



TRAINING CALENDAR 2021

CATEGORY	S/N	COURSE TITLE	CATEGORY CODE	DURATION	VENUE	MONTH												PRICE
						FEB	MAR	APR	MAY	JUN	JULY	AUG	SEPT	OCT	NOV	DEC		
DISTRIBUTION	1	DISTRIBUTION NETWORK PROTECTION COURSE	D01	5 days	IJORA, KAINJI, KANO,		15 - 19		17 - 21				13 - 17		22 - 26		N70,000	
	2	ADVANCED TECHNICIANS MULTI - SKILL TRAINING FOR PRACTITIONERS (LINESWORK, CABLE JOINTING & ELECTRICAL FITTERS)	D02	10 days	IJORA, KAINJI, AFAM, KADUNA, JOS, KANO		1 - 12				19 - 30				8 - 19		N100,000	
	3	BASIC TECHNICIANS MULTI - SKILL TRAINING FOR NEW ENTRY LEVEL (LINESWORK, CABLE JOINTING & ELECTRICAL FITTERS)	D03	15 days	IJORA, KAINJI, AFAM, KADUNA, JOS, KANO			5 - 23				2 - 20		4 - 22			N150,000	
	4	DISTRIBUTION SUBSTATION OPERATIONS	D04	5 days	OJI, JOS, IJORA, KAINJI, KADUNA, KANO, ABUJA		22 - 26		10 - 14				6 - 10		1 - 5		N70,000	
	5	DISTRIBUTION NETWORK OPERATIONS & MAINTENANCE	D05	5 days	SAME AS ABOVE	15 - 19							13 - 17				N70,000	
	6	REFRESHER COURSE ON 33KV & 11KV CABLE JOINTING & TERMINATION	D06	5 days	JOS , IJORA	1 - 5			31 - 4				20 - 24				N70,000	
	7	BASIC METER INSTALLATION COURSE (C2)	D07	10 days	ABUJA, OJI, JOS, IJORA, KAINJI, KADUNA, KANO, AFAM			5 - 16			5 - 16			25 - 5			N100,000	
	8	METER INSTALLER SUPERVISOR COURSE (B2)	D08	10 days	SAME AS ABOVE			5 - 16			5 - 16			25 - 5			N100,000	
	9	DISTRIBUTION METERING	D09	5 days	ABUJA, IJORA, OJI, KAINJI, AFAM, KADUNA, KANO		29 - 2					23 - 27					N70,000	
	10	ENERGY AUDIT & CONSERVATION IN DISTRIBUTION SYSTEMS	D10	5 days	SAME AS ABOVE						19 - 23			4 - 8			N70,000	
	11	LT SWITCHGEAR: PROTECTION & TESTING	D11	5 days	SAME AS ABOVE			5 - 9				2 - 6					N70,000	
	12	POWER DISTRIBUTION MANAGEMENT	D12	5 days	SAME AS ABOVE	8 - 12				7 - 11						6 - 10	N70,000	
	13	ELECTRICAL HOUSE WIRING	D13			PLEASE VISIT WWW.NAPTIN.GOV.NG FOR THE SCHNEIDER ADVERTISEMENT												
	14	ELECTRICITY BUSINESS MANAGEMENT	D14	5 days	AKANGBA	22 - 26				14 - 18				4 - 8			N70,000	
	15	PLANNING AND CONSTRUCTION OF DISTRIBUTION NETWORK	D15	10 days	ABUJA, KAINJI, IJORA	22 - 5				21 - 2					22 - 3		N100,000	
	16	DISTRIBUTION NETWORK POWER LOSS REDUCTION TECHNIQUES	D16	10 days	ABUJA, KAINJI, IJORA			3 - 14					13 - 24				N100,000	
	17	DISTRIBUTION NETWORK DISPATCH AND EMERGENCY RESPONSE	D17	10 days	KAINJI, IJORA, AFAM					14 - 25		16 - 27					N100,000	
GENERATION	18	WORKSHOP ON BOILER OPERATIONS & MAINTENANCE	G01	3 days	AFAM, IJORA			5 - 7		30 - 2				10 - 12		N50,000		
	19	WORKSHOP ON HYDRO TURBINE OPERATIONS & MAINTENACE	G02	3 days	KAINJI, JOS, KANO		3 - 5			2 - 4	21 - 23					N50,000		
	20	GAS TURBINE OPERATIONS & MAINTENANCE	G03	5 days	AFAM, IJORA		8 - 12			7 - 11			4 - 8			N70,000		
	21	WORKSHOP ON STEAM TURBINE O & M	G04	3 days	AFAM, IJORA				5 - 7		14 - 16			17-19		N50,000		
	22	WORKSHOP ON PLANT LUBRICATION	G05	2 days	AFAM, IJORA, JOS, KANO		18 - 19			16-17		15 - 17				N40,000		
	23	POWER PLANT AUTOMATION	G06	10 days	AFAM, IJORA	1 - 12				1 - 12			13 - 24			N100,000		
	24	BASIC MAINTENANCE OF COMBINED CYCLE GAS TURBINE (CCGT)	G07	10 days	AFAM			12 - 23								N100,000		
	25	GAS TURBINE COMBUSTION INSPECTION (CI)	G08	3 days	AFAM, IJORA	24 - 26			19 - 21					24 - 26		N50,000		
	26	GAS TURBINE HOT GAS PATH INSPECTION (HGPI)	G09	3 days	AFAM, IJORA		3 - 5					4th - 6th				N50,000		
	27	GAS TURBINE MAJOR INSPECTION (MI)	G10	5 days	AFAM					21 - 25				25 - 29		N70,000		
	28	PUMPS & VALVES: SELECTION, OPERATION AND MAINTENANCE	G11	3 days	AFAM, IJORA, KAINJI	10 - 12							1st - 3rd		1 - 3	50,000		
	29	CORROSION ANALYSIS AND CONTROL IN POWER PLANT	G12	2 days	AFAM				24 - 25					4 - 5		N40,000		
	30	BALANCING AND ALIGNMENT TECHNIQUES	G13	3 days	AFAM, IJORA, KAINJI	17 - 19					7th - 9th				8th - 10th	N50,000		
	31	HYDRAULIC OIL/TRIP OIL SYSTEMS	G14	2 days	AFAM, IJORA		29 - 30					26 - 27				N40,000		
	32	POWER SYSTEM SCADA & EMS	G15	10 days	KAINJI			12 - 23				2 - 13				N100,000		
	33	POWER SYSTEMS OPERATION & AUTOMATION	G16	10 days	KAINJI, AFAM			5 - 16			5 - 16			25 - 5		N100,000		
	34	GENERATOR PROTECTION COURSE	G17	3 days	IJORA, KAINJI	24 - 26				9 - 11			22 - 24			N50,000		



