advanced Topics & Safety.*

Course Duration

5 Days

Number of Participants

8 Minimum and 16 Maximum

Course Prerequisites

A Bachelor's Degree in Electrical Engineering or equivalent experience, basic understanding of protection philosophies.

Training Methodology

The training methodology combines lectures, discussions, group exercises and illustrations. Participants will gain both theoretical and practical knowledge of the topics.

Course Materials

A set of soft copy notes will be provided.

Course Certification

An APUA/ANCEE and Centre of Excellence Certified Certificate of Competence/Attendance will be awarded on successful completion of the course.



47

ELECTRIC MOTOR PROTECTION

Course Description and Objectives

The Electric Motor Protection course is designed to provide engineering and maintenance participants with the skills to select, set up, and troubleshoot protective devices to maximize motor life and prevent failures.

Who should attend

Electrical and Maintenance Engineers, Project Engineers, Instrumentation and Automation Engineers, Plant Operations Personnel and other suitably qualified personnel.

Course Outline

- *Electric Motor Fundamentals.*
- *Motor Failure Mechanisms.*
- *Protection Techniques.*
- *Modern Protective Relays.*
- *Motor Starting & Control.*
- *Case Studies and Practical Simulations.*

Course Duration

5 Days

Number of Participants

8 Minimum and 16 Maximum

Course Prerequisites

A fundamental understanding of electrical principles (voltage, current, power) and some experience working with electric motors or in an electrical maintenance role

Training Methodology

The training methodology combines lectures, discussions, group exercises and illustrations. Participants will gain both theoretical and practical knowledge of the topics.

Course Materials

A set of soft copy notes will be provided.

Course Certification

An APUA/ANCEE and Centre of Excellence Certified Certificate of Competence/Attendance will be awarded on successful completion of the course.



48

DIGITAL PROTECTION OF MV NETWORKS

Course Description and Objectives

The Digital Protection of Medium Voltage (MV) Networks course is designed to equip participants with the knowledge required to design, coordinate, and maintain modern digital relay systems in distribution networks (typically 1 kV to 35 kV). The course focus on numerical relay technology, IEC 61850 communication, and the protection of transformers, feeders, and busbars.

Who should attend

Electrical Engineers involved in power system planning or design, Protection & Control Engineers, Maintenance Engineers & Technicians, System Operators and other suitably qualified personnel.

Course Outline

- *Introduction to MV Protection.*
- *Numerical Relay Algorithms.*
- *Protection Techniques & Apparatus.*
- *Modernization & Communication.*
- *Challenges & Optimization*

Course Duration

5 Days

Number of Participants

8 Minimum and 16 Maximum

Course Prerequisites

Fundamental knowledge of electrical engineering principles, basic understanding of AC power systems and three-phase circuits and familiarity with traditional (static) protection relays.

Training Methodology

The training methodology combines lectures, discussions, group exercises and illustrations. Participants will gain both theoretical and practical knowledge of the topics.

Course Materials

A set of soft copy notes will be provided.

Course Certification

An APUA/ANCEE and Centre of Excellence Certified Certificate of Competence/Attendance will be awarded on successful completion of the course.



49

MICRO-SCADA SYSTEM FOR CONTROLLING MV NETWORKS

Course Description and Objectives

The MicroSCADA System for Controlling MV Networks course is designed to provide power utility engineers, technicians, and operators with the skills needed to manage, monitor, and control Medium Voltage (MV) networks and substation automation systems using specialized software.

Who should attend

Power System Engineers responsible for planning, design, and operations of MV networks, Substation Technicians involved in the maintenance and configuration of field devices and SCADA systems, Operators and Control Room Staff responsible for daily network monitoring and switching operations and Protection and Control personnel involved in integrating field devices with a central SCADA.

Course Outline

- *Introduction to MicroSCADA.*
- *System Operation.*
- *Database Management.*
- *Substation Automation.*
- *Configuration and Maintenance.*
- *Hands-on Workshops:*

Course Duration

5 Days

Number of Participants

8 Minimum and 16 Maximum

Course Prerequisites

Basic understanding of electric power systems and distribution networks, familiarity with substation equipment (e.g., circuit breakers, transformers, switchgear) and some experience with protection relays or field communications.

Training Methodology

The training methodology combines lectures, discussions, group exercises and illustrations. Participants will gain both theoretical and practical knowledge of the topics.

Course Materials

A set of soft copy notes will be provided.

Course Certification

An APUA/ANCEE and Centre of Excellence Certified Certificate of Competence/Attendance will be awarded on successful completion of the course.



50

NATIONAL DISPATCH MANAGEMENT

Course Description and Objectives

The National Dispatch Management course in electricity focuses on the real-time operation, coordination, and control of a country's generation and transmission system to ensure grid stability, reliability, and economic efficiency. This program is designed to equip operators with skills in load forecasting, generation scheduling, and managing network constraints.

Who should attend

Power System Operators and Dispatchers, Control Center Personnel, Electrical Engineers (Generation, Transmission, Distribution), Energy Traders and Market Analysts, SCADA/EMS Engineers and Regulatory Compliance Personnel.

Course Outline

- *Introduction to Power Systems.*
- *Grid Codes and Operations.*
- *Load Dispatch Operations.*
- *Power System Protection & Control.*
- *Market Operations.*
- *Emergency Response.*

Course Duration

5 Days

Number of Participants

8 Minimum and 16 Maximum

Course Prerequisites

A diploma or degree in Electrical Engineering, Power Systems Technology, or related field, experience working in a power generation or transmission environment and fundamental knowledge of electrical theory, power systems, and heavy current.

Training Methodology

The training methodology combines lectures, discussions, group exercises and illustrations. Participants will gain both theoretical and practical knowledge of the topics.

Course Materials

A set of soft copy notes will be provided.

Course Certification

An APUA/ANCEE and Centre of Excellence Certified Certificate of Competence/Attendance will be awarded on successful completion of the course.



51

SPIDER DISPATCH SYSTEM

Course Description and Objectives

The S.P.I.D.E.R. (Supervisory Power Information and Distribution Management System) course is a specialized technical training program designed for operators, engineers, and technicians focusing on distribution network management. The system integrates SCADA, outage management, and network applications to improve grid reliability and efficiency.

Who should attend

Power System Dispatchers and Network Operators, Electrical Engineers and Technicians in distribution and transmission, Distribution Management System (DMS) Administrators, Operations Planning Personnel and other suitably qualified personnel.

Course Outline

- *Introduction to S.P.I.D.E.R. DMS.*
- *System Navigation.*
- *SCADA Operations.*
- *Network Applications.*
- *Outage Management System (OMS).*
- *Safety Procedures.*

Course Duration

5 Days

Number of Participants

8 Minimum and 16 Maximum

Course Prerequisites

Degree or diploma in Electrical Engineering, Power Systems, or a related field, familiarity with electrical power system operations, specifically distribution.

Training Methodology

The training methodology combines lectures, discussions, group exercises and illustrations. Participants will gain both theoretical and practical knowledge of the topics.

Course Materials

A set of soft copy notes will be provided.

Course Certification

An APUA/ANCEE and Centre of Excellence Certified Certificate of Competence/Attendance will be awarded on successful completion of the course.



52

MEASUREMENT TRANSDUCER

Course Description and Objectives

This Measurement Transducer course provides foundational knowledge on devices that convert physical quantities (temperature, pressure, displacement) into electrical signals for measurement and control systems. The course focuses on the selection, application, and signal conditioning of sensors, often featuring practical labs with industrial equipment.

Who should attend

Electronics and Electrical Engineering Engineers, Mechanical/Mechatronics Engineers specializing in measurement and control, Process control technicians and instrumentation personnel, Systems engineers working with IoT or data acquisition and other suitably qualified personnel.

Course Outline

- *Introduction to Measurements & Instrumentation.*
- *Transducer Classifications & Characteristics.*
- *Resistive Transducers.*
- *Inductive/Capacitive Transducers.*
- *Special & Advanced Sensors.*
- *Signal Conditioning & Data Acquisition.*

Course Duration

5 Days

Number of Participants

8 Minimum and 16 Maximum

Course Prerequisites

Basic understanding of Electrical & Electronics Engineering (circuits, electrostatics, electromagnetism).

Training Methodology

The training methodology combines lectures, discussions, group exercises and illustrations. Participants will gain both theoretical and practical knowledge of the topics.

Course Materials

A set of soft copy notes will be provided.

Course Certification

An APUA/ANCEE and Centre of Excellence Certified Certificate of Competence/Attendance will be awarded on successful completion of the course.



53

CONDUCT AND MANAGEMENT OF GROUPED COMMAND STATIONS

Course Description and Objectives

The Conduct and Management of Grouped Command Stations course focuses on the operational oversight, control, and maintenance of interconnected electrical substations and power distribution systems from a centralized location. It covers the technical and safety protocols required to manage multiple high-voltage sites simultaneously.

Who should attend

Control Room Operators responsible for making critical, real-time decisions in electrical power systems, Electrical Engineers involved in the operation and maintenance of generation, transmission, or distribution systems, Technical personnel and Maintenance Technicians and Personnel responsible for network reliability and performance.

Course Outline

- *Overview of Power Distribution Management.*
- *Substation Automation and Control.*
- *High Voltage Equipment Management.*
- *Control Techniques.*
- *Protection Systems.*
- *Safety Procedures and Regulations.*
- *Data Collection and Reporting.*

Course Duration

5 Days

Number of Participants

8 Minimum and 16 Maximum

Course Prerequisites

A fundamental understanding of electrical power distribution systems, experience as an electrical technician, operator, or engineer, a degree or diploma in electrical engineering or a related field and knowledge of basic electrical safety standards.

Training Methodology

The training methodology combines lectures, discussions, group exercises and illustrations. Participants will gain both theoretical and practical knowledge of the topics.

Course Materials

A set of soft copy notes will be provided.

Course Certification

An APUA/ANCEE and Centre of Excellence Certified Certificate of Competence/Attendance will be awarded on successful completion of the course.



54

CONDUCT AND MANAGEMENT OF SPTE ELECTRICAL SYSTEMS

Course Description and Objectives

The Conduct and Management of SPTE Electrical Systems course is a specialized training program designed to equip personnel with the skills necessary to operate, maintain, and manage industrial electrical systems safely and efficiently. It focuses on practical, hands-on learning for electrical troubleshooting, safety standards, and industrial automation.

Who should attend

Maintenance Technicians and Technicians, Mechanical Personnel, Electrical Supervisors and Maintenance Managers, Process Engineers and other suitably qualified personnel.

Course Outline

- *Industrial Electrical Safety.*
- *Electrical Principles.*
- *Industrial Components & Systems.*
- *Fault Diagnosis & Repair.*
- *Installation & Commissioning.*
- *Management & Maintenance.*

Course Duration

5 Days

Number of Participants

8 Minimum and 16 Maximum

Course Prerequisites

Participants should have a foundational understanding of electrical principles or prior exposure to industrial electrical systems and some experience related to the engineering/technical field.

Training Methodology

The training methodology combines lectures, discussions, group exercises and illustrations. Participants will gain both theoretical and practical knowledge of the topics.

Course Materials

A set of soft copy notes will be provided.

Course Certification

An APUA/ANCEE and Centre of Excellence Certified Certificate of Competence/Attendance will be awarded on successful completion of the course.



