



ASSOCIATION OF POWER UTILITIES OF AFRICA (APUA)
AFRICAN NETWORK OF CENTERS OF EXCELLENCY (ANCEE)



2019 - 2021 TRAININGS CATALOGUE

No	Code	Name of Course	General Objectives	Educational Objectives	Duration of Course (Days)	Target Personnel	Prerequisites	Minimum Participants	Maximum Participants
4. TECHNICAL DISTRIBUTION									
40. STUDIES & PLANNING									
1	40001	Smart Grid	Up skilling participants of smart grid	Design of smart grid Needs of cyber security for the smart grid	10	Engineers	Knowledge of communication in electronics	8	12
2	40002	Metering theory	To have a basic understanding of metering applied within Eskom business and how it relates to the customers		3			6	12
41. CONSTRUCTION									
3	41001	Design and Planning of medium and low voltage networks	up skilling participants in design and planning of medium and low voltage networks	Design and planning of medium and low voltage networks Design of medium voltage over head transmission lines Design of distribution boards	10	Engineers working in the field of low voltage networks	N	8	12
4	41002	Planning and construction of Distribution network	Plan and construct Distribution projects	Plan Distribution projects Construct Distribution projects Maintain safety at all times	10	Distribution planning engns Distribution construction technicians Distribution maintenance supervisors	N	5	30
5	41003	Cable Jointing and Termination	To provide the participant with practical modern concepts in cable jointing and termination	Apply skills in the use of various types of hand, power speed tools in cable jointing and termination Identify and utilise various types of materials used in cable jointing and termination	15	Personnel in distribution, transmission and telecommunication Staff with trade tested certificates in engineering disciplines	N	5	10
6	41004	Distribution network power loss reduction techniques	To adapt methods on How to reduce technical & non-technical losses	To adapt methods on How to reduce technical & non-technical losses	10	Distribution engineers	N	5	30
7	41005	Protection System	up skilling of participants on protection systems	Familiarizing with : measuring transformers adjusting protection relays	10	Engineers and technicians	Basic knowlegde of electrical engineering	8	12
42. OPERATION									
8	42001	SCADA System for Distribution Networks	Up skilling participants in SCADA systems for distribution networks	Familiarizing with : § Principals of SCADA § SCADA protocol	10	Engineers	Knowledge of communication in electronics	8	12
9	42002	Metering phasor	To enable attendees to better interpret results from field testing and assist in identifying the problems.		2			6	12
10	42003	Distribution Substation Operations	Operate distribution substations safely	Understand Distribution network and its operation Operate Distribution substation and maintain stability	10	Distribution substation operators Distribution operation supervisors	N	5	30
11	42004	Distribution Systems Operations	To provide course participants with new theory and technical practice to new and experienced distribution system operators and the use of SCADA	Carry out operations on distribution systems using SCADA systems effectively Identify faults and locations without difficulty	15	Distribution personnel in control centres operation and maintenance, planning and design personnel	N	5	10
12	42005	Distribution substation operations	Operate Distribution substation safely	Understand Distribution network and its operation Operate Distribution substation and maintain stability Operate the system safely at all times	10	Distribution substation operators Distribution operation supervisors Power engineers/senior technicians for Distr.	N	10	30
43. MAINTENANCE									
13	43001	MV switchgear operations and maintenance	To Provide the course participants with modern concepts and practical techniques involved in MV switchgear operations and maintenance, demonstrate principles and safe working practices	Apply skills acquired in switching schedules and practice to operate switchgear correctly Apply skills acquired in switchgear maintenance to ensure effective operations of power systems	10	Engineers, Technologists and technicians	N	5	10
14	43002	Medium voltage switch gear	Up skilling of participants on medium voltage switchgear	Familiarizing with : Different types of switchgear maintenance of switchgear	10	Engineers and Technicians	Basic knowlegde of electrical engineering	8	12
15	43003	D & M and testing of distribution transformers	Up skilling in testing of distribution transformers	Familiarizing with : transformer components and internal design types of tap changer	10	Engineers and Technicians	Knowledge of electrical engineering	8	12
16	43004	Vibration and balancing of rotating machines	Up skilling of participants in vibration and balancing of rotating machines	Familiarizing with : § Causes of vibration § The nature of vibration	10	Mechanical and maintenance engineers	N	8	12
17	43005	Cable testing and fault locations for distribution networks	up skilling of participants on cable testing and fault locations for distribution networks	Familiarizing with : Medium voltage cable components cable testing	10	Engineers and Technicians	Basic knowlegde of electrical engineering	8	12
18	43006	D & M of Generators	Up skilling participants in Operations and Maintenance of Generators	Familiarizing with : § Providing with knowledge of generator operation	10	Engineers & Technician of at least 3 years' experience in the field	N	8	12
19	43007	Hydro Power maintenance Routines	To provide course participants with theory and technical practice in order to help them comprehend the maintenance of a power plant	Diagnose and trouble shoot maintenance faults	65	Power plant maintenance and operations staff	N	5	15



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20	43008	Distribution Line Maintenance	To provide course participants with modern concepts and practical techniques involved in distribution line maintenance	Apply skills in locating, staking, erecting, setting and guying poles	10	Line men	N	5	10
				Apply skills acquired stringing, joining, and sagging line conductors		Engineers, technologists and technicians			
				Work - Employers Service information.					
21	43009	Maintenance and trouble shooting of distribution systems	To provide course participants with modern concepts and practical techniques used in maintenance and troubleshooting of distribution systems	To apply skills acquired in operations and maintenance of distribution protection systems	10	Electrical engineers	N	5	10
				To apply skills acquired in troubleshooting and maintenance of distribution systems		Technologists and technicians			
				Work - Employers Service information.					
22	43010	Maintenance of medium and low voltage over head transmission lines	up skilling participants of maintenance of medium and low voltage over head	Using protective grounding and surge arrestors	10	Engineers and Technicians	Knowledge of basic electrical engineering	8	12
23	43011	Substation operations and maintenance	To provide course participants with theory and technical principles of operations of substations and the general maintenance of substations	Effectively operate the equipment in a substation Maintain, troubleshoot and man a substation	15	Substation personnel, electrical, mechanical engineers, technologists and technicians	N	5	10
24	43012	Power cable failure analysis and investigation techniques (medium voltage)	up skilling of participants of cable failure analysis and investigations (medium voltage)	essential requirements characteristics of underground cables Identify problems and failure modes of cables	10	Engineers and high qualified technicians	N	8	12