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						FEB	MAR	APR	MAY	JUN	JULY	AUG	SEPT	OCT	NOV	DEC		
TRANSMISSION	35	POWER /DISTRIBUTION TRANSFORMER COMMISSIONING	T01	2 days	IJORA, KAINJI, AFAM, OJI, KADUNA, JOS, KANO, ABUJA	22 - 23			24 - 25							13 - 14	N40,000	
	36	TRANSFORMER OIL TEST & FILTRATION TECHNIQUES	T02	2 days	IJORA	1 - 2									22 - 23		N40,000	
	37	NUMERICAL RELAYS CONFIGURATION	T03	3 days	IJORA, KAINJI			7 - 9				4 - 6					N50,000	
	38	SAFETY & STANDARD PROTECTION CODE	T04	3 days	IJORA, KAINJI, AFAM, OJI, KADUNA, JOS, KANO, ABUJA		3 - 5		5 - 7				1 - 3				N50,000.	
	39	WORKSHOP ON TRANSFORMERS OPERATIONS & MAINTENANCE	T05	3 days	OJI, JOS, IJORA, KAINJI, KADUNA, KANO, AFAM		17 - 19			16 - 18				20 - 22			N50,000	
	40	REFRESHER COURSE ON SYSTEM OPERATIONS	T06	5 days	KAINJI, OJI			5 - 9			12 - 16					13 - 17	N70,000	
	41	POWER SYSTEM PROTECTION COURSE	T07	15 days	KAINJI, IJORA			12 - 30			19 - 6				8 - 26		N150,000	
	42	WORKSHOP ON SYSTEM EARTHING	T08	2 days	KAINJI, IJORA, AFAM, KANO, OJI, JOS, KADUNA,		8 - 9			14 - 15				18 - 19			N40,000	
	43	POWER SYSTEMS COMMUNICATIONS & SCADA	T09	10 days	KAINJI, IJORA			5 - 16			5 - 16			11 - 22			N100,000	
	44	ENERGY EFFICENCY IN ELECTRICAL UTILITIES	T10	10 days	KAINJI, IJORA, ABUJA	8 - 19							13 - 24				N100,000	
	45	SUBSTATION PLANNING DESIGN & OPERATIONS	T11	10 days	KAINJI, IJORA, AFAM				10 - 21				6 - 17				N100,000	
	46	PROJECT MANAGEMENT FOR POWER SYSTEM ENGINEERS	T12	5 days	KAINJI, IJORA, AFAM, OJI, KADUNA, KANO, JOS			5 - 9			5 - 9			4 - 8			N70,000	
	47	CONSTRUCTION AND MAINTENANCE OF TRANSMISSION LINES	T13	10 days	KAINJI, IJORA		8 - 19					9 - 20		19 - 30			N100,000	
	48	POWER GRID DISPATCHING & AUTOMATION SYSTEM	T14	10 days	KAINJI, IJORA, AFAM					14 - 25			13 - 24				N100,000	
	49	SUBSTATION MAINTENANCE & ELECTRICAL TESTING	T15	10 days	KAINJI, IJORA, AFAM, OJI, KADUNA, KANO, JOS			12 - 23			19 - 30						N70,000	
	50	RELAY PROTECTION AND AUTOMATION DEVICES MAINTENANCE	T16	5 days	KAINJI, IJORA		1 - 5			21 - 25							N70,000	
	51	TRANSMISSION, LIVE LINE WORKING TECHNIQUES	T17	5 days	KAINJI, IJORA,							26 - 30			26 - 30		N70,000	
	52	GRID MANAGEMENT	T18	5 days	IJORA, KAINJI, AFAM, KANO	1 - 5						30 - 3					N70,000	
	53	POWER CAPACITORS & POWER FACTOR CORRECTION	T19	5 days	IJORA, KAINJI, AFAM, KANO, OJI			26 - 30						25 - 29			N70,000	
	54	HV EQUIPMENT CONDITION BASED MAINTENANCE TECHNIQUES	T20	5 days	KAINJI, IJORA								6 - 10		1 - 5		N70,000	
	55	TRANSMISSION LINES DESIGN, CONSTRUCTION, OPERATIONS & MTCE	T21	10 days	IJORA, KAINJI			5 - 16			12 - 23					29 - 10	N100,000	