55

BCC AND MICRO-SCADA TELECONTROL SYSTEMS

Course Description and Objectives

Based on industry standard training for Hitachi Energy (formerly ABB) products, the BCC (Backup Control Center) and MicroSCADA Telecontrol Systems course provides comprehensive training on substation automation, monitoring, and control, focusing specifically on MicroSCADA X, RTU500 series, and related telecontrol protocols.

Who should attend

SCADA/Automation Engineers, Substation Control and Instrumentation Engineers, Maintenance and Operation Personnel, System Administrators and Technicians and other suitably qualified personnel.

Course Outline

- *Introduction to Substation Automation.*
- *MicroSCADA X Basics.*
- *RTU500 Configuration.*
- *Database Engineering.*
- *Communication Protocols.*
- *HMI Development.*
- *System Diagnostics.*

Duration

5 Days

Number of Participants

8 Minimum and 16 Maximum

Course Prerequisites

Basic knowledge of electrical power systems and substations and general understanding of SCADA and computer networking.

Training Methodology

The training methodology combines lectures, discussions, group exercises and illustrations. Participants will gain both theoretical and practical knowledge of the topics.

Course Materials

A set of soft copy notes will be provided.

Course Certification

An APUA/ANCEE and Centre of Excellence Certified Certificate of Competence/Attendance will be awarded on successful completion of the course.



56

MV DISTRIBUTION NETWORK SCADA SYSTEM

Course Description and Objectives

The specialized course on Medium Voltage (MV) Distribution Network SCADA Systems is designed to provide comprehensive skills in managing, controlling, and monitoring electricity distribution infrastructure (typically 1kV–100kV). The training emphasizes enhancing grid reliability, reducing downtime, and implementing modern automation technologies.

Who should attend

Electrical Engineers and Technicians involved in planning, designing, or maintaining power distribution networks, Control Room Operators managing real-time operations of the distribution grid, System Integrators working with SCADA, PLC, and RTU software/hardware and other suitably qualified personnel.

Course Outline

- *Introduction to Power Distribution & SCADA.*
- *SCADA System Components.*
- *Communications and Protocols.*
- *Data Acquisition and Processing.*
- *Distribution Automation Functions.*
- *HMI Screen Development.*
- *System Security and Maintenance.*

Course Duration

5 Days

Number of Participants

8 Minimum and 16 Maximum

Course Prerequisites

Basic knowledge of electrical engineering principles (voltage, current, power factor), some background experience in electrical equipment, such as medium voltage switchgear and a general understanding of computer networks and PLC concepts.

Training Methodology

The training methodology combines lectures, discussions, group exercises and illustrations. Participants will gain both theoretical and practical knowledge of the topics.

Course Materials

A set of soft copy notes will be provided.

Course Certification

An APUA/ANCEE and Centre of Excellence Certified Certificate of Competence/Attendance will be awarded on successful completion of the course.



57

INTEGRATION OF RENEWABLE ENERGIES ON THE ELECTRICAL NETWORKS

Course Description and Objectives

The "Integration of Renewable Energies on the Electrical Networks" course provides comprehensive training on managing the technical, regulatory, and operational challenges of connecting variable renewable sources (like solar and wind) to traditional power grids. It focuses on enhancing grid reliability, stability, and power quality through advanced control strategies, energy storage, and smart grid technology.

Who should attend

Electrical and Power System Engineers, Grid Operators, Renewable Energy Project Developers, Power Electronics Engineers, Regulatory and Policy Experts and other suitably qualified personnel.

Course Outline

- *Renewable Energy Fundamentals.*
- *Power System Dynamics.*
- *Grid Interconnection and Power Electronics.*
- *Modeling and Simulation.*
- *Smart Grid and Microgrids.*
- *Regulatory and Economic Aspects.*

Course Duration

5 Days

Number of Participants

8 Minimum and 16 Maximum

Course Prerequisites

A Bachelor's Degree in Electrical Engineering, Power Engineering, or a related field, foundational understanding of power system analysis and some experience with electrical engineering fundamentals and modeling software.

Training Methodology

The training methodology combines lectures, discussions, group exercises and illustrations. Participants will gain both theoretical and practical knowledge of the topics.

Course Materials

A set of soft copy notes will be provided.

Course Certification

An APUA/ANCEE and Centre of Excellence Certified Certificate of Competence/Attendance will be awarded on successful completion of the course.



58

ENERGY EFFICIENCY ON REDUCING LOSSES IN GENERATION, TRANSMISSION AND DISTRIBUTION SYSTEMS

Course Description and Objectives

The course on Energy Efficiency on Reducing Losses in Generation, Transmission, and Distribution Systems provides a comprehensive overview of how to minimize energy wastage across the electrical grid, focusing on technical improvements to reduce electricity losses (heat) and improving operational efficiency.

Who should attend

Power and Electrical Engineers working in utilities, grid operations, or power plant design, Energy Managers and Auditors responsible for improving efficiency in the utility, Utility Planners involved in network planning, maintenance, and capital investment, Technicians involved in energy efficiency, renewable energy integration, or grid optimization, Government Officials responsible for energy policy and regulation and other suitably qualified personnel.

Course Outline

- *Overview of Power System Losses.*
- *Generation Efficiency Improvements.*
- *Transmission Efficiency.*
- *Distribution Network Optimization: Voltage Upgrading, Reconductoring, Reactive Power Compensation, Network Reconfiguration.*
- *Smart Grid Technologies.*

Course Duration

5 Days

Number of Participants

10 Minimum and 16 Maximum

Course Prerequisites

A Degree or Diploma in Electrical, Mechanical, or Energy Engineering, basic knowledge of electric power generation, transmission, and distribution components.

Training Methodology

The training methodology combines lectures, discussions, group exercises and illustrations. Participants will gain both theoretical and practical knowledge of the topics.

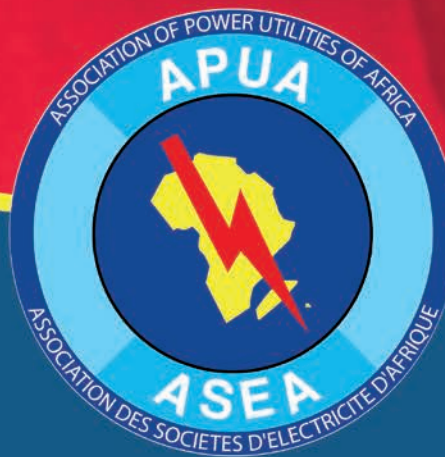
Course Materials

A set of soft copy notes will be provided.

Course Certification

An APUA/ANCEE and Centre of Excellence Certified Certificate of Competence/Attendance will be awarded on successful completion of the course.

CATALOGUE 2026



GENDER





INTRODUCTION TO GENDER COURSES

Gender courses in the electricity sector explore how energy infrastructure, policy, and employment impact women and men differently. These courses train specialists, policymakers, and utility workers to design equitable energy projects, address underrepresentation, and close gender gaps across the workforce and consumer base.



01

GENDER WORKFORCE INCLUSION IN ELECTRICITY

Course Description and Objectives

The Gender Workforce Inclusion in Electricity course equips energy participants and policy-makers with strategies to reduce workforce disparities, promote diversity, and design gender-inclusive energy policies. It emphasizes actionable frameworks to attract, retain, and advance women across generation, transmission, and grid-reliability value chains.

Who should attend

This training is highly cross-functional, bringing together individuals from the corporate, social, and policy sectors including CEOs, Directors, and senior management shaping organizational culture, human resources personnel who are recruiters and team leads focused on hiring, retention, and workplace equality, power sector engineers, and utility supervisors seeking to build inclusive teams and other suitably qualified personnel.

Course Outline

- *The Gender-Energy Nexus.*
- *Workplace Barriers & Bias.*
- *Inclusive Policies & Strategies.*
- *Infrastructure and Operations.*
- *Monitoring, Evaluation & Data.*

Course Duration

5 Days

Number of Participants

8 Minimum and 16 Maximum

Course Prerequisites

A foundational understanding of DEI (Diversity, Equity, and Inclusion) or a strong desire to champion workforce equity, a basic understanding of energy sector dynamics, utilities, or power grids and familiarity with the socioeconomic challenges women face in Science, Technology, Engineering, and Mathematics (STEM) careers.

Training Methodology

The training methodology combines lectures, discussions, group exercises and illustrations.

Course Materials

A set of soft copy notes will be provided.

Course Certification

An APUA/ANCEE and Centre of Excellence Certified Certificate of Competence/Attendance will be awarded on successful completion of the course.



GENDER AND SUSTAINABLE ENERGY

Course Description and Objectives

The Gender and Sustainable Energy course equips participants with the strategies and frameworks needed to integrate gender equality into climate mitigation, energy planning, and clean energy entrepreneurship. It highlights how energy access impacts women and men differently.

Who should attend

This course is multidisciplinary and designed for a wide range of professionals at different levels of responsibility in the electricity and energy sector and Government policy makers.

Course Outline

- *The Gender - Energy Nexus*
- *The role of energy in sustainable human development.*
- *Gender Inequalities and Barriers*
- *Structural barriers for women in the formal renewable energy sector.*
- *Policy, Planning and Action*
- *Designing gender-responsive sustainable energy policies.*
- *Gender mainstreaming in climate finance and green economies.*
- *Tools and indicators to measure the impact of energy projects on women's empowerment.*
- *Case Studies and Solutions.*

Course Duration

5 Days

Number of Participants

8 Minimum and 16 Maximum

Course Prerequisites

No strict academic qualifications required.

Training Methodology

The training methodology combines lectures, discussions, group exercises and illustrations. Participants will gain both theoretical and practical knowledge of the topics.

Course Materials

A set of soft copy notes will be provided.

Course Certification

An APUA/ANCEE and Centre of Excellence Certified Certificate of Competence/Attendance will be awarded on successful completion of the course.

GENDER RESPONSIVE BUDGETING

Course Description and Objectives

The Gender Responsive Budgeting (GRB) course equips participants to integrate gender equality objectives into public and organizational finance. The training generally trains participants to identify gender gaps in resource allocation and apply frameworks to ensure policies benefit men, women, boys, and girls equitably.

Who should attend

This training targets personnel involved in the planning, funding, or implementation of policies and financial programs:

Course Outline

- *Fundamentals of Gender Responsive Budgeting.*
- *The Budget Cycle & Gender Analysis.*
- *Application of standardized 5-Step Frameworks for gender analysis.*
- *Practical Tools & Methodologies.*
- *Monitoring, Evaluation, and Advocacy*
- *Designing gender-sensitive performance indicators and M&E frameworks.*

Course Duration

5 Days

Number of Participants

8 Minimum and 16 Maximum

Course Prerequisites

Foundational understanding of public financial management (PFM) and basic gender concepts, experience in budget analysis, policy appraisal, or financial and performance monitoring and familiarity with or access to gender-disaggregated data, gender assessments, or organizational gender policies.

Training Methodology

The training methodology combines lectures, discussions, group exercises and illustrations. Participants will gain both theoretical and practical knowledge of the topics.

Course Materials

A set of soft copy notes will be provided.

Course Certification

An APUA/ANCEE and Centre of Excellence Certified Certificate of Competence/Attendance will be awarded on successful completion of the course.



