

FIRST TRAINING SEMESTER

Course Title			
Electrical Circuits (1)			
Course Code	EG 101	Credits	4
Lecture Hours	4	Practical Hours	0
Total Hours		4	
Course Description			
This course gives the trainer the basic principles of Direct Current Circuits. He studies the definition of voltage, current and resistance. Then he studies the connection of resistance, series, parallel, series unparallel and the star-delta connection. He studies the concepts of power energy.			

Course Title			
General Workshop			
Course Code	EG 103	Credits	3
Lecture Hours	0	Practical Hours	6
Total Hours		6	
Course Description			
Basic Skills - Knowing Hand Tools - The use of measuring and planning tools - the use of the file - the use of a hand saw Electrical extensions -			

Course Title			
Electrical Materials			
Course Code	EG 106	Credits	2
Lecture Hours	2	Practical Hours	0
Total Hours		2	
Course Description			
It explains the nature of materials and their classifications in terms of being conductive and insulating materials for electricity and semiconductors. It also deals with the uses of different materials and examples of them, their properties and uses in the field of electricity.			

Course Title			
Engineering Drawing			
Course Code	EG 102	Credits	2
Lecture Hours	0	Practical Hours	4
Total Hours		4	
Course Description			
This course presents the basic drawing skills of engineering shapes and methods using basic tools such as pencil, T square, protractor, and compass. Also, it underlines the isometric planes by applying exercises.			

Course Title			
Computer (1)			
Course Code	CS 101	Credits	1
Lecture Hours	0	Practical Hours	2
Total Hours		2	
Course Description			
In this course the students will learn about computer history and its components as a fundamental introduction, which is the theoretical part of the course. Then they will learn how to use Microsoft Windows and Microsoft Word, which is the practical part of the course.			

Course Title			
Mathematics (1)			
Course Code	MA104	Credits	4
Lecture Hours	4	Practical Hours	0
Total Hours		4	
Course Description			
This course introduces arithmetic skills, including polynomials factoring, polynomials operations, coordinate system, and statistics.			

Course Title			
English Language (1)			
Course Code	EN 126	Credits	3
Lecture Hours	2	Practical Hours	2
Total Hours		4	
Course Description			
This course introduces a domain of vocabulary items, structural themes, language functions and listening/speaking /writing as well as evaluation. The ultimate goal of teaching such course is enabling the trainees to express themselves in English in a simple way and to create short sentences about their relatives, friends, hobbies and homeland in a sound comprehended language.			

Course Title			
Electrical Circuits Lab			
Course Code	EG 111	Credits	1
Lecture Hours	0	Practical Hours	2
Total Hours		2	
Course Description			
This course gives the trainer the basic principles of Direct Current Circuits. He studies the definition of voltage, current and resistance in lab. Then he studies the connection of resistance, series, parallel and how to connect it in lab, and short and open circuits, also understanding and solving all experiments above.			

Course Title			
Physics Lab			
Course Code	EG 112	Credits	1
Lecture Hours	0	Practical Hours	2
Total Hours		2	
Course Description			
Conduct experiments on the electromagnetism phenomenon by experimenting the magnetic field generated by current passing through conductor. apply practical experiments to verify the electromagnetic force to move mechanical lever used on actual electromagnetic induction using two coils, self-induction, and coils. Identify the effect of resistance coils in DC and Ac circuits.			

SECOND TRAINING SEMESTER

Course Title			
Electrical Circuit (2)			
Course Code	EG 151	Credits	5
Lecture Hours	4	Practical Hours	2
Total Hours		6	
Course Description			
Introduction to AC current. Resistance, inductive reactance, capacitive reactance, impedance. Impedance connection in series, parallel, and combined. Admittance connection in series, parallel, and combined. Star and delta connection of impedance. Electromagnetic inductance. Active power, reactive power, apparent power, and power factor. Operations of single-phase transformers. Resonant circuit.			

Course Title			
Electrical Maintenance Workshop (1)			
Course Code	EM 153	Credits	3
Lecture Hours	0	Practical Hours	6
Total Hours		6	
Course Description			
Electrical measuring devices - springboard - specifications - types - uses - sizes, use of springing device to remove the springing from the motor shaft. Convection oven, induction furnace, oil oven specifications and usage. Varnish specifications and use. Copper coil and insulation. Assembly and disassembly of small electric motors. Assembly and disassembly of a small electric generator.			