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						FEB	MAR	APR	MAY	JUN	JULY	AUG	SEPT	OCT	NOV	DEC		
GENERATION, TRANSMISSION, & DISTRIBUTION	56	POWER /DISTRIBUTION TRANSFORMER COMMISSIONING	GTD01	2 days	IJORA, KAINJI, AFAM, OJI, KADUNA, JOS, KANO, ABUJA	15 - 16			24 - 25							13 - 14	N40,000	
	57	TRANSFORMER OIL TEST & FILTRATION TECHNIQUES	GTD02	2 days	IJORA		15 - 16							18 - 19			N40,000	
	58	NUMERICAL RELAYS CONFIGURATION	GTD03	3 days	IJORA, KAINJI			7 - 9					22 - 24				N50,000	
	59	SAFETY & STANDARD PROTECTION CODE	GTD04	3 days	IJORA, KAINJI, AFAM, OJI, KADUNA, JOS, OJI, JOS, IJORA, KAINJI, KADUNA, KANO, AFAM		3 - 5			2 - 4		4 - 6					N50,000	
	60	WORKSHOP ON TRANSFORMERS OPERATIONS & MAINTENANCE	GTD05	3 days	IJORA, KAINJI, AFAM, OJI, KADUNA, JOS, OJI, JOS, IJORA, KAINJI, KADUNA, KANO, AFAM		17 - 19			15 - 17				20 - 22			N50,000	
	61	REFRESHER COURSE ON SYSTEM OPERATIONS	GTD06	5 days	KAINJI, OJI			5 - 9			12 - 16				15 - 19		N70,000	
	62	POWER SYSTEM PROTECTION COURSE	GTD07	15 days	KAINJI, IJORA		22 - 9				19 - 6				8 - 26		N150,000	
	63	ADVANCED POWER SYSTEM PROTECTION COURSE	GTD08	10 days	KAINJI, IJORA							30 - 10					N200,000	
	64	ELECTRICAL SAFETY AND STATUTORY REGULATIONS	GTD09	5 days	ABUJA, IJORA, KAINJI, AFAM, KADUNA, KANO, OJI	22 - 26					28 - 2						N70,000	
	65	NIGERIAN ELECTRICITY ACT, RULES & DEREGULATION	GTD10	5 days	SAME AS ABOVE				10 - 14						8 - 12		N70,000	
	66	POWER CABLES AND JOINTING TECHNIQUES	GTD11	5 days	IJORA, KAINJI, AFAM, KADUNA, JOS, KANO		1 - 5							25 - 29			N70,000	
	67	GROUNDING IN POWER SYSTEMS	GTD12	5 days	SAME AS ABOVE					14 - 18						13 - 17	N70,000	
	68	POWER QUALITY AND HARMONICS MITIGATION	GTD13	5 days	ABUJA, IJORA, KAINJI, AFAM, JOS, OJI, KANO				3 - 7			26 - 30					N70,000	
	69	POWER SYSTEM OPERATION & CONTROL	GTD14	10 days	KAINJI, IJORA, AFAM			12 - 23			12 - 23						N100,000	
	70	PROTECTION OF INDUSTRIAL POWER SYSTEMS	GTD15	10 days	KAINJI, IJORA	1 - 12						9 - 20					N70,000	
	71	TRANSFORMER OIL	GTD16	5 days	IJORA, KAINJI		1 - 5							5 - 9			N70,000	
	72	INSPECTION OF ELECTRICAL INSTALLATIONS	GTD17	5 days	ABUJA, IJORA, KAINJI, AFAM, KADUNA, KANO				10 - 14				6 - 11				N70,000	
	73	TRANSFORMER & SWITCHGEAR MTCE.	GTD18	10 days	KAINJI, IJORA, KADUNA	15 - 26			24 - 4				13 - 24				N100,000	
	74	POWER SYSTEMS COMMUNICATIONS & SCADA	GTD19	10 days	KAINJI, IJORA, AFAM			5 - 16			5 - 16			11 - 22			N100,000	
	75	ENERGY EFFICIENCY IN ELECTRICAL UTILITIES	GTD20	10 days	KAINJI, IJORA		22 - 5		7 - 18				13 - 24				N100,000	
	76	SUBSTATION PLANNING DESIGN & OPERATIONS	GTD21	10 days	KAINJI, IJORA				10 - 21				6 - 17				N100,000	
	77	PROJECT MANAGEMENT FOR POWER SYSTEM ENGINEERS	GTD22	5 days	KAINJI, IJORA, AFAM, OJI, KADUNA, KANO, JOS			5 - 9			5 - 9			5 - 9			N70,000	
	78	CONSTRUCTION AND MAINTENANCE OF TRANSMISSION LINES	GTD23	10 days	KAINJI, IJORA, KADUNA	1 - 12			10 - 21			9 - 20					N100,000	
	79	POWER GRID DISPATCHING & AUTOMATION SYSTEM O&M	GTD24	10 days	KAINJI, IJORA, AFAM					14 - 25			13 - 24				N100,000	
	80	SUBSTATION MAINTENANCE & ELECTRICAL TESTING	GTD25	5 days	KAINJI, IJORA, AFAM, OJI, KADUNA, KANO, JOS			12 - 23			19 - 30		28 - 9				N70,000	
	81	RELAY PROTECTION AND AUTOMATION DEVICES MTCE.	GTD26	5 days	KAINJI, IJORA			5 - 9							29 - 3		N70,000	
	82	TRANSMISSION, LIVE LINE WORKING TECHNIQUES	GTD27	5 days	KAINJI, IJORA,							23 - 27			29 - 3		N70,000	
	83	HV EQUIPMENT CONDITION BASED MAINTENANCE TECHNIQUES	GTD28	5 days	KAINJI, IJORA								20 - 24		1 - 5		N70,000	
	84	TRANSMISSION LINES DESIGN CONSTRUCTION, OPERATIONS & MTCE	GTD29	10 days	AFAM, IJORA, KAINJI	8 - 19					12 - 23				29 - 10		N100,000	
	RENEWABLE ENERGY & ENERGY EFFICIENCY	85	SOLAR PV INSTALLATION	REEE01	20 days	KAINJI, IJORA, ABUJA	1 - 26									1 - 26	N200,000	
		86	SOLAR PV INSTALLATION SUPERVISION	REEE02	20 days	KAINJI, IJORA, ABUJA				3 - 28		12 - 6			11 - 5			N200,000
		87	ENERGY AUDIT & MANAGEMENT	REEE03	5 days	KAINJI, ABUJA					14 - 18		16 - 20		25 - 29			N70,000
		88	MINIGRID DESIGN MODULE I	REEE04	20 days	KAINJI, IJORA	15 - 12				7 - 2			13 - 8				N200,000
		89	MINIGRID DESIGN MODULE II	REEE05	20 days	KAINJI, IJORA		15 - 9			28 - 23					1 - 26		N200,000
90		ENERGY EFFICIENCY IN BUILDING DESIGN	REEE06	10 days	ABUJA, KANO			19 - 30					14 - 25				N100,000	