CATALOGUE 2026



GEO THERMAL ENERGY





INTRODUCTION TO GEOTHERMAL ENERGY COURSES

Geothermal energy courses provide specialized training in assessing, developing, and engineering heat from the earth for electricity or direct heating/cooling. Modules cover reservoir characterization, drilling technologies, and environmental compliance, geared toward the energy transition, operations, maintenance and management of thermal power plants.



01

GEOTHERMAL STEAM FIELD OPERATIONS AND MAINTENANCE

Course Description and Objectives

This course offers a specialized training focused on the operation and maintenance of geothermal power plants. This comprehensive course is designed to provide participants with the skills and knowledge necessary to efficiently operate, maintain, and optimize geothermal power systems.

Who should attend

Geothermal power plant operators and technicians, Maintenance engineers and managers, Energy engineers, project managers and technical personnel, environmental and safety personnel.

Course Outline

- *Introduction to Geothermal Energy.*
- *Geothermal Power Plant Design and Components.*
- *Geothermal Resource Assessment.*
- *Operation of Geothermal Power Plants.*
- *Maintenance Strategies for Geothermal Power Plants.*
- *Thermal Energy Management.*
- *Safety and Environmental Considerations.*
- *Troubleshooting and Problem Solving.*
- *System Upgrades and Optimization.*
- *Regulatory Compliance and Standards.*
- *Hands-On Training and Simulations.*

Course Duration

10 Days

Number of Participants

8 Minimum and 16 Maximum

Course Prerequisites

Basic understanding of geothermal science principles and practices.

Training Methodology

The training methodology combines lectures, discussions, group exercises and illustrations. Participants will gain both theoretical and practical knowledge of the topics.

Course Materials

A set of soft copy notes will be provided.

Course Certification

An APUA/ANCEE and Centre of Excellence Certified Certificate of Competence/Attendance will be awarded on successful completion of the course.



02

DRILLING TECHNOLOGY FOR GEOTHERMAL WELLS

Course Description and Objectives

The Drilling Technology for Geothermal Wells course focuses on adapting gas drilling, well design, and completion techniques to high-temperature and corrosive geothermal environments and providing skills in casing design, lost circulation management, and cementing in harsh conditions..

Who should attend

Drilling engineers, wellsite supervisors, and rig managers, geoscientists, reservoir engineers, and project managers and other suitably qualified personnel in industry and government.

Course Outline

- *Introduction to Geothermal Systems.*
- *Well Planning and Design.*
- *Drilling Fluids and Cementing.*
- *Directional Drilling & Drilling Tools.*
- *Lost Circulation and Well Control.*
- *Well Logging and Testing.*
- *Environmental and Safety Aspects.*

Course Duration

15 Days

Number of Participants

8 Minimum and 16 Maximum

Course Prerequisites

Degree or diploma in science or engineering, some experience in drilling or reservoir engineering and some basic knowledge of Microsoft Excel and engineering principles.

Training Methodology

The training methodology combines lectures, discussions, group exercises and illustrations. Participants will gain both theoretical and practical knowledge of the topics.

Course Materials

A set of soft copy notes will be provided.

Course Certification

An APUA/ANCEE and Centre of Excellence Certified Certificate of Competence/Attendance will be awarded on successful completion of the course.



GEOCHEMISTRY OF GEOTHERMAL SYSTEMS

Course Description and Objectives

This Geochemistry of Geothermal Systems course covers chemical thermodynamics, fluid-rock interaction, water-rock geochemistry, tracer techniques, and gas composition for resource characterization. The course is also designed to train participants on how to use chemical data from fluids and gases to explore, evaluate, and manage geothermal resources for energy production.

Who should attend

Geochemists and Geologists, Reservoir and Petroleum Engineers, Drilling Engineers and other suitably qualified personnel.

Course Outline

- *Introduction to Geothermal Systems.*
- *Fundamental Fluid Chemistry.*
- *Water-Rock Interaction.*
- *Geothermometry.*
- *Geochemical Modeling.*
- *Production & Operational Issues.*
- *Environmental Impact.*

Course Duration

5 Days

Number of Participants

8 Minimum and 16 Maximum

Course Prerequisites

Diploma or degree in Earth Sciences, Geosciences, Chemistry, or Engineering, basic knowledge of chemistry, thermodynamics (fluid behavior), and geology, basic familiarity with geothermal systems or hydrogeology.

Training Methodology

The training methodology combines both theoretical and practical knowledge of the topics. The emphasis is on the practical application of the topics.

Course Materials

A set of soft copy notes will be provided.

Course Certification

An APUA/ANCEE and Centre of Excellence Certified Certificate of Competence/Attendance will be awarded on successful completion of the course.



ENERGY EFFICIENCY IN BUILDING DESIGN

Course Description and Objectives

The Energy efficiency in building design course covers principles of reducing energy consumption through sustainable design, building physics, passive design, and HVAC optimization and supports participants aiming to specialize in sustainable, cost-effective, and energy-efficient building solutions.

Who should attend

Architects and Designers, Engineers, Technologists, Technicians, Crafts persons, Construction Managers, Energy Consultants and any suitably qualified personnel.

Course Outline

- *Fundamental Principles.*
- *Building Envelope.*
- *Systems and Technology.*
- *Renewable Energy Integration.*
- *Energy Audit and Modelling.*
- *Renovation/Retrofitting.*

Course Duration

10 Days

Number of Participants

8 Minimum and 16 Maximum

Course Prerequisites

At least a Bachelor's degree or Diploma in Architecture, Engineering or equivalent and foundational knowledge in building physics, construction technology, or related fields.

Training Methodology

The training methodology combines lectures, discussions, group exercises and practicals.

Course Materials

A set of soft copy notes will be provided.

Course Certification

An APUA/ANCEE and Centre of Excellence Certified Certificate of Competence/Attendance will be awarded on successful completion of the course.



05

EFFICIENCY CALCULATION OF THERMAL POWER PLANTS (STEAM, DIESEL, GAS TURBINE)

Course Description and Objectives

This course provides comprehensive training on calculating the efficiency and performance of steam, diesel, and gas turbine power plants. Participants will learn to apply thermodynamic principles to analyze heat rates, fuel consumption, and component performance for optimizing plant operations.

Who should attend

Technicians, Engineers, Maintenance and operation Supervisors, Power Station Managers and other suitably qualified staff.

Course Outline

- *Fundamental Concepts.*
- *Steam Power Plants.*
- *Gas Turbine Power Plants.*
- *Diesel Engines.*
- *Performance Metrics.*
- *Optimization.*

Course Duration

5 Days

Number of Participants

8 Minimum and 16 Maximum

Course Prerequisites

A foundational understanding of Thermal Power Plants operations.

Training Methodology

The training methodology combines lectures, group exercises and hands on practical application of the topics.

Course Materials

A set of soft copy notes will be provided.

Course Certification

An APUA/ANCEE and Centre of Excellence Certified Certificate of Competence/Attendance will be awarded on successful completion of the course.



SMART METERING AND AMR/AMI TECHNOLOGIES IMPLEMENTATION

Course Description and Objectives

This Smart Metering and AMR/AMI Implementation course provides a comprehensive overview of modern grid technologies, focusing on smart meter design, communication networks (RF/PLC), AMI infrastructure, meter data management (MDM), and security to also reduce non-technical losses.

Who should attend

Metering, transmission, distribution, and network engineers and technicians, IT & Data Personnel managing meter data systems, and personnel responsible for AMI deployment.

Course Outline

- *Introduction to AMI/AMR.*
- *Smart Grid & Metering Technology.*
- *Communication Networks.*
- *Meter Data Management (MDM).*
- *Implementation & Deployment.*
- *Cyber Security & System Integrity.*
- *Data Analysis & Demand Side Management.*

Course Duration

5 Days

Number of Participants

8 Minimum and 16 Maximum

Course Prerequisites

Basic knowledge of electrical principles or power systems and IT.

Training Methodology

The training methodology combines lectures, discussions, group exercises and illustrations. Participants will gain both theoretical and practical knowledge of the topics.

Course Materials

A set of soft copy notes will be provided.

Course Certification

An APUA/ANCEE and Centre of Excellence Certified Certificate of Competence/Attendance will be awarded on successful completion of the course.

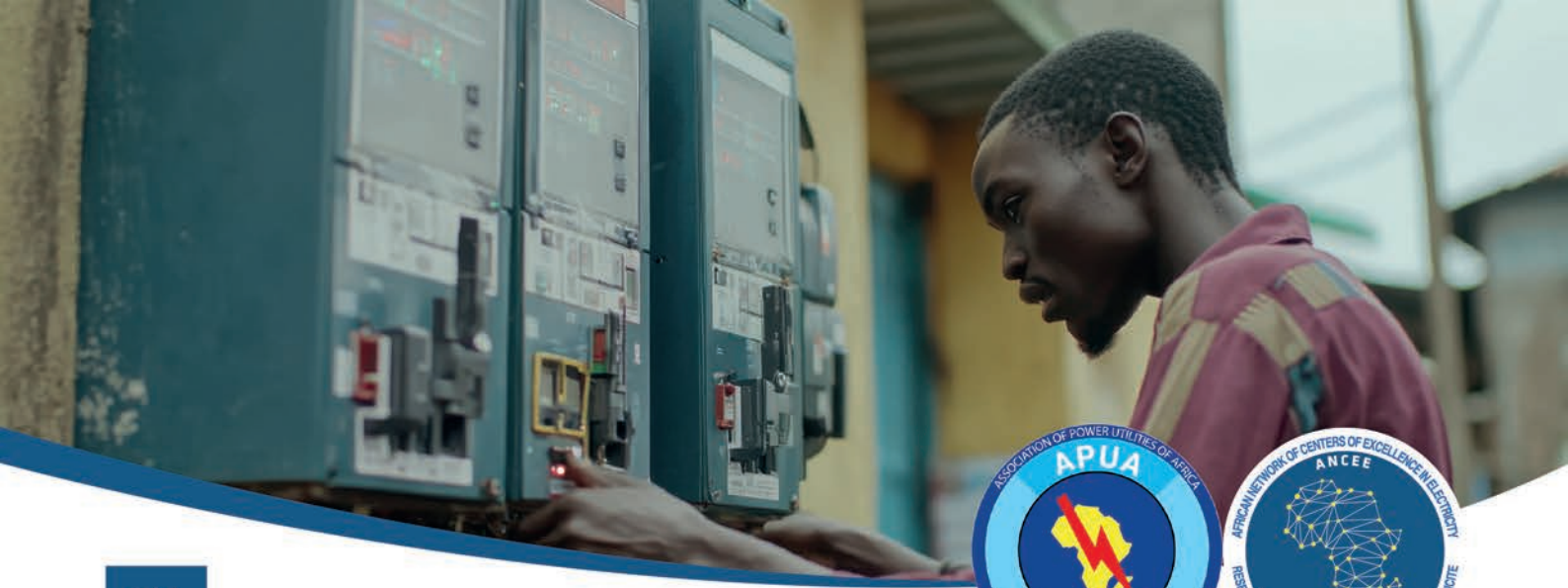


RURAL ELECTRIFICATION



INTRODUCTION TO RURAL ELECTRIFICATION COURSES

Rural electrification courses teach participants how to design, finance, and deploy decentralized renewable energy systems (like solar mini-grids and standalone systems) to remote communities. They bridge technical engineering with socio-economic development, community engagement, and policy planning to bring sustainable power to underserved populations.