Course Title			
Electrical Drawings			
Course Code	EM 154	Credits	2
Lecture Hours	0	Practical Hours	4
Total Hours		4	
Course Description			
Electrical symbols of power plants, Single line drawing of a power plant. Single line diagram of a generator. Single line diagram of a generator's transformer. Single line diagram of an excitation transformer. Single line diagram of a rectification circuits. Single line diagram of a tap-changer. Cross-section in a synchronous generator. Single line diagram of an 11KV and 132KV transmission line. Single line diagram of 11KV, 6,6KV, and 3,3KV motor.			

Course Title			
Electrical Measuring Instruments			
Course Code	EM 155	Credits	3
Lecture Hours	2	Practical Hours	2
Total Hours		4	
Course Description			
This course covers the theory of different measuring instruments for voltage, current, resistance, power factor, and kWh. Students learn the function of the clamp ammeter, megger, phase rotation, and cable route locator.			

Course Title			
Electrical Powerplants			
Course Code	EM 157	Credits	2
Lecture Hours	0	Practical Hours	2
Total Hours		2	
Course Description			
Introduction on electrical power station ,Internal visit for Doha west power station model, Thermal Stations (steam) , Doha west power station visit and over view of the station sections, seawater station (visit), Cooling system of seawater station, Feeding water system (visit), Simple circuit for Boiler structure , Boiler (visit),Power Simulator visit, Doha west power station visit, steam turbine study of Doha west power station, steam turbine auxiliaries' study of Doha west power station, chlorine station study, ECR electrical control room study, Electrical mimic boards (switching room), circuit breakers and transformers in Doha west power station study.			

Course Title			
Computer (2)			
Course Code	CS 151	Credits	1
Lecture Hours	0	Practical Hours	2
Total Hours		2	
Course Description			
In this course the students will learn about computer and its components and the use of MS-Excel and windows to manage file then introduction to MS-Word.			

Course Title			
English Language (2)			
Course Code	EN 166	Credits	2
Lecture Hours	1	Practical Hours	2
Total Hours		3	
Course Description			
This course introduces different vocabulary items, structures, language functions and listening/ speaking /writing as well as evaluation. It aims at familiarizing the trainees with the forms of (be) (do)&(Have) as auxiliary verbs as well as full verbs. Trainees also learn to make questions, replying with questions, the use of passive forms in the present and in the past. In addition to future tense which is used in expressing decisions and intentions in the future using (will) and (going to).			

Course Title	Mathematics (2)		
Course Code	MA154	Credits	3
Lecture Hours	3	Practical Hours	3
Total Hours	3		
Course Description			
This course introduces arithmetic skills, including trigonometry, vectors, complex numbers and derivatives and integration.			

THIRD TRAINING SEMESTER

Course Title	D.C. Machines (1)		
Course Code	EM 201	Credits	5
Lecture Hours	4	Practical Hours	2
Total Hours	6		
Course Description			
This course examines the basic theory, characteristics, construction operation and application of rotating electrical machines. It includes the study of direct DC machine with separated excitation, DC Machine with series, parallel and combined long, short, and combined DC Machine. Applications on DC generators and motors of power plants.			

Course Title	Electrical maintenance workshop (2)		
Course Code	EM 203	Credits	3
Lecture Hours	0	Practical Hours	6
Total Hours	6		
Course Description			
Theoretical study and practical application on the circuit breakers (11 kilovolt in various forms and mode of operation and used in the low voltage network with maintenance work on them and the use of the device to check the cutter and check the quality of the oil of the cutter - magnetic contactor / Compressors, protectors, photovoltaic cells and electric buoys.			

Course Title	A.C. Machines (1)		
Course Code	EM 205	Credits	4
Lecture Hours	3	Practical Hours	2
Total Hours	5		
Course Description			
The students will be able to connect and operate typical AC machines; single phase and three phases.			

Course Title	Protection (1)		
Course Code	EM 211	Credits	3
Lecture Hours	2	Practical Hours	2
Total Hours	4		
Course Description			
Introducing students to the concepts of power system protection that includes understanding the principle of operation of protection system components such as fuses, relays, circuit breakers, and measuring transformers and their applications and designing protection systems for transmission lines, reactors, transformers, and distribution rails.			