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						FEB	MAR	APR	MAY	JUN	JULY	AUG	SEPT	OCT	NOV	DEC		
TRANSMISSION AND DISTRIBUTION	91	WORKSHOP ON CIRCUIT BREAKER MAINTENANCE	TD01	2 days	IJORA, KAINJI, AFAM, OJI, KADUNA, JOS, KANO, ABUJA			12 - 13		21 - 22			20 - 21				N40,000	
	92	O&M OF TRANSFORMERS AND CIRCUIT BREAKERS	TD02	5 days	IJORA, KAINJI, AFAM, OJI, JOS		8 - 12				12 - 16						N70,000	
	93	O&M OF POWER AND DISTRIBUTION TRANSFORMERS	TD03	5 days	IJORA, KAINJI, AFAM, OJI, KANO, JOS				3 - 7			30 - 3					N70,000	
	94	POWER SYSTEM STUDIES	TD04	10 days	IJORA, KAINJI			5 - 16			26 - 6						N100,000	
	95	REACTIVE POWER MANAGEMENT	TD05	5 days	IJORA, KAINJI	22 - 26									6 - 10		N70,000	
	96	SF6 CIRCUIT BREAKER TROUBLESHOOTING/MAINTENANCE	TD06	2 days	IJORA, KAINJI, AFAM, OJI, KADUNA, JOS, KANO, ABUJA		29 - 30				26 - 27						N40,000	
	97	HV SUBSTATION CABLE TERMINATIONS	TD07	3 days	JOS, IJORA			21 - 23					22 - 24				N50,000	
	98	WORKSHOP ON SWITCHGEARS OPERATIONS AND MAINTENANCE	TD08	3 days	OJI, JOS, IJORA, KAINJI, KADUNA, KANO, AFAM		24 - 26					4 - 6			3 - 5		N50,000	
	99	SCADA	TD09	5 days	IJORA, KAINJI, KADUNA				24 - 28						1 - 5		N70,000	
	100	CIVIL LINES DESIGN & PROJECT MANAGEMENT	TD10	5 days	IJORA, KAINJI, KADUNA		29 - 2				19 - 23			11 - 15			N100,000	
	101	POWER SYSTEM COMMUNICATION	TD11	5 days	IJORA, KAINJI, KADUNA					7 - 11							N70,000	
NON - TECHNICAL	102	ELECTRICAL POWER SYSTEM SIMPLIFIED FOR NON-TECHNICAL PROFESSIONALS (TECHNICAL FOR NON-TECHNICAL)	NT01	5 days	IJORA, KAINJI, AFAM, OJI, KADUNA, JOS, KANO, ABUJA, AKANGBA	1 - 5				14 - 18					1 - 5		N70,000	
	103	PROJECT MANAGEMENT FUNDAMENTALS	NT02	5 days	AKANGBA, KAINJI, KADUNA, OJI, AFAM, ABUJA			12 - 16		21 - 25		9 - 13		25 - 29			N70,000	
	104	IT SKILLS FOR MANAGERS (MDAS & OTHERS)	NT03	5 days	ABUJA, AKANGBA	15 - 19									1 - 5		N70,000	
	105	PERFORMANCE MANAGEMENT	NT04	5 days	AKANGBA	22 - 26			3 - 7			2 - 6					N70,000	
	106	ELECTRICITY MARKET & REGULATION	NT05	5 days	ABUJA, AKANGBA		8 - 12				5 - 9				8 - 12		N70,000	
	107	TRAINING OF TRAINERS (ToT) ON PEDAGOGY	NT06	5 days	ABUJA, KAINJI, AFAM, OJI, KANO		29 - 2			7 - 11		16 - 20					N70,000	
	108	CORPORATE STRATEGY, GOVERNANCE & HUMAN RESOURCE MANAGEMENT	NT07	5 days	AKANGBA			19 - 23				30 - 3			1 - 5		N70,000	
	109	STRATEGY FOR IMPLEMENTING OPERATIONAL POLICY	NT08	5 days	AKANGBA		1 - 5			21 - 25			6 - 10				N70,000	
	110	CUSTOMER RELATIONSHIP EXCELLENCE	NT09	3 days	AKANGBA	24 - 26		7 - 9					22 - 24			1 - 3	N50,000	
	111	ADVANCED MANAGEMENT PROGRAM FOR THE NIGERIAN ELECTRICITY SUPPLY INDUSTRY	NT10	5 days	AKANGBA		22 - 26			14 - 18				18 - 22			N70,000	
	112	ICT FOR HR PROFESSIONALS (DIGITAL HR)	NT11	5 days	AKANGBA, ABUJA		15 - 19			31 - 4		2 - 6			1 - 5		N70,000	
	113	ICT FOR FINANCE & ACCOUNT PROFESSIONALS	NT12	5 days	AKANGBA, ABUJA					31 - 4		2 - 6			1 - 5		N70,000	
	114	ICT FOR IMPROVED WORK DELIVERY	NT13	5 days	AKANGBA, ABUJA					31 - 4		2 - 6			1 - 5		N70,000	
	115	ENVIRONMENTAL ASSESSMENT AND OCCUPATIONAL HEALTH & SAFETY MANAGEMENT	NT14	5 days	AKANGBA, ABUJA					7 - 11			6 - 10			6 - 10	N70,000	
	116	FINANCIAL & BUSINESS MANAGEMENT	NT15	5 days	AKANGBA, KADUNA	8 - 12				28 - 2			13 - 17				N70,000	
	117	METERING, ENERGY GENERATION & PROTECTION	NT16	5 days	AKANGBA, KADUNA	8 - 12				28 - 2			13 - 17				N70,000	
	118	LEADERSHIP AND MANAGEMENT	NT17	10 days	AKANGBA, KADUNA, ABUJA	8 - 19				28 - 9					22 - 3		N100,000	
	119	EMOTIONAL INTELLIGENCE & EFFECTIVE COMMUNICATION	NT18	5 days	AKANGBA				3 - 14						15 - 19		N70,000	
	120	DIGITAL MARKETING FOR BUSINESS IMPROVEMENT	NT19	5 days	AKANGBA, ABUJA		22 - 26				19 - 30			18 - 29			N70,000	
	121	WORK PLACE ETHICS AND ATTITUDE	NT20	5 days	AKANGBA, ABUJA				3 - 14		19 - 30			18 - 29			N70,000	
	122	PROCUREMENT AND SUPPLY CHAIN MGMT.	NT21	5 days	AKANGBA, ABUJA		22 - 26				19 - 30			18 - 29			N70,000	
	123	NETWORK ADMINISTRATION & SECURITY	NT22	5 days	AKANGBA, ABUJA				10 - 14			9 - 13			8 - 12		N70,000	

NATIONAL POWER TRAINING INSTITUTE OF NIGERIA
NAPTIN TECHNICAL AND NON-TECHNICAL TRAINING CALENDAR - 2021
2021 CATALOG OF TRAININGS - NAPTIN

N°	Course Name	General objective	Specific objectives	Duration	Target audience
				Days	
1	WORKSHOP ON BOILER OPERATIONS & MAINTENANCE	delegates acquire insightful knowledge on the operations, maintenance, troubleshooting, and commissioning practices of boiler systems.	Gain insight into procedures for boiler commissioning	5	Operator
			Schedule maintenance based on maintenance checklist		technicians
			Implement maintenance strategies for boiler systems		engineers
2	WORKSHOP ON HYDRO TURBINE OPERATIONS & MAINTENANCE	Implement maintenance strategies for Hydro PP	Gain insight into application of relevant maintenance strategies	10	Hydro turbine mechanical engineers
			Schedule maintenance based on maintenance checklist		Hydro turbine technicians
			Implement maintenance strategies for Hydro plant		Those interested in power turbine maintenance with mechanical or electrical background
3	WORKSHOP ON GAS TURBINE MAINTENANCE	delegates will acquire insightful knowledge and skill needed for the operations, maintenance, troubleshooting, and commissioning practices of Gas turbine Power Plants	Gain Insight into Procedures for Gas Turbine commissioning	5	Operators
			Schedule maintenance based on maintenance checklist		technicians
			Implement maintenance strategies for Hydro plant		engineers
4	WORKSHOP ON STEAM TURBINE O & M	delegates will acquire insightful knowledge needed for the operations, maintenance, troubleshooting, and commissioning practices of Steam Turbine Systems	Gain insight into application of relevant maintenance strategies	3	Steam power plant Mechanical engrs
			Schedule maintenance based on maintenance checklist		Steam power plant senior technicians
			Implement maintenance strategies for steam plant		Those interested in steam turbine maintenance
5	WORKSHOP ON PLANT LUBRICATION	Delegates will acquire knowledge needed to maintain power plant lubrication systems	Schedule maintenance based on maintenance checklist	3	Power plant operators
			Implement maintenance strategies for plant lubrication systems		Mechanical maintenance technicians operators/maintenance supervisors
6	POWER PLANT AUTOMATION	Delegates for this course will acquire fundamental knowledge crucial to understanding process control in an automated power plant	integrate basic I&C know-how into power plant operation.	10	Power system operators
			Ability to wire S7-1200 devices using wiring diagrams		Power system engineers/senior technicians
			Program according to IEC 61131-3 using TIA Portal		Instrumentation/protection engrs
7	BASIC MAINTENANCE OF COMBINED CYCLE GAS TURBINE (CCGT)	delegates will acquire insightful knowledge and skill needed for the operations, maintenance, troubleshooting, and commissioning practices of Combined Cycle Gas turbine Power Plants	Gain insight into HRSG systems	10	Gas turbine mechanical engineers
			Schedule maintenance based on maintenance checklist		Gas turbine technicians
			Implement maintenance strategies for CCGT systems		personnel interested in power turbine maintenance with mechanical or electrical background
8	GAS TURBINE COMBUSTION INSPECTION (CI)	delegates implement operational, inspection, and maintenance practices that ensure gas turbine systems perform reliably	apply basic health and safety practices	3	Mechanical technicians/engrs
			apply methodologies and utilize tools defined by the gas turbine inspection schedule		
9	GAS TURBINE HOT GAS PATH INSPECTION (HGPI)	delegates to this course gain insight into the methodology required to measure and record component clearances performed during gas turbine maintenance	apply techniques for analyzing component clearances apply tools for troubleshooting HGP faults.	3	Mechanical technicians/engrs