01

MONITORING AND EVALUATION OF RURAL ELECTRIFICATION PROJECTS

Course Description and Objectives

The Monitoring and Evaluation (M&E) course for rural electrification projects equips participants with skills to design M&E frameworks, track progress, and measure socioeconomic impacts of energy access initiatives. It covers indicator development, data collection, and impact assessments tailored to decentralized renewable energy and rural mini-grids.

Who should attend

Officers and evaluators managing climate and energy access programs, Rural Electrification Agency (REA) staff, energy planners, and policy officers, Mini-grid developers, renewable energy technocrats and other suitably qualified personnel.

Course Outline

- *Fundamentals of Rural Electrification.*
- *M&E Framework Design.*
- *Socio-Economic & Environmental Impact.*
- *Technology & Data Management.*
- *Policy, Economics, and Sustainability.*

Course Duration

5 Days

Number of Participants

8 Minimum and 16 Maximum

Course Prerequisites

An understanding of basic energy access concepts, rural development challenges, and project management and participants to possess a degree in engineering, economics, environmental science, or development studies.

Training Methodology

The training methodology combines lectures, discussions, group exercises and illustrations. Participants will gain both theoretical and practical knowledge of the topics.

Course Materials

A set of soft copy notes will be provided.

Course Certification

An APUA/ANCEE and Centre of Excellence Certified Certificate of Competence/Attendance will be awarded on successful completion of the course.



FACTORS AND PARAMETERS FOR THE SUCCESS OF A RURAL ELECTRIFICATION PROJECT USING RENEWABLE ENERGIES

Course Description and Objectives

The course focuses on successful, sustainable, and scalable implementation. It is designed to help participants plan, execute, and manage decentralized, off-grid, or micro-grid energy systems tailored to remote communities.

Who should attend

The course multidisciplinary and ideal for participants in the public, private, and NGO sectors, including personnel overseeing rural development or energy initiatives, Engineers and Technicians (Electrical, Consulting, and Renewable Energy Engineers), Policymakers and Government Officials working in regional planning or rural electrification authorities and social development Workers focusing on community engagement, capacity building, and poverty reduction.

Course Outline

- *Fundamentals of Rural Electrification & Energy Planning.*
- *Technology & System Design.*
- *Business Models & Economic Feasibility.*
- *Community Engagement & Socio-Economic Impact.*
- *Project Implementation, Operation, and Policy.*

Course Duration

5 Days

Number of Participants

8 Minimum and 16 Maximum

Course Prerequisites

A foundational understanding of basic electrical concepts, familiarity with general project management principles, basic knowledge of renewable energy technologies and understanding in socio-economic development and rural market dynamics.

Training Methodology

The training methodology combines lectures, discussions, group exercises and illustrations.

Course Materials

A set of soft copy notes will be provided.

Course Certification

An APUA/ANCEE and Centre of Excellence Certified Certificate of Competence/Attendance will be awarded on successful completion of the course.



ECONOMIC ANALYSIS OF RURAL ELECTRIFICATION PROJECTS

Course Description and Objectives

The Economic Analysis of Rural Electrification Projects course teaches participants how to evaluate the costs, benefits, and long-term financial viability of extending power to off-grid or remote communities. It covers demand forecasting, cost-benefit analysis, and pricing strategies to ensure projects promote sustainable economic development.

Who should attend

This course is targeted at participants involved in sustainable energy development including Energy Planners and Policymakers in Government and staff from Rural Electrification Agencies (REAs), Technical personnel designing mini-grid or solar-home systems, personnel conducting Environmental and Social Impact Assessments (ESIA) and financial modelling and other suitably qualified personnel.

Course Outline

- *Introduction to Rural Electrification.*
- *Demand Assessment & Forecasting.*
- *Financial & Economic Analysis.*
- *Project Costing & Budgeting.*
- *Subsidy & Tariff Design.*
- *Socio-Economic Impact.*
- *Business Models & Viability.*
- *Monitoring & Evaluation.*

Course Duration

5 Days

Number of Participants

8 Minimum and 16 Maximum

Course Prerequisites

A basic understanding of microeconomics, cost-benefit analysis, and financial metrics, foundational familiarity with rural energy infrastructure, off-grid renewable technologies and power distribution and basic use of spreadsheets for financial modeling and forecasting.

Training Methodology

The training methodology combines both theoretical and practical knowledge of the topics. The emphasis is on the practical application of the topics.

Course Materials

A set of soft copy notes will be provided.

Course Certification

An APUA/ANCEE and Centre of Excellence Certified Certificate of Competence/Attendance will be awarded on successful completion of the course.



RURAL ELECTRIFICATION TRANSMISSION AND DISTRIBUTION EQUIPMENT

Course Description and Objectives

This training covers the end-to-end process of designing, building, and maintaining electrical networks in remote or underserved areas. The course bridges the gap between bulk power transmission and localized, cost-effective rural distribution equipment.

Who should attend

Electrical and Project Engineers responsible for planning, designing, and supervising grid construction, Line Construction Foremen & Technicians handling hardware, pole erection, and wire stringing, decision-makers overseeing network reliability, procurement, and asset administration, Health, Safety, and Environmental (HSE) personnel ensuring strict safety codes in network rollouts and other suitably qualified personnel.

Course Outline

- *Fundamentals of Rural Electrification & Network Planning.*
- *High Voltage (HT) Transmission & Substation Equipment.*
- *Low Voltage (LT) Distribution Equipment.*
- *Construction, Operation & Maintenance*
-

Course Duration

5 Days

Number of Participants

8 Minimum and 16 Maximum

Course Prerequisites

A degree or diploma in electrical engineering, physics, or a related technical discipline and general foundational awareness of power systems.

Training Methodology

The training methodology combines lectures, discussions, group exercises and illustrations.

Course Materials

A set of soft copy notes will be provided.

Course Certification

An APUA/ANCEE and Centre of Excellence Certified Certificate of Competence/Attendance will be awarded on successful completion of the course.



ASSEMBLY AND IMPLEMENTATION OF DE-CENTRALIZED RURAL ELECTRIFICATION PROJECTS WITH THE TERRITORIAL COMMUNITIES

Course Description and Objectives

This course trains participants to design, finance, and deploy decentralized renewable energy systems in remote areas. It emphasizes collaboration with local territorial communities to ensure projects are culturally appropriate, economically viable, and successfully integrated into local development plans.

Who should attend

This course is designed for professionals and community representatives involved in rural development and energy access, including local government officials and planners, and local community leaders, Rural electrification agency (REA) staff and regional regulators, engineers and community-based cooperatives.

Course Outline

- *Fundamentals of Decentralized Rural Electrification (DRE).*
- *Territorial Diagnostic & Planning.*
- *Project Design & Implementation.*
- *Business Models & Financing.*
- *Community Engagement & Sustainability.*

Course Duration

3 Days

Number of Participants

8 Minimum and 16 Maximum

Course Prerequisites

Active involvement in public administration, energy sectors, or community development, basic understanding of electrical concepts and renewable energy technologies and familiarity with project management principles and local governance structures.

Training Methodology

The training methodology combines lectures, discussions, group exercises and illustrations.

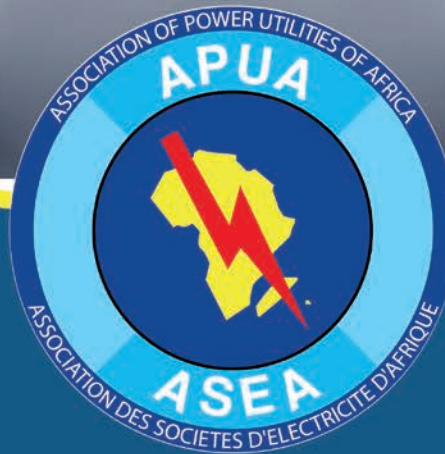
Course Materials

A set of soft copy notes will be provided.

Course Certification

An APUA/ANCEE and Centre of Excellence Certified Certificate of Competence/Attendance will be awarded on successful completion of the course.

CATALOGUE 2026



INNOVATIVE MODULES





INTRODUCTION TO INNOVATIVE MODULES

Innovative training modules in the electricity sector aim to modernize the workforce for the energy transition. Core objectives include upskilling professionals in smart grids, renewable integration, and AI-driven energy management; ensuring compliance with environmental regulations; and equipping teams to deploy sustainable, decentralized energy infrastructure.



01

TECHNOLOGY INNOVATION LEADERSHIP PROGRAM

Course Description and Objectives

The Technology Innovative Leadership course transforms technical experts into strategic business leaders. The course content blends executive soft skills with technological foresight. The course's focus is on aligning tech initiatives with corporate strategy, leading digital transformation, and scaling organizational innovation.

Who should attend

Personnel aiming to transition from technical contributors to strategic decision-makers and aiming at transformation.

Course Outline

- *Strategic Technology Vision.*
- *Leading Digital Transformation.*
- *Product & Service Innovation.*
- *Executive Leadership & Soft Skills.*
- *Business Acumen.*

Course Duration

5 Days

Number of Participants

8 Minimum and 16 Maximum

Course Prerequisites

Work experience in functional, technical, or business roles and experience of managing teams, projects, or major technological deployments within the organization.

Training Methodology

The training methodology combines lectures, discussions, group exercises and illustrations. Participants will gain both theoretical and practical knowledge of the topics.

Course Materials

A set of soft copy notes will be provided.

Course Certification

An APUA/ANCEE and Centre of Excellence Certified Certificate of Competence/Attendance will be awarded on successful completion of the course.

ARTIFICIAL INTELLIGENCE IN THE ELECTRICITY SECTOR

Course Description and Objectives

The Artificial Intelligence in the Electricity Sector course teaches participants how to apply machine learning and data analytics to smart grids, renewable integration, and grid optimization. The course covers aspects of predictive asset maintenance, demand forecasting, and automated control systems.

Who should attend

The course is targeted at professionals modernizing utility operations which includes Electrical, power systems, and renewable energy engineers, Grid operators, dispatchers, and substation personnel IT personnel in energy and other suitably qualified personnel.

Course Outline

- *AI and Machine Learning Fundamentals.*
- *Power System Load Forecasting.*
- *Grid Optimization and Resilience.*
- *Renewable Integration.*
- *Asset Management.*
- *Energy Markets and Digitalization.*

Course Duration

5 Days

Number of Participants

8 Minimum and 16 Maximum

Course Prerequisites

A foundational understanding of electrical engineering, power systems, or renewable energy principles, hands-on experience in the power sector and basic familiarity with data analytics and programming languages.

Training Methodology

The training methodology combines lectures, discussions, group exercises and illustrations.

Course Materials

A set of soft copy notes will be provided.

Course Certification

An APUA/ANCEE and Centre of Excellence Certified Certificate of Competence/Attendance will be awarded on successful completion of the course.



DIGITAL BUSINESS TRANSFORMATION

Course Description and Objectives

The Digital Business Transformation course equips participants with the strategies and tools needed to navigate digital disruption. The course bridges technical fluency with human-centered leadership, focusing on business model reinvention, data-driven decision-making, and organizational agility.