Course Title	Power Electronics (1)		
Course Code	EM 213	Credits	3
Lecture Hours	2	Practical Hours	2
Total Hours	4		
Course Description			
This course covers the semiconductor devices such as diode and thyristor and their applications in creating 1-single phase and 3-phase rectifying circuits to drive DC motors. In addition, it covers voltage regulators to drive AC motors.			

Course Title	Safety Regulation		
Course Code	EM 215	Credits	2
Lecture Hours	2	Practical Hours	0
Total Hours	2		
Course Description			
Safety and security regulations, training on using safety tools and clothes related to work site, installation and detaching for control and measurements devices. Following correct rules in electrically and mechanically isolating. Using tools and materials damping the sparks when dealing with gas. Dealing and arranging in work between control technician and the operator. Discover leaking then discharge and evacuation pipes from dangerous gases as chloride and soda. Using safety clothes. Identify the different places for measuring equipment's in the site; identify the colours for different lines as gas, air, chlorine, steam and services air pipe.			

Course Title	English Language (3)		
Course Code	EN 222	Credits	2
Lecture Hours	1	Practical Hours	2
Total Hours	3		
Course Description			
This course introduces a domain of Technical vocabulary items, structural themes, language functions and listening/speaking /writing as well as evaluation, enables the trainees to identify the technical terms in English in a simple way and to express themselves in their jobs, in a sound comprehended language.			

FOURTH TRAINING SEMESTER

Course Title	Measuring and Control systems		
Course Code	EM 265	Credits	2
Lecture Hours	1	Practical Hours	2
Total Hours	3		
Course Description			
Pneumatic units. The natural properties of air. The effect of heat and pressure on air. The ability of air to absorb water. Flow velocity. Compressed air as a control medium. Pneumatic control circuits. Basics of hydraulic control. Hydraulic action and control elements. Hydraulic control circuits. Air compress special units, natural specification of the air, temperature and pressure affect in the air, flow speed, compress air as control system, control circuit with compress air, hydraulic control principal, trip hydraulic control elements, hydraulic control system.			

Course Title	Electrical Maintenance workshop (3)		
Course Code	EM 253	Credits	3
Lecture Hours	0	Practical Hours	6
Total Hours	6		
Course Description			
Study the synchronies generator (type, size, specification, using), generator check. Electrical transformer maintenance (type, size, specification, use), electrical transformer maintenance exercise (assemble and disassemble), terminal test using measuring relay, study diesel generator specification, diesel generator operation, diesel generator maintenance. Electrical voltage regulation, electrical change over switch between main and auxiliary supply of diesel generator, power cable (types, size, use, maintenance)			

Course Title	AC Machines (2)		
Course Code	EM 255	Credits	5
Lecture Hours	4	Practical Hours	2
Total Hours	6		
Course Description			
This course covers 3-phase induction machines, 3-phase synchronous motor and 3-phase synchronous generator.			

Course Title	Protection (2)		
Course Code	EM 261	Credits	3
Lecture Hours	2	Practical Hours	2
Total Hours	4		
Course Description			
Focus on designing transmission and distribution protection schemes. This will include protection basics, relay design, protection plans for generators, transmission lines, transformers, and distribution rails. In addition, focus on the settings of the feeder and transformer protection schemes, and the selection of metering transformers for current and voltage for these protection schemes.			

Course Title	Power Electronics (2)		
Course Code	EM 263	Credits	3
Lecture Hours	2	Practical Hours	2
Total Hours	4		
Course Description			
This course covers voltage regulators, single phase and three phase inverters, DC-DC choppers and the cycloconverter.			

Course Title	DC Machines (2)		
Course Code	EM 251	Credits	3
Lecture Hours	2	Practical Hours	2
Total Hours	4		
Course Description			
This course covers the troubleshooting of the various type of DC machine connections.			

Course Title	English Language (4)		
Course Code	EN 268	Credits	2
Lecture Hours	1	Practical Hours	2
Total Hours	3		
Course Description			
This course introduces a domain of Technical vocabulary items, structural themes, language functions and listening/speaking /writing as well as evaluation. The ultimate goal of teaching such course is enabling the trainees to identify the technical terms in English in a simple way and to express themselves in their jobs, in a sound comprehended language			

Course Title	Field Training		
Course Code	EM 300	Credits	15
Lecture Hours	0	Practical Hours	30
Total Hours	30		
Course Description			
Training in power station at Ministry of Electrical and Water.			