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				Days	
10	GAS TURBINE MAJOR INSPECTION (MI)	delegates to this course are introduced to the tools and techniques required for performing major inspections of Gas turbines	apply basic health and safety practices familiarize delegates with the assembly and reassembly procedures required for Gas turbine inspection	5	Mechanical technicians/engrs
11	PUMPS & VALVES: SELECTION, OPERATION AND MAINTENANCE	UNDERSTAND THE PROCESS BEHIND SELECTION OF VALVES, PUMPS AND THE RELATIONSHIP WITH DIFFERENT SERVICE CONDITIONS	ability to apply purchasing and engineering practices behind selection of valves and pumps implement maintenance strategies for different valves and pumps	3	Mechanical technicians/engrs
12	CORROSION ANALYSIS AND CONTROL IN POWER PLANT	Apply methodologies and analytical tools for corrosion prevention and control in power plants	Ability to analyze symptoms of corrosion and prescribe prevention methods understand the best selection of materials and tools to reduce corrosion	3	Mechanical technicians/engrs
13	BALANCING AND ALIGNMENT TECHNIQUES	This program is aimed at training delegates to be competent in Alignment & Balancing of power industry rotating machine parts	apply basic health and safety practices interpret measurement data assoc. with balancing and alignment carry out maintenance according to specified checklist	3	Mechanical technicians/engrs
14	HYDRAULIC OIL/TRIP OIL SYSTEMS	To equip the participants with the necessary skill to maintain and operate hydraulic trip systems found in the power generating industry	Conduct routine maintenance on hydraulic oil systems apply troubleshooting techniques to hydraulic trip oil systems	3	Mechanical technicians/engrs
15	POWER SYSTEM SCADA & EMS	delegates will acquire practical knowledge of relevant topics involving Power Systems SCADA and the functional role of Energy Management Systems in Power Systems Automation	Gain insight into the components of SCADA systems gain the ability to correctly Calibrate field devices and interpret measured data and alarms	5	power system engs/snr technicians in operations
16	INSPECTION OF ELECTRICAL INSTALLATIONS	delegates will acquire practical skills necessary for carrying out successful inspection of electrical installations	Apply Standardized Safety practices necessary for inspection of electrical installation Correctly carry out Inspections with proper reporting and documentation	5	Inspection engs/technicians
17	POWER SYSTEMS OPERATION & AUTOMATION	Operate thermal or hydro plants effectively	Gain insight into power system automation and the operations of relevant component subsystems Consider all safety procedures in operations	10	Power system operators Hydro/Thermal power plant operators Operations supervisors
18	GENERATOR PROTECTION COURSE	delegates will acquire practical knowledge of relevant topics involving generator protection.	gain the ability to correctly parameterize protection relays gain the ability to interpret Generator faults and necessary next steps in clearing generator faults	10	Operators Technicians Engineers
19	Generator protection and control	To understand the principles of Generator, design generator protection schemes	explain, design, operate and maintain generator protection control circuits	10	
20	NAPTIN Graduate Skills Development Programme (NGSDP)	To gain fundamental skills to operate and maintain power system (Generation, Transmission and Distribution)	Explain, analyse critically and operate/maintain power system under supervision	a year	New graduate engs/technologists

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				Days	
21	NAPTIN Technical Skills Acquisition Programme (NTSAP)	To gain skills on a particular power system related trade (Cable jointing, Lines maintenance, Distribution substation operations, Electrical fitting & power system protection for technicians)	operate and maintain Distribution network under supervision	6 months	Technicians, craftsmen and artisans
25	ELECTRICAL SAFETY AND SPC	to familiarize all sections of people involved in electrical trade from generation transmission, distribution of electricity and industrial consumers about the statutory electricity rules relating to safe erection testing and commissioning of all electrical equipment	Explain safety in electricity work environment, conduct hazard/risks analysis and operate power system safely.	3	Practicing Engineers from Generators transformers distributor industries and other consumers of electricity, electrical inspectors and consultants
26	POWER /DISTRIBUTION TRANSFORMER COMMISSIONING	Be able to commission transformer safely in accordance with laid down procedures	Explain transformer operations and constructional features, conduct all pre-commissioning tests and commission the transformer in accordance with standards and procedures.	3	For engineers, technologists and senior technicians
27	TRANSFORMER OIL TEST & FILTRATION TECHNIQUES	To be able to test and or filter oil appropriately	Explain procedure of oil test and filtration. Identify the oil test kit and filtering machine. Test oil to confirm BDV and filter it when required.	3	Engrs, Technologists and senior technicians
28	NUMERICAL RELAYS CONFIGURATION	Configure relay in accordance with determined settings	Explain relays and relay protection schemes. Differentiate various types of relays and their functions. Set and configure overcurrent relays.	3	Protection engineers and technologists
29	WORKSHOP ON TRANSFORMERS OPERATIONS & MAINTENANCE	Understand operations and maintenance of transformers	Explain transformer operations and constructional features. Maintain transformer appropriately.	3	Power engineers, technologists/senior technicians