Who should attend

Business Leaders responsible for organizational strategy, transformation and Change Managers tasked with driving the "people side" of technology adoption, personnel tasked to optimize customer experiences and create new digital value, personnel tasked to align between business goals and IT architecture and other suitably qualified personnel.

Course Outline

- *Strategic Fundamentals.*
- *Digital Business Models.*
- *Emerging Technologies.*
- *Change Management.*
- *Risk & Compliance.*
- *Roadmap Execution.*

Course Duration

5 Days

Number of Participants

8 Minimum and 16 Maximum

Course Prerequisites

There are no major prerequisites required.

Training Methodology

The training methodology combines both theoretical and practical knowledge of the topics. The emphasis is on the practical application of the topics.

Course Materials

A set of soft copy notes will be provided.

Course Certification

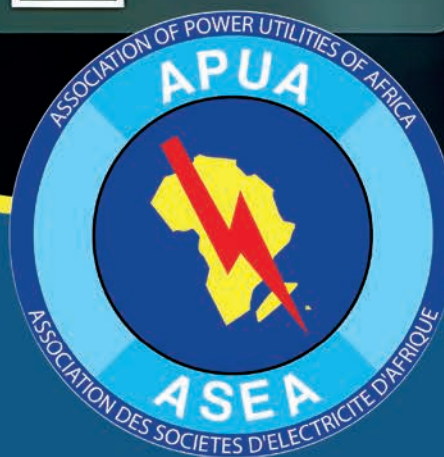
An APUA/ANCEE and Centre of Excellence Certified Certificate of Competence/Attendance will be awarded on successful completion of the course.



CATALOGUE 2026



HR



HUMAN RESOURCES AND MANAGEMENT





INTRODUCTION TO HUMAN RESOURCES AND MANAGEMENT COURSES

Human Resources and Management courses cover some core principles of managing an organization's workforce, project management environments and general management. The courses essential topics like talent acquisition, employee development, labor compliance, project management, risk management, strategy management and performance evaluation, providing the foundational skills required to align people operations with strategic business goals.



01

STRESS MANAGEMENT

Course Description and Objectives

The stress management course provides participants with practical tools to identify, evaluate, and mitigate personal and professional stressors. Participants learn to build resilience, prevent burnout, and apply coping strategies in high-pressure environments.

Who should attend

Management and team leaders who are supervisors and handle team pressures and need to support staff morale, human resources and wellness personnel focused on organizational well-being and burnout prevention and other suitably qualified personnel.

Course Outline

- *Understanding Stress.*
- *Identifying Triggers and Personal Assessments.*
- *Coping Mechanisms and Practical Techniques.*
- *Building Long-Term Well-Being*
- *Creating a personalized stress management and action plan.*
- *Incorporating healthy lifestyle habits (sleep, diet, and exercise) for better regulation.*
- *Establishing a better work-life balance and improving interpersonal relationships*

Course Duration

5 Days

Number of Participants

8 Minimum and 16 Maximum

Course Prerequisites

There are no strict educational prerequisites.

Training Methodology

The training methodology combines lectures, discussions, group exercises and illustrations. Participants will gain both theoretical and practical knowledge of the topics.

Course Materials

A set of soft copy notes will be provided.

Course Certification

An APUA/ANCEE and Centre of Excellence Certified Certificate of Competence/Attendance will be awarded on successful completion of the course.



02

TRAINING OF TRAINERS

Course Description and Objectives

The Training of Trainers (ToT) program equips experienced participants with the facilitation skills, instructional design knowledge, and evaluation techniques needed to effectively teach others. It transforms subject-matter experts into engaging, capable instructors.

Who should attend

This course is ideal for personnel responsible for knowledge transfer within an organization including Subject-Matter Experts (SMEs) and technical specialists, human resources (HR) and learning and development (L&D) personnel, team leaders, managers, and supervisors, safety trainers and other suitably qualified personnel.

Course Outline

- *Adult Learning Principles (Andragogy).*
- *Instructional Design & Curriculum Planning.*
- *Facilitation & Delivery Skills.*
- *Experiential Learning & Engagement.*
- *Assessment & Evaluation.*
- *Practicum (Teach-Back Sessions).*

Course Duration

5 Days

Number of Participants

8 Minimum and 16 Maximum

Course Prerequisites

A strong, working knowledge of the specific topic they will eventually teach, the ability to communicate clearly and professionally in a group setting and real-world experience applying the skills or concepts they will be teaching.

Training Methodology

The training methodology combines lectures, discussions, group exercises and illustrations. Participants will gain both theoretical and practical knowledge of the topics.

Course Materials

A set of soft copy notes will be provided.

Course Certification

An APUA/ANCEE and Centre of Excellence Certified Certificate of Competence/Attendance will be awarded on successful completion of the course.



PEDAGOGICAL METHODS AND TECHNIQUES

Course Description and Objectives

The Pedagogical Methods and Techniques course equips educators, trainers, and facilitators with the foundational skills to design, deliver, and assess effective learning experiences.

Who should attend

Trainers and workplace learning facilitators, subject matter experts in key training roles and other suitably qualified personnel.

Course Outline

- *Foundations of Pedagogy & Andragogy.*
- *Instructional Design.*
- *Delivery Techniques & Facilitation.*
- *Educational Technology & Media.*
- *Assessment and Evaluation.*

Course Duration

5 Days

Number of Participants

8 Minimum and 16 Maximum

Course Prerequisites

A solid understanding of the specific topic or content area of teaching, basic knowledge of using computers, web browsers, and basic presentation software and a willingness to engage in peer-teaching exercises, receive constructive feedback, and participation in role-playing.

Training Methodology

The training methodology combines lectures, discussions, group exercises and illustrations. Participants will gain both theoretical and practical knowledge of the topics.

Course Materials

A set of soft copy notes will be provided.

Course Certification

An APUA/ANCEE and Centre of Excellence Certified Certificate of Competence/Attendance will be awarded on successful completion of the course.



04

TRAINING ENGINEERING

Course Description and Objectives

A Training Engineering course is designed to help participants design, develop, and evaluate effective instructional programs. It focuses on identifying training needs, structuring course outlines, and assessing performance.

Who should attend

Human resources and learning and development personnel building rigorous institutional training systems, trainers responsible for translating learning objectives into structured curriculums and other suitably qualified personnel.

Course Outline

- *Training Needs Analysis (TNA).*
- *Curriculum & Instructional Design.*
- *Course Delivery & Implementation.*
- *Evaluation and Assessment.*

Course Duration

5 Days

Number of Participants

8 Minimum and 16 Maximum

Course Prerequisites

Basic understanding of adult learning principles and training methodologies, experience in corporate training, human resources, or project management and basic appreciation of educational tools (e.g., learning management systems (LMS), presentation software).

Training Methodology

The training methodology combines lectures, discussions, group exercises and illustrations. Participants will gain both theoretical and practical knowledge of the topics.

Course Materials

A set of soft copy notes will be provided.

Course Certification

An APUA/ANCEE and Centre of Excellence Certified Certificate of Competence/Attendance will be awarded on successful completion of the course.

RISK MANAGEMENT



05

RISK MANAGEMENT AND INTERNAL CONTROL SYSTEMS

Course Description and Objectives

This course equips participants with the frameworks to identify, assess, and mitigate corporate risks while designing and evaluating effective internal controls. It blends theoretical governance models with practical strategies to protect assets, ensure regulatory compliance, and prevent fraud.

Who should attend

This program is highly relevant for personnel overseeing governance, finance, and operations, including internal auditors, audit managers, and chief audit executives, risk managers, compliance officers, finance directors, controllers, and accountants, CEOs, board members, and operations/department managers and other suitably qualified personnel.

Course Outline

- *Fundamentals of Risk Management.*
- *Internal Control Frameworks & Design.*
- *Implementation & Fraud Prevention.*
- *Monitoring, Testing, and Reporting.*

Course Duration

5 Days

Number of Participants

8 Minimum and 16 Maximum

Course Prerequisites

A foundational degree or diploma in business, finance, accounting, or economics, basic familiarity with business operations, organizational processes, or daily financial workflows and a basic conceptual understanding of corporate finance or management.

Training Methodology

The training methodology combines lectures, discussions, group exercises and illustrations. Participants will gain both theoretical and practical knowledge of the topics.

Course Materials

A set of soft copy notes will be provided.

Course Certification

An APUA/ANCEE and Centre of Excellence Certified Certificate of Competence/Attendance will be awarded on successful completion of the course.



06

PROJECT RISK MANAGEMENT, RESEARCH METHODS AND DATA ANALYSIS

Course Description and Objectives

The Project Risk Management, Research Methods and Data Analysis course equips participants with the quantitative and qualitative tools required to identify project risks, conduct robust research, and make data-driven decisions. It bridges the gap between theoretical project planning and empirical evaluation.

Who should attend

Project managers, data analysts, risk and compliance managers, monitoring and evaluation (M&E) officers, Government officials and other suitably qualified personnel.

Course Outline

- *Project Risk Management.*
- *Risk Identification.*
- *Risk Response.*
- *Research Methods*
- *Data Collection Techniques.*
- *Data Analysis*
- *Data Preparation.*
- *Tools & Interpretation.*

Course Duration

5 Days

Number of Participants

8 Minimum and 16 Maximum

Course Prerequisites

Basic understanding of project management principles, basic understanding statistics or data literacy and basic computer literacy.

Training Methodology

The training methodology combines lectures, discussions, group exercises and illustrations. Participants will gain both theoretical and practical knowledge of the topics.

Course Materials

A set of soft copy notes will be provided.

Course Certification

An APUA/ANCEE and Centre of Excellence Certified Certificate of Competence/Attendance will be awarded on successful completion of the course.



07

MONITORING AND MANAGEMENT OF BUDGETS

Course Description and Objectives

The Monitoring and Management of Budgets course empowers participants to build realistic budgets, track expenditures, analyze variances, and control costs. It equips participants to align financial resources with strategic goals while mitigating risks.

Who should attend

This course is highly relevant for participants involved in financial planning and resource allocation, including finance managers, budget officers, financial analysts, and controllers, department heads, operations managers, project managers who must execute and track project expenditures and board members overseeing organizational finances.

Course Outline

- *Foundations of Budgeting.*
- *Budgeting Techniques & Costing.*
- *Budget Preparation.*
- *Monitoring & Control Systems.*
- *Variance Analysis.*
- *Reporting & Tools.*

Course Duration

5 Days

Number of Participants

8 Minimum and 16 Maximum

Course Prerequisites

A basic understanding of business operations, general financial terminology and basic use of spreadsheet software.

Training Methodology

The training methodology combines lectures, discussions, group exercises and illustrations. Participants will gain both theoretical and practical knowledge of the topics.

Course Materials

A set of soft copy notes will be provided.

Course Certification

An APUA/ANCEE and Centre of Excellence Certified Certificate of Competence/Attendance will be awarded on successful completion of the course.

FORECASTING TECHNIQUES AND MANAGEMENT

Course Description and Objectives

The Forecasting Techniques and Management course provides participants with the qualitative and quantitative tools to predict market trends, customer demand, and financial outcomes.

Who should attend

This training is tailored for cross-functional professionals responsible for budgeting, inventory, supply chain, and strategic corporate direction and other suitably qualified personnel.