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				Days	
	REFRESHER COURSE ON SYSTEM OPERATIONS	Refresh operators on operational procedures and protection guarantee practice	Identify power componets and functions, Discuss switchgears and operations, operate the switchgears and attend to PG	5	For senior operators and supervisors
30	Basic Power system protection	Design protection scheme for utilities	Understand the basics of protection scheme	15	Protection and control engineers
			Set and coordinate relays		Protection senior technicians
			Calculate fault level and determine appropriate switchgears		Power system engineers interested in protection
31	WORKSHOP ON SYSTEM EARTHING	Understand and comply with earthing system requirements in a circuit	Explain earthing and its methods, identify and select various accessories for earthing, design and implemet earthing of substation	3	Engrs, technologosts/senior technicians
32	TRANSFORMER & SWITCHGEAR MAINTENANCE	Maintain and operate power equipment	Operate and maintain a transformer safely	10	Power system maintenance engrs
			Operate and maintain switchgears safely		Maintenance senior technicians
			Design maintenance checklist and maintenance schedules		Power system maintenance supervisors
33	POWER SYSTEMS COMMUNICATIONS & SCADA	Familiarise participants with different modes of power system communication and understand their operations and usage including SCADA	Explain modes of communication like PAX, fibre optics, Power line carrier, etc and use same to communicate in power system management as well oerate SCADA	10	For operations engineers, technologists and senior technicians
34	ENERGY EFFICENCY IN ELECTRICAL UTILITIES	Promote energy efficiency for better energy management	Explain energy efficiency and different methods of energy efficieny for enery management in the supply side (utilities) and employ the methods for efficient utiization of energy	5	for energy managers, energy auditors and supervisors.
35	DISTRIBUTION SUBSTATION PLANNING, DESIGN & OPERATIONS	Design a ssubstation	Explain and identify substation components and their functions, explain design considerations and criteria, plan and design a substation and develope its operational pattern.	10	Power system design engineers
36	System operations for Transmission substations	Operate transmission substations effectively	Understand basic power system and how it operates	10	Grid system opearations engineers
			Operate power system substations efficiently maintaining stability		System operations senior technicians
			Operate safely at all times		System operations supervisors
37	Construction and maintenance of Transmission lines	Design and construct transmission lines	Design Transmission lines considering relevant parameters	10	Transmission lines maintenance engrs
			Construct Transmission lines based on the design		Transmission lines maintenance senoir technicians
			Maintain Transmission lines		Transmission line maintenance supervisors
38	Power system communication	Understand and operate communication facilities	Understand communications channels, eg PLCC	10	Power communication engrs
			Use communication channels effectively		Power communication senior technicians
			Maintain communication facilities		Communication maintenance/supervision

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				Days	
39	Basic system operations	To operate hydro power plant and transmission substations	Identify major power system components and their basic functions.	10	Electrical system operators
40	Advance system operations for engr	To enable engineers operate power system and manage load adequately	Identify operating forms, their designations and uses.	10	System operations supervisors
41	Introduction to Transmission network system	To maintain install/existing transmission line	Explain and identify components in the transmission power value chain	10	For new engineers/technologists/senior technicians in transmission industry
42	Advanced protection (Distance protection course)	To understand the distance protection principles and calibrate distance relays	Explain, calibrate and maintain distance protection scheme	10	Transmission protection engineers
43	Distribution network protection	Design protection scheme for Distribution	Understand protection and control	5	Distribution protection engr
			Calculate fault level and design switchgears		Distribution senior protection technicians
			Design protection scheme for Distribution network		Protection design engr
44	ADVANCED TECHNICIANS MULTI-SKILL TRAINING FOR PRACTITIONERS (LINESWORK, CABLE JOINTING & ELECTRICAL FITTER)	Supervisor operations and maintenance practitioners in distribution	Explain transformer paralleling operations, cooling nomenclatures, maintain power transformer as well as switchgears associated with distribution network	10	Distribution engr and technologists/senior technicians
45	BASIC TECHNICIANS MULTI-SKILL TRAINING FOR PRACTITIONERS (LINESWORK, CABLE JOINTING & ELECTRICAL FITTER)	Enable distribution technicians to operate and maintain the network with multiple skills	Identify major components of power system, their operation and basic functions. Operate and maintain power Distribution network	15	Distribution technicians
46	Distribution substation operations	Operate Distribution substation safely	Understand Distribution network and its operation	10	Distribution substation operators
			Operate Distribution substation and maintain stability		Distribution operation supervisors
			Operate the system safely at all times		Power engineers/senior technicians for Distr.
47	DISTRIBUTION NETWORK OPERATIONS & MAINTENANCE	Operate and maintain Distribution network	Operate Distribution network system	10	Distribution operations/maintenance personnel
			Maintain Distribution network system		Distribution supervisors
			Operate and maintain safely at all times		Power engineers/senior technicians for Distr.

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				Days	
48	REFRESHER COURSE ON 33KV & 11KV CABLE JOINTING & TERMINATION	Refresh cable jointers on HV cane termination and jointing techniques	Different between LV and HV votage levels, determine HV (11&33KV) cable jointing and termination materials, terminate and join cables in HV systems.	5	Cable jointing senior technicians
49	BASIC METER INSTALLATION COURSE (C2)	To handle customer metering gap	Understand the basic principles and concepts in customer revenue metering and its importance to utility	10	Meter Installer
			Basic metering mathematics, power and energy calculation and vector computations		Meter Technician
			Metering wiring connections, types of connection and metering code		
50	METER INSTALLER SUPERVISOR COURSE (B2)	Understanding of the working principles and application of revenue metering, the technology support, metering standards and best practices to ensure an accurate and reliable customer revenue metering	The basic principles and concepts in customer revenue metering and its importance to the utility, Explain concepts of metering and different categories of meters, supervise meter installation.	10	Meter installation and inspection supervisor.
	Electrical House wiring & Installation	To conduct electrical domestic wiring	Explain and design surface, conduit,trunking and ducting wiring for domestic and industrial installation.	10	Domestic and Industrial wiring instaallers
51	Planning and construction of Distribution network	Plan and construct Distribution projects	Plan Distribution projects	10	Distribution planning engrs
			Construct Distribution projects		Distribution construction technicians
			Maintain safety at all times		Distribution maintenance supervisors
52	Distribution network power loss reduction techniques	To adopt methods on How to reduce technical & non-technical losses			
53	Distribution lines/cable jointing	Construct and maintain overhead and underground lines	Design and construct Distribution lines	3	Distribution lines maintenance personnel
			Maintain Distribution lines		Distribution linesconstruction technicians
			Join and terminate high voltage cables		Cable jointers for HV and MV
54	Introduction to Distribution network system	To understand the concept of power distribution system and different distribution topology and levels	Discuss distribution network configurations and functions. Select better option for distribution configuration.	3	Distribution training for biginners
55	Distribution network design and operations	To design and opérate distribution network system	Explain the cconcept of design, enumerate the procedures for designing a project, design power projects	10	Distribution design engineers