Course Outline

- *Foundations of Business Forecasting.*
- *Quantitative Analysis & Statistics.*
- *Advanced Modeling.*
- *Forecast Accuracy & Error Analysis.*
- *Technology & Analytics.*
- *S&OP and Financial Integration.*

Course Duration

5 Days

Number of Participants

8 Minimum and 16 Maximum

Course Prerequisites

Foundational understanding of statistics, familiarity with fundamental financial statements or accounting concepts and a working knowledge of spreadsheet software.

Training Methodology

The training methodology combines lectures, discussions, group exercises and illustrations. Participants will gain both theoretical and practical knowledge of the topics.

Course Materials

A set of soft copy notes will be provided.

Course Certification

An APUA/ANCEE and Centre of Excellence Certified Certificate of Competence/Attendance will be awarded on successful completion of the course.



MONITORING AND EVALUATION STRATEGY AND ACTION PLAN MANAGEMENT

Course Description and Objectives

The Monitoring and Evaluation (M&E) Strategy and Action Plan Management course trains participants to design robust performance frameworks, track SMART indicators, and align data collection with organizational goals. It equips teams to measure impact, manage budgets, and ensure continuous accountability.

Who should attend

This training benefits those involved in social impact, strategic planning, and project delivery across government, NGOs, and the private sector and includes project managers, M&E officers, decision-makers, planners and other suitably qualified personnel.

Course Outline

- *M&E Fundamentals.*
- *Logical Frameworks (Logframes) and Theory of Change (ToC).*
- *Indicator Design.*
- *Data Management & Collection.*
- *Action Plan Management.*
- *Reporting & Learning.*

Course Duration

5 Days

Number of Participants

8 Minimum and 16 Maximum

Course Prerequisites

Basic understanding of the project lifecycle, familiarity with interpreting basic data or statistics and software skills.

Training Methodology

The training methodology combines lectures, discussions, group exercises and illustrations. Participants will gain both theoretical and practical knowledge of the topics.

Course Materials

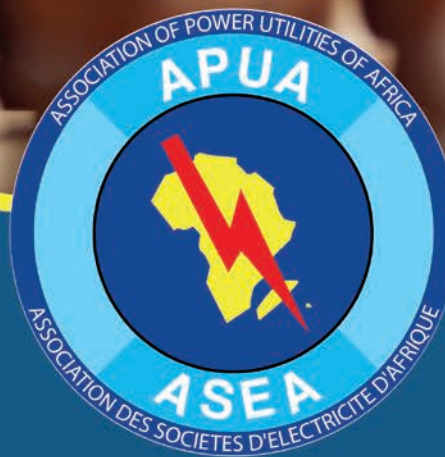
A set of soft copy notes will be provided.

Course Certification

An APUA/ANCEE and Centre of Excellence Certified Certificate of Competence/Attendance will be awarded on successful completion of the course.



CATALOGUE 2026



GOVERNANCE, LEADERSHIP, MANAGEMENT, AND COMMERCIAL





INTRODUCTION TO GOVERNANCE LEADERSHIP MANAGEMENT AND COMMERCIAL COURSES

Introduction to Governance, Leadership, Management, and Commercial courses provide the essential skills needed for modern professionals to navigate complex business environments, ensure accountability, and foster sustainable growth in the Electricity and related sectors.



01

CORPORATE GOVERNANCE

Course Description and Objectives

The Corporate Governance course provides essential knowledge on how to structure, lead, and oversee organizations to ensure accountability, transparency, and sustainability. The course typically focuses on the relationship between the board of directors, management, shareholders, and stakeholders.

Who should attend

Board Members and Directors including Independent and Non-Executive Directors, C-Suite Executives as CEOs, CFOs, COOs, and senior management, Company Secretaries, Legal Advisors, and Compliance Officers, Internal and external auditors, individuals preparing for board roles and other suitably qualified personnel.

Course Outline

- *Foundations of Corporate Governance.*
- *Board of Directors and Governance Structures.*
- *Shareholders and Stakeholders.*
- *Risk Management and Internal Control.*
- *Ethics, ESG, and Corporate Social Responsibility (CSR).*
- *International Best Practices & Case Studies.*

Course Duration

5 Days

Number of Participants

8 Minimum and 16 Maximum

Course Prerequisites

A basic understanding of business operations, familiarity with company law, management principles, or previous leadership experience.

Training Methodology

The training methodology combines lectures, discussions, group exercises and illustrations. Participants will gain both theoretical and practical knowledge of the topics.

Course Materials

A set of soft copy notes will be provided.

Course Certification

An APUA/ANCEE and Centre of Excellence Certified Certificate of Competence/Attendance will be awarded on successful completion of the course.



02

TALENT MANAGEMENT AND SUCCESSION PLANNING

Course Description and Objectives

The Talent Management and Succession Planning course is designed to equip professionals with strategies to identify, develop, and retain high-potential employees while ensuring business continuity through structured leadership pipelines. The course focuses on aligning human capital with organizational goals. Upon completion, among others, participants will be able to connect talent management and succession planning with the organization's overall strategic objectives and develop tools to identify, evaluate, and groom high-potential (HiPo) employees for future leadership roles.

Who should attend

CEOs, HR Managers, Directors, Talent Management Managers, Organizational Development (OD) Specialists, Learning and Development Managers and other suitably qualified personnel.

Course Outline

- *Introduction.*
- *Strategic Integration.*
- *Talent Identification & Assessment.*
- *Development & Mentoring.*
- *Succession Planning Design.*
- *Retention & Engagement.*
- *Implementation & Evaluation.*

Course Duration

5 Days

Number of Participants

8 Minimum and 16 Maximum

Course Prerequisites

A foundational understanding of Human Resources principles or previous experience in a management/team leader role and involvement or responsibility in hiring, developing, or retaining employees.

Training Methodology

The training methodology combines lectures, discussions, group exercises and illustrations.

Course Materials

A set of soft copy notes will be provided.

Course Certification

An APUA/ANCEE and Centre of Excellence Certified Certificate of Competence/Attendance will be awarded on successful completion of the course.



03

PROJECT MANAGEMENT

Course Description and Objectives

The Project Management course generally focuses on providing a structured approach to leading projects from initiation to closure, heavily incorporating traditional (Waterfall) methodologies, Agile techniques, and hybrid approaches to align with evolving industry needs. Participants will gain skills amongst others to create project charters, scope statements, and Work Breakdown Structures (WBS). Develop realistic schedules using Gantt charts and critical path analysis, along with cost estimation and control.

Who should attend

Project Managers, technical personnel, team leaders, or functional managers (HR, Marketing, IT) who manage projects, all those involved in project execution (project members) and other suitably qualified personnel.

Course Outline

- *Introduction & Project Initiation.*
- *Project Planning.*
- *Risk and Quality Management.*
- *Project Execution, Monitoring & Control.*
- *Project Closing*

Course Duration

5 Days

Number of Participants

8 Minimum and 16 Maximum

Course Prerequisites

There are no major prerequisites required.

Training Methodology

The training methodology combines both theoretical and practical knowledge of the topics. The emphasis is on the practical application of the topics.

Course Materials

A set of soft copy notes will be provided.

Course Certification

An APUA/ANCEE and Centre of Excellence Certified Certificate of Competence/Attendance will be awarded on successful completion of the course.



04

STRATEGIC MANAGEMENT

Course Description and Objectives

The Strategic Management course is designed to equip leaders with the tools to analyze, formulate, and implement strategies that drive organizational success and competitive advantage. This comprehensive course bridges various business functions (finance, marketing, operations) to focus on the organization as a whole.

Who should attend

Leaders involved in strategic planning and implementation, such as Chief Executive Officers, Chief Operating Officers, functional Managers in Marketing, Finance, or HR and other suitably qualified personnel.

Course Outline

- *Introduction to Strategic Management.*
- *Strategic Analysis (Environmental Scanning).*
- *Strategy Formulation.*
- *Strategy Implementation.*
- *Evaluation and Control.*

Course Duration

5 Days

Number of Participants

8 Minimum and 16 Maximum

Course Prerequisites

A solid understanding of basic business functions—specifically Accounting, Marketing, Economics, Finance, and Organizational Behavior.

Training Methodology

The training methodology combines lectures, discussions, group exercises and practicals.

Course Materials

A set of soft copy notes will be provided.

Course Certification

An APUA/ANCEE and Centre of Excellence Certified Certificate of Competence/Attendance will be awarded on successful completion of the course.



LEADERSHIP AND COMPETENCY SKILLS TRAINING

Course Description and Objectives

The Leadership and Competency Skills Training course is designed to transition individuals from functional roles into effective leaders by developing both "hard" management skills and "soft" emotional intelligence skills. The course focuses on practical, actionable techniques to enhance team performance, decision-making, and organizational culture. By the end of this training, participants should be able to amongst others differentiate between management and leadership, applying both as needed and develop emotional intelligence to understand personal leadership styles and their impact on others.

Who should attend

Personnel responsible for daily operations and team performance, project managers managing cross-functional teams, leaders focused on organizational growth and culture and other suitably qualified personnel.

Course Outline

- *Foundations of Leadership.*
- *Self-Leadership & Emotional Intelligence.*
- *Communication Strategies.*

- *Coaching and Mentoring.*
- *Conflict Resolution & Team Dynamics.*
- *Decision-Making & Critical Thinking.*
- *Change Management & Adaptability.*
- *Delegation & Accountability.*

Course Duration

5 Days

Number of Participants

8 Minimum and 16 Maximum

Course Prerequisites

Basic experience in a supervisory, team lead, or project management role.

Training Methodology

The training methodology combines lectures, group exercises and hands on practical application of the topics.

Course Materials

A set of soft copy notes will be provided.

Course Certification

An APUA/ANCEE and Centre of Excellence Certified Certificate of Competence/Attendance will be awarded on successful completion of the course.



06

CONSTRUCTION CONTRACTS AND POWER PURCHASE AGREEMENTS

Course Description and Objectives

The comprehensive course on Construction Contracts and Power Purchase Agreements (PPAs) is designed to equip professionals with the legal, commercial, and technical skills necessary to develop, negotiate, and manage energy projects, such as solar, wind, or conventional power plants. The course typically focuses on the interface between Engineering, Procurement, and Construction (EPC) contracts and the revenue-generating PPA. By the end of this training, participants will be able to amongst others effectively allocate risk between developers, lenders, contractors, and off-takers regarding construction delays, cost overruns, and performance issues.

Who should attend

This course is ideal for professionals involved in energy project development, including, Legal Counsel and Lawyers, Contract and Procurement Managers, Project Developers and Sponsors, Engineers, Finance and Risk Analysts, Government Officials and Regulators and other suitably qualified personnel.

Course Outline

- *Introduction to Power Project Contracts.*
- *EPC Contracting Strategies.*
- *Power Purchase Agreement (PPA) Fundamentals.*

- *Risk Management and Mitigation.*
- *Negotiation and Administration.*

Course Duration

5 Days

Number of Participants

8 Minimum and 16 Maximum

Course Prerequisites

Basic experience in project management, contract administration, or energy finance and basic understanding of construction processes, project delivery methods, and project financial.

Training Methodology

The training methodology combines lectures, discussions, group exercises and illustrations. Participants will gain both theoretical and practical knowledge of the topics.

Course Materials

A set of soft copy notes will be provided.