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56	Distribution substation operations Module I & II	To operate distribution substation and inspect substation equipment	Identify power components, explain their functions, operational procedure and operate the equipment effectively.	10 each	Distribution substation operators
57	DISTRIBUTION NETWORK DISPATCH AND EMERGENCY RESPONSE	Dispatch allocated power and provide to emergency response	<ul style="list-style-type: none"> •master the skills of distribution network o&m •be familiar with the skills of equipment maintenance and monitoring, distribution production command and fault repair command •be familiar with new technologies of smart distribution network and distribution automation 	5	Distribution operation engineers and supervisors
58	PROJECT MANAGEMENT FOR POWER SYSTEM ENGINEERS GTD	to prepare the power system engineers for efficient implementation of electrical projects		5	Engineers working in power utilities and licensed contractors responsible for implementation of various projects
59	Electrical fitters course Module I & II	To install and maintain electrical equipment in power system network	Explain transformer and switchgears functions, install and maintain distribution transformer and switchgears	10each	Doistribution maintenance technicians
60	Energy metering	Implement metering strategies	Determine energy demand of a customer	10	Energy metering engineers
			Determine the appropriate meter for the customer		Energy metering technicians
			Install the meter and determine the tariff for billing		Power systems personnel interested
61	Billing and customer care/customer relation	Understand and apply billing and customer relationship te	Understand ways to relate with a customer	10	Marketing officers for utilities
			Use the ways to relate with customer for better output		Customer care representatives
			Attend to customer complaints promptly		Customer complaints attendants
62	Revenue generation	Generate more revenue to utilities	Perform energy audit to identify its utilization and commercial losses	5	Marketing officers for utilities
			Strategize ways to improve revenue		Marketing supervisors
			Implement ways for revenue improvement and better service delivery		Revenue generation accountants/auditors
63	Meter installation	Determine and Install meters for difeerent customers	Determine appropriate meter for customer based on demand	10	Meter installation technicians
			Install the meter		Meter installation supervisors
			Test, calibrate and maintain the meter		Personnel interested in meter installation
64	Effective marketing strategies for power utilities	Employ startegies to market power products	Understand best marketing practices	5	Marketing and customer care personnel
			Employ best marketing strategies		Those interested in energy marketing
			Improve productivity for power utilities		Managers/supervisors of utilities
65	Leadership and management course	Understand and adapt leadership/management principles	Manage resources effectively	10	Managers of power utilities
			Lead by example		Spervisors of power utilities
			Develop leadership skills		Those interested in leadership and management

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				Days	
66	Project planning and management	Plan and manage projects effectively	Plan projects	10	Planning engineers
			Manage projects effectively		Project engineers
67	Planning and environmental safeguard management	Conduct environmental impact assessment	Comply with environmental policies and regulations	10	Project supervisors/managers/coordinators
68	IT skills for power professionals	Use IT skills for utilities operations	Use computer for daily utilities operations	5	All category of staff
			Use Microsoft office efficiently, esp word and excel		-
			Appreciate IT skills in your duties		-
69	Power system simplified for Non-Technical personnel	To understand basic concept of power system by non-technical personnel	Explain the basic principles of electricity, identify basic power system components and explain their functions	5	Non-technical professionals
70	Advanced Power System Protection	To familiarize the power engineers on the advanced aspects of protection in power systems	Gain an overview of the application of Numerical Relays in System Protection	10	Engineers from State Electricity Boards, Power Utilities/Corporations, R & D organizations, Academic institutions
			Gain insights into the role of IEDS in Power System Control & Monitoring		
			Apply Software Engineering tools to deliver consistent protection outcomes based on performance characteristics of Numerical Relays		
71	Distribution Metering	To Provide comprehensive view of Distribution metering, rules & regulations and rationalization required.	Gain practical appreciation of methodologies for Testing, Setting & Calibration of Distribution Meters	5	Engineers from State Electricity Boards/ Power utilities/Distribution System, R & D organizations, Academic institutions, manufacturers, contractors, consultants etc.
			Apply Failure analysis for proper diagnosis of faulty Distribution Meters		
			Practice/Understand the Philosophy behind Theft/Tampering and Inspection of consumer premises		
72	Electrical Safety and Statutory regulations	To familiarize all sections of people involved in electrical trade from Generator, Transmission, Distribution of electricity and Industrial consumers about the Statutory Electricity Rules relating to Safe Erection, Testing and Commissioning of all electrical equipment.	<ul style="list-style-type: none"> •Analyse Electrical Accident Case Studies •Gain an Overview of Nigerian Electricity Rules and guidelines 	5	Practising Engineers from Power Producers, Transmission System Operators, distributors, Industrial and other consumers of electricity, Electrical Inspectors and Electrical Consultants.
			Understand the philosophy behind Inspection Procedure for statutory inspection by Electrical Inspectors during Pre-commissioning tests of Transformers, Switch Gears and Power Cables		
73	Energy Audit & Conservation in Distribution Systems	To enlighten the participants with the concepts and methodologies of energy auditing, necessity & scope of energy conservation and demand side management in the deregulated and liberalised environment with specific emphasis on distribution sector.	Analyse Case Studies of Energy Audit Concepts & Methodologies in Distribution system	5	Engineers from State Electricity Boards, Power Utilities/Corporations, R & D organisations, Academic institutions, entrepreneurs and consultants/contractors involved in energy audit and energy conservation projects.

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			Practical Application of Energy conservation methodologies in electrical equipment and instrumentation equipment in Distribution sector		
74	Grid Management	To learn the methods of operating the electrical grid with resource optimisation	Gain an overview of Enterprise information systems Gain an insight into scheduling, contingency planning, shutdown, restoration, congestion management, merit order	5	Persons involved in operation and control of transmission and distribution systems.
75	Grounding in Power Systems	To ensure safety and proper operation of electrical system through application of simulated grounding systems	Apply Grounding Practices for specific case studies Analyse specific Grounding Case studies	5	Engineers from State Electricity Boards, Power Utilities/Corporations, R & D organisations, Academic institutions, power consumers, consultants/contractors etc.
76	Nigerian Electricity Act, Rules and Deregulation	To familiarise all sections of people involved in Transmission, Distribution of electricity and also all categories of consumers from domestic, industrial, commercial sections about the current Electricity Power Sector Act-2005 as amended	Gain an Overview of Electricity Power Sector Act-2005 (as amended up to date) Apply the grid code in specific case studies Gain an insight into the Status of Deregulation in Nigeria	5	Practising Engineers from Generators, Transformers, Distributors, Industrial and other consumers of electricity, Electrical Inspectors and Electrical Consultants.
77	LT Switchgear: Protection & Testing	To familiarise the distribution system engineers regarding the latest developments in the design, operation and testing of LT switchgear of 33 kV and below. The selection and performance of LT switchgear for different applications like process control industries etc. is also discussed.	<ul style="list-style-type: none"> •Apply Protection & co-ordination methods to LT Systems •Inspect LT panels, MCC panels, PCC panels, PMCC panels for Identification and understanding of operational procedures and features •Testing and commissioning of above switchgears and relays associated with the same 	5	Distribution system design and maintenance engineers from utilities and process industries, and academicians
78	O & M of Transformers and Circuit Breakers	To give insight into various aspects on operation, maintenance, testing and condition monitoring of Transformers and Circuit Breakers	Analysis of scenarios involving Transformer loading, testing, maintenance and condition monitoring, Circuit Breaker maintenance, testing and condition monitoring Application of Protection-coordination in LT systems	5	Engineers from State Electricity Boards, Power Utilities/Corporations, R & D organisations, Academic institutions