Course Certification

An APUA/ANCEE and Centre of Excellence Certified Certificate of Competence/Attendance will be awarded on successful completion of the course.



07

DISPUTE RESOLUTION AND CLAIMS MANAGEMENT

Course Description and Objectives

The comprehensive Dispute Resolution and Claims Management course provides participants with the skills to identify, document, and manage construction or commercial claims, while implementing strategies to avoid formal disputes. By the end of this training, participants, amongst others, will be able to grasp the legal basis for claims (variations, extensions of time, disruption) and proactively identify potential claims and evaluate their viability, cost, and time impact.

Who should attend

This course is suitable for personnel involved in contract administration, including Project Managers and Project Engineers, Contracts Managers and Administrators, Quantity Surveyors and Cost Engineers, Legal Advisors and Counsel, Claims Managers and Risk Managers, Senior Managers involved in construction or government contracting and other suitably qualified personnel.

Course Outline

- *Introduction to Claims.*
- *Contract Management & Documentation.*
- *Delay and Disruption Analysis.*

- *Claim Submission & Rebuttal.*
- *Dispute Avoidance & Mitigation.*
- *Dispute Resolution Techniques.*
- *Case Studies & Practical Workshops:*

Course Duration

5 Days

Number of Participants

8 Minimum and 16 Maximum

Course Prerequisites

A basic understanding of science and chemistry.

Training Methodology

The training methodology combines lectures, discussions, group exercises and illustrations.

Course Materials

A set of soft copy notes will be provided.

Course Certification

An APUA/ANCEE and Centre of Excellence Certified Certificate of Competence/Attendance will be awarded on successful completion of the course.



ASSET MANAGEMENT IN A DIGITAL WORLD

Course Description and Objectives

The Asset Management in a Digital World course focuses on bridging traditional asset management principles with modern digital tools, AI integration, and data-driven decision-making. The main goal of this course is to equip participants with the knowledge to manage, optimize, and secure digital assets across their entire lifecycle, often focusing on ROI and operational efficiency.

Who should attend

Digital Asset Managers/Coordinators and DAM system administrators, marketing Technologists, Librarians in digital preservation, IT and Project Leaders responsible for implementing CMS/DAM systems and other suitably qualified personnel.

Course Outline

- *Introduction to DAM.*
- *Digital Assets Lifecycle.*
- *Metadata & Taxonomy.*
- *Technology Ecosystem.*
- *Digital Rights & Security.*
- *AI & Automation in DAM.*
- *System Implementation.*
- *Performance & Metrics.*

Course Duration

5 Days

Number of Participants

8 Minimum and 16 Maximum

Course Prerequisites

No specific prerequisites.

Training Methodology

The training methodology combines lectures, discussions, group exercises and illustrations.

Course Materials

A set of soft copy notes will be provided.

Course Certification

An APUA/ANCEE and Centre of Excellence Certified Certificate of Competence/Attendance will be awarded on successful completion of the course.



ENVIRONMENTAL IMPACT STUDIES

Course Description and Objectives

Environmental Impact Assessment (EIA) or Studies training course is designed to equip participants with the knowledge to identify, predict, and mitigate the environmental and social consequences of development projects. The course focuses on aligning projects with regulatory requirements and sustainable development goals.

Who should attend

This training is designed for personnel involved in project planning, environmental management, or regulatory compliance who include Environmental Managers and Officers, Project Managers and Engineers in energy, Mining and Construction, Government Regulators and Policy Makers and other suitably qualified personnel.

Course Outline

- *Introduction to EIA & Environmental Management*
- *The EIA Process - Part 1.*
- *The EIA Process - Part 2.*
- *Mitigation and Reporting.*
- *Management, Monitoring, and Review.*

Course Duration

5 Days

Number of Participants

8 Minimum and 16 Maximum

Course Prerequisites

A degree in environmental science, engineering, planning, or a related field, basic knowledge of environmental management or previous involvement in development projects.

Training Methodology

The training methodology combines lectures, discussions, group exercises and illustrations.

Course Materials

A set of soft copy notes will be provided.

Course Certification

An APUA/ANCEE and Centre of Excellence Certified Certificate of Competence/Attendance will be awarded on successful completion of the course.



LEADERSHIP DEVELOPMENT

Course Description and Objectives

This leadership development course aims to bridge the gap between management tasks and strategic leadership, equipping individuals with the emotional intelligence, decision-making skills, and adaptability needed to drive organizational success.

Who should attend

Leaders, supervisors at various levels of the organization and other suitably qualified personnel.

Course Outline

- *Foundation Leadership Principles.*
- *Strategic Vision and Communication.*
- *Team Building and Talent Development.*
- *Change Leadership and Innovation.*
- *Financial Acumen and Decision-Making.*
- *Digital Leadership and Future Readiness.*

Course Duration

2 Days

Number of Participants

8 Minimum and 16 Maximum

Course Prerequisites

Some experience in managing people or projects.

Training Methodology

The training methodology combines lectures, discussions, group exercises and illustrations.

Course Materials

A set of soft copy notes will be provided.

Course Certification

An APUA/ANCEE and Centre of Excellence Certified Certificate of Competence/Attendance will be awarded on successful completion of the course.



11

EMPLOYMENT AND SKILLS PLANNING

Course Description and Objectives

The Employment and Skills Planning course equips participants to analyze current employee capabilities, forecast future talent needs, and develop targeted training initiatives to close identified gaps. The course focuses on aligning human capital development with organizational goals and, in some contexts, fulfilling regulatory requirements.

Who should attend

Human Resource Managers and other HR personnel, Learning and Development (L&D) Specialists, Skills Development Facilitators (SDFs), Operations Managers and Departmental Supervisors and other suitably qualified personnel.

Course Outline

- *Introduction to Strategic Planning.*
- *The Skills Gap Analysis Process.*
- *Developing the Plan.*
- *Implementation and Evaluation.*

Course Duration

5 Days

Number of Participants

8 Minimum and 16 Maximum

Course Prerequisites

Basic understanding of human resource management principles, knowledge of organizational work processes, basic experience in a supervisory or management role and familiarity with, or responsibility for, training and development functions within the organization.

Training Methodology

The training methodology combines lectures, discussions, group exercises and illustrations.

Course Materials

A set of soft copy notes will be provided.

Course Certification

An APUA/ANCEE and Centre of Excellence Certified Certificate of Competence/Attendance will be awarded on successful completion of the course.



SKILLS INVENTORY SYSTEM

Course Description and Objectives

The Skills Inventory System course is designed to teach HR professionals, managers, and team leaders how to document, track, and analyze employee skills, qualifications, and experiences to close skill gaps and align talent with business goals. This training focuses on creating a database that maps employee capabilities to organizational needs.

Who should attend

Human Resources (HR) and Talent Management Personnel, Learning and Development (L&D) Specialists, Department Managers, Supervisors, Team Leads and other suitably qualified personnel.

Course Outline

- *Introduction to Skills Inventory.*
- *Identifying Key Competencies.*
- *Data Collection Methods.*
- *Building the Skills Inventory System.*
- *Analyzing the Data.*
- *Implementation and Maintenance.*
-

Course Duration

3 Days

Number of Participants

8 Minimum and 16 Maximum

Course Prerequisites

Basic familiarity with human resources or general workforce management principles, foundational knowledge of organizational structures and corporate goal-setting and basic computer literacy to navigate HR software, databases, or skills inventory worksheets.

Training Methodology

The training methodology combines lectures, discussions, group exercises and illustrations.

Course Materials

A set of soft copy notes will be provided.

Course Certification

An APUA/ANCEE and Centre of Excellence Certified Certificate of Competence/Attendance will be awarded on successful completion of the course.



MANAGING CHANGE IN A REFORM ENVIRONMENT

Course Description and Objectives

The Managing Change in a Reform Environment course trains leaders and professionals to successfully design, implement, and sustain organizational transformations within complex systems. It provides the practical frameworks, communication strategies, and diagnostic tools needed to minimize operational disruption and overcome stakeholder resistance during policy or administrative reforms.

Who should attend

This course is tailored for personnel leading or supporting capacity building and organizational transformation in all sectors including Electricity. Key attendees typically include Government policymakers, administrators, and senior public sector officials, team leaders, personnel steering institutional reforms, Human resources and other personnel in change management environments.

Course Outline

- *Foundations of Change Management.*
- *Strategy and Planning.*
- *Managing Resistance and Culture.*
- *Implementation and Sustainability.*

Course Duration

2 Days

Number of Participants

8 Minimum and 16 Maximum

Course Prerequisites

Background experience in public administration, human resources, or project management, and familiarity with basic management practices, strategic planning, or prior involvement in an organizational change initiative.

Training Methodology

The training methodology combines lectures, discussions, group exercises and illustrations.

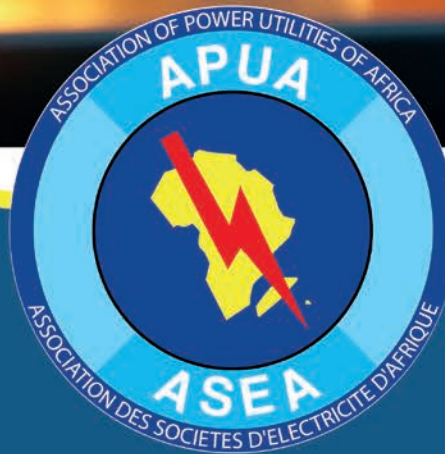
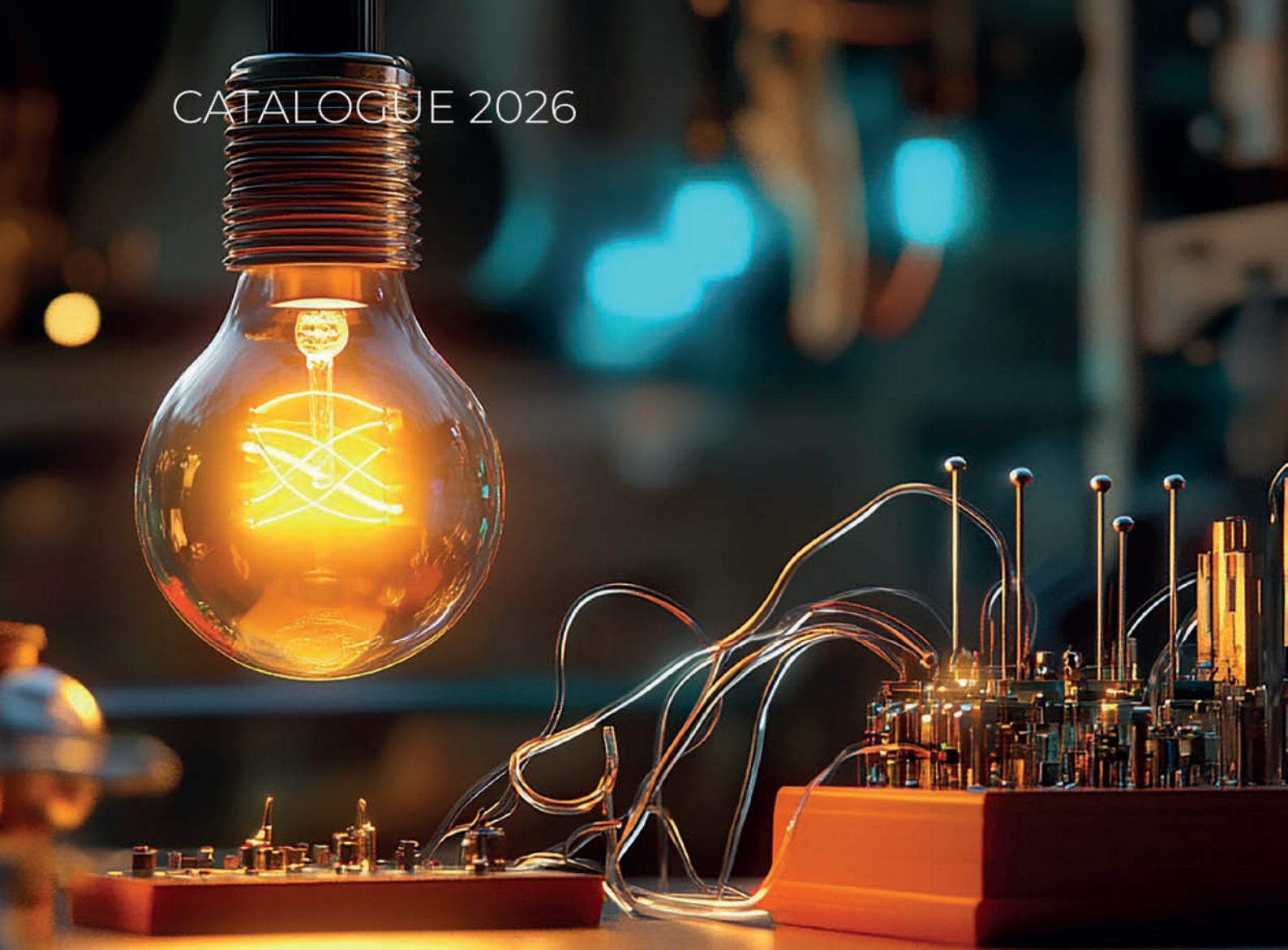
Course Materials

A set of soft copy notes will be provided.

Course Certification

An APUA/ANCEE and Centre of Excellence Certified Certificate of Competence/Attendance will be awarded on successful completion of the course.

CATALOGUE 2026



CHEMISTRY ELECTRICITY





INTRODUCTION TO CHEMISTRY COURSES IN ELECTRICITY

Chemistry courses in the electricity and power sector typically focus on electrochemistry (how chemical reactions produce or are driven by electricity) and materials science (the chemical properties that dictate electrical conductivity, insulation, and durability). These courses help engineers and technicians understand, maintain, and optimize electrical systems.



LONG TERM BOILER OBSERVATION

Course Description and Objectives

The Long-term boiler observation and management course teaches participants how to safely monitor, troubleshoot, and maintain industrial steam and hot water boilers over extended periods. The course focuses heavily on routine log-keeping, water quality, combustion efficiency, and early fault detection to extend equipment life and ensure regulatory compliance.

Who should attend

This training is essential for personnel responsible for the safety, efficiency, and continuous running of boiler houses.

Course Outline

- *Fundamentals & Heat Transfer.*
- *Pre-Startup & Operational Checks.*
- *Boiler Water Chemistry.*
- *Combustion & Efficiency.*
- *Safety Controls & Safeguards.*
- *Long-Term Observation & Record Keeping.*

Course Duration

5 Days

Number of Participants

8 Minimum and 16 Maximum

Course Prerequisites

A foundational understanding of math and science concepts (pressure, temperature, and basic chemistry), practical experience in a boiler house and personal involvement with routine plant checks and operation.

Training Methodology

The training methodology combines lectures, discussions, group exercises and illustrations.

Course Materials

A set of soft copy notes will be provided.

Course Certification

An APUA/ANCEE and Centre of Excellence Certified Certificate of Competence/Attendance will be awarded on successful completion of the course.



BOILER TUBES FAILURE

Course Description and Objectives

The Boiler Tube Failure (BTF) course teaches participants how to identify root causes, calculate tube life, and prevent unscheduled shutdowns in industrial steam systems. It covers damage mechanisms (corrosion, creep, fatigue), inspection techniques, and maintenance best practices to maintain assets.

Who should attend

Plant and Utility Engineers managing boiler operations and daily preventative maintenance, maintenance and reliability Engineers tasked with shutdown planning, root cause analysis, and repair execution, plant chemists managing feed-water quality and chemical treatment programs, inspection and safety personnel and other suitably qualified personnel.

Course Outline

- *Boiler & Tube Fundamentals.*
- *Damage Mechanisms.*
- *Cycle Chemistry.*
- *Inspection & Monitoring.*
- *Life Assessment.*
- *Repair and Prevention.*

Course Duration

5 Days

Number of Participants

8 Minimum and 16 Maximum

Course Prerequisites

A foundational understanding of thermodynamics, steam generation, or power plant equipment, experience of working in a process plant or power plant utilizing boilers and a diploma or degree in Mechanical, Chemical, or Process Engineering.

Training Methodology

The training methodology combines lectures, discussions, group exercises and illustrations.

Course Materials

A set of soft copy notes will be provided.

Course Certification

An APUA/ANCEE and Centre of Excellence Certified Certificate of Competence/Attendance will be awarded on successful completion of the course.



CATHODIC PROTECTION

Course Description and Objectives

Cathodic Protection (CP) training equips participants to prevent and monitor corrosion on metallic structures like pipelines and tanks.

Who should attend

Corrosion and pipeline integrity engineers, field technicians and inspectors, power plant maintenance personnel and other suitably qualified personnel.

Course Outline

- *Corrosion Theory.*
- *CP Fundamentals.*
- *Testing & Instruments.*
- *Field Measurements.*
- *Troubleshooting.*
- *Design & Commissioning.*

Course Duration

5 Days

Number of Participants

8 Minimum and 16 Maximum

Course Prerequisites

A minimum of a diploma qualification and some power plant working experience.

Training Methodology

The training methodology combines lectures, discussions, group exercises and illustrations. Participants will gain both theoretical and practical knowledge of the topics.

Course Materials

A set of soft copy notes will be provided.

Course Certification

An APUA/ANCEE and Centre of Excellence Certified Certificate of Competence/Attendance will be awarded on successful completion of the course.



POWER PLANT WATER TREATMENT

Course Description and Objectives

The Power Plant Water Treatment course teaches participants how to manage raw water purification, boiler feedwater chemistry, and wastewater. It is essential for minimizing equipment corrosion, preventing scale deposits, and maintaining regulatory compliance.

Who should attend

This training is designed for personnel involved in the operation, design, or maintenance of power plants, industrial utilities and other suitably qualified personnel.

Course Outline

- *Raw Water Pre-Treatment.*
- *Demineralization & High-Purity Makeup Water.*
- *Boiler Water & Cycle Chemistry.*
- *Cooling Water Systems.*
- *Wastewater Management & Monitoring*

Course Duration

5 Days

Number of Participants

8 Minimum and 16 Maximum

Course Prerequisites

Familiarity with standard water treatment plant operations or an engineering background.

Training Methodology

The training methodology combines lectures, discussions, group exercises and illustrations. Participants will gain both theoretical and practical knowledge of the topics.

Course Materials

A set of soft copy notes will be provided.

Course Certification

An APUA/ANCEE and Centre of Excellence Certified Certificate of Competence/Attendance will be awarded on successful completion of the course.



FUEL AND FUEL ADDITIVES

Course Description and Objectives

The Fuel and Fuel Additives training course covers the fundamental science, selection process, and compatibility of additives across major refinery products.

Who should attend

This training is designed for personnel managing fuel quality, supply, and performance across the electricity, oil, biofuel, and automotive industries and other suitably qualified personnel.

Course Outline

- *Fundamentals.*
- *Fuel Types and Specifications.*
- *Combustion and Engine Performance.*
- *Additive Chemistries.*
- *Storage and Compatibility.*
- *Future Fuels.*

Course Duration

5 Days

Number of Participants

8 Minimum and 16 Maximum

Course Prerequisites

A foundational understanding of refining, basic chemistry, or refinery terminology.

Training Methodology

The training methodology combines lectures, discussions, group exercises and illustrations. Participants will gain both theoretical and practical knowledge of the topics.

Course Materials

A set of soft copy notes will be provided.

Course Certification

An APUA/ANCEE and Centre of Excellence Certified Certificate of Competence/Attendance will be awarded on successful completion of the course.



TRANSFORMER OIL TESTS

Course Description and Objectives

The Transformer oil test training is a specialized program focused on the condition-based maintenance, diagnostics, and life-extension of high-voltage transformers. It teaches participants how to safely sample oil, perform industry-standard tests, and interpret results to prevent catastrophic equipment failures.

Who should attend

Electrical Engineers and Technicians, Maintenance Managers and Supervisors, Substation and Power Utility Personnel and other suitably qualified personnel.

Course Outline

- *Transformer Basics.*
- *Oil Sampling Procedures.*
- *Physical and Chemical Tests.*
- *Dissolved Gas Analysis (DGA).*
- *Advanced Diagnostics.*
- *Handling and Regulations.*

Course Duration

5 Days

Number of Participants

8 Minimum and 16 Maximum

Course Prerequisites

Familiarity with electrical systems, a foundational understanding of how transformers operate, their components, and winding connections and practical knowledge of general safety rules and High Voltage (HV) regulations.

Training Methodology

The training methodology combines lectures, discussions, group exercises and illustrations. Participants will gain both theoretical and practical knowledge of the topics.

Course Materials

A set of soft copy notes will be provided.

Course Certification

An APUA/ANCEE and Centre of Excellence Certified Certificate of Competence/Attendance will be awarded on successful completion of the course.



METAL CORROSION

Course Description and Objectives

The metal corrosion course provides foundational knowledge on why metals degrade, how to identify different forms of corrosion, and what preventive measures to apply in engineering and design.

Who should attend

This training is essential for personnel managing asset integrity, preventing premature failures, or producing metal components. Target attendees include Engineers across all disciplines (civil, mechanical, chemical, and materials), production, technical, and maintenance personnel, inspectors and quality control personnel and other suitably qualified personnel.

Course Outline

- *Introduction & Impact.*
- *Electrochemistry & Theory.*
- *Forms of Corrosion*
- *Metallurgy & Environment*
- *Prevention & Control Methods.*
- *Testing & Monitoring.*

Course Duration

5 Days

Number of Participants

8 Minimum and 16 Maximum

Course Prerequisites

A basic understanding of science and chemistry.

Training Methodology

The training methodology combines lectures, discussions, group exercises and illustrations. Participants will gain both theoretical and practical knowledge of the topics.

Course Materials

A set of soft copy notes will be provided.

Course Certification

An APUA/ANCEE and Centre of Excellence Certified Certificate of Competence/Attendance will be awarded on successful completion of the course.



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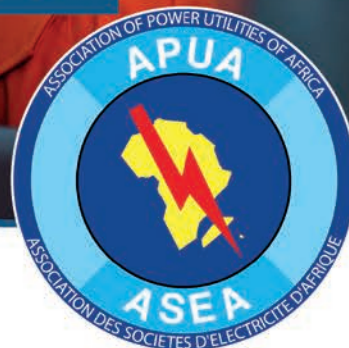
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