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79	O & M of Power & Distribution Transformers	This programme is to discuss maintenance aspects of power and distribution transformers.	Participate in a Visual Inspection of a state of the art transformer	5	Engineers involved in the Operation, Maintenance and Testing of Transformers from State Electricity Boards, Power Utilities, R & D organisations, Academic institutions, Transformer manufactures, Transformer Oil processors and servicing organisations etc.
			Carry out Testing to determine the state of Transformers		
			Analyse various transformer scenarios: Earthing, Loading, Maintenance & Protection		
			Analysis of Failure, Failure Analysis & Condition Monitoring of Transformers		
			Field Visit		
80	Power Cables and jointing techniques	This workshop is designed to familiarise power engineers on the mechanical considerations in the design of cables, application of different types of cables in the power industry with regard to physical configuration of cores, current carrying capacity, insulation strength etc. and also different electrical properties	<ul style="list-style-type: none"> •Demo on cable jointing •Apply Power cable jointing techniques in specific training scenarios •Analysis of failure of cables and case studies •Field Visits 	5	Engineers from State Electricity Boards, Power Utilities/Corporations, R & D organisations, Academic institutions, power consumers, consultants/contractors etc.
81	Power Capacitors and Power Factor Correction	To familiarise the system operation engineers with the necessity of Power Factor Correction. Methods adopted in the process. Study of capacitors in Power factor Correction. Reactive Power and Voltage Control Methods in Electrical Systems	Obtain working knowledge on the practical application of Specifications, design, construction, sizing and performance monitoring of capacitors	5	Engineers from T&D System Operation, HT consumers, manufacturers, R&D Organisations and Academic Institutions.
			Participate in Capacitor bank maintenance trouble shooting		
			Field Visits		
82	Power Distribution Management (PDM)	To familiarise participants with the distribution management with specific reference to optimisation of resources, cost benefit analysis of investments, revenue maximisation, loss minimisation in distribution etc.	Apply leading methodologies to PDM Scenarios with focus on: System level functions (system operation): Fault location, isolation, and service restoration; Feeder reconfiguration & Transformer balancing; Voltage/Var control using: Capacitors, Regulators, and LTC; Distribution system monitoring	5	Engineers from State Electricity Boards, Power Utilities/Corporations, R & D organisations, Academic institutions; Persons involved in operation and control of transmission and distribution systems.
			Apply leading methodologies to PDM Scenarios with focus on Customer Site Automation functions: Load control, Remote meter reading, Time- of-use rates, Remote connect/disconnect		
			<ul style="list-style-type: none"> •Indepth Inspection of energy meters: Types & Construction •Practice Testing, setting and calibration of Industry standard meters 		

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83	Power Quality and Harmonics Mitigation	To familiarise the power engineer regarding the power quality and causes, consequences and cures to harmonics in electrical systems/industry.	<ul style="list-style-type: none"> •Introduction to power quality •Power Quality – impacts, manifestations •Consequences of power quality •Power quality measurement •Harmonics – sources, measurements and mitigation •Filters – Active and passive filters, selection of filters •Static Var Compensators •Case Studies •Technical Visits 	5	The practicing engineers/supervisors of industry, utilities and faculty of educational institutions involved in maintenance of power quality and mitigation of harmonics
84	Power System Operation and Control	To provide insight into various aspects of power system, operation and control with specific thrust on generation, transmission and load dispatch	Obtain practical knowledge on <ul style="list-style-type: none"> •Power Stations & Substation Layout •Load Dispatch Centers •System Operation & Control •Load Management •Grid Code •Availability Based Tariff •Power System Stability •System Protection Schemes •HVDC Systems •Supervisory Control and Data Acquisition •Energy management systems •Video sessions on System Operation & System Protection •Study Tour 	10	Induction and middle level Engineers from State Electricity Boards, Utilities/Corporations, R&D organisations, Academic institutions etc.
85	Power System Studies	To familiarise the power system engineers with modelling of power system components and the power system studies software for power flow studies, short circuit studies, stability studies and relay coordination	<ul style="list-style-type: none"> •Load flow: Modelling and case studies •Short circuit studies; Z bus matrix and symmetrical components •Balanced and unbalanced faults and case studies •Over current relay coordination- case studies •Stability studies – modelling, case studies •Field visits 	10	Transmission and distribution engineers involved in system design, planning, protection and control, and engineers from R & D organisations, Academic institutions
86	Protection of Industrial Power Systems	The workshop is designed to cater to the needs of this critical requirement. It is designed to give insight of typical industrial installation with transformers, captive power plant and HT Motors.	<ul style="list-style-type: none"> • Protection Schemes of Captive Generators, Transformers, Motors, Power capacitor banks and Power Cables. • Protection Coordination of Industrial Grids. • LV Switchgear – selection, testing and performance analysis. 	10	Engineers involved in operation, maintenance, protection and testing of industrial power systems.

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N°	Course Name	General objective	Specific objectives	Duration	Target audience
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87	Reactive Power Management	This training is designed to offer comprehensive treatment of reactive power management and control.	<p>Reactive Power Control Equipment</p> <ul style="list-style-type: none"> •Performance of Reactive Power Equipment under different Operating Conditions •Comparative Study of AVRs, OLTCs, Power Capacitors, Shunt Reactors, SVCs, TCRs, Statcoms etc, in reactive power management. •Automatic Power factor controllers 	5	Transmission and Distribution Operating Personnel, Engineers involved in Planning, Design and Testing of Power Control Equipment and Engineers incharge of
88	Transformer Oil	this workshop on Transformer oil is organised to help disseminate knowledge, update the state of the art and exchange experience on various aspects of transformer	<ul style="list-style-type: none"> • Latest trends in Manufacturing Transformer Oil • Evaluation of Transformer Oil • Quality of Transformer Oil • Impurity effect on Oil Characteristics • Maintenance of Transformer Oil • Condition Monitoring of Transformer Oil • Dissolved Gas Analysis (Case Histories) • Mixing of Oils & the effects therein • Reclamation of Transformer oil 		Engineers from State Electricity Boards, Power Utilities/Corporations, R & D organisations, Academic institutions, Transformer Manufacturers, Transformer Oil Manufacturers and processors