

SESP
المعهد السعودي للتقني لخدمات الكهرباء
SAUDI ELECTRIC SERVICES POLYTECHNIC

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PROSPECTUS

2019-2020



SQA Approved
Centre

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Education and Training



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VISION

To be a world-class vocational training institution, which is flexible and responsive to the needs of the power utility and construction industries, and labor market.



MISSION

To safely, effectively and efficiently train and develop the best prepared manpower for Saudi Electricity Company and local companies.

SESP VALUES

SAFETY AND SECURITY

At SESP, safety always comes first.

We provide a secure and safe environment across our institution, insisting upon the highest standards of safety at all times. The importance of safe working practices cannot be underestimated in the electricity supply and construction industries, and we instill a profound awareness of this in all our trainees.

EXCELLENCE

We are committed to providing world-class educational opportunities to the people of the Kingdom of Saudi Arabia. Through our extensive range of programs, we strive to maximize the employability of our trainees, equipping them with the full range of skills they will require in their future careers.



SUSTAINABILITY:

We strive to foster a trusting and transparent educational environment within our training centers and to employ efficient modern technology to minimize our impact on the environment beyond.

PROFESSIONAL PARTNERSHIP:

Our institution is driven by the needs of Saudi Electricity Company, the Technical and Vocational Training Corporation, and local companies.

We are dedicated to exceeding their expectations by utilizing unparalleled technology and equipment, sourced from select international suppliers, and integrating with the local community to ensure that our goals are aligned with the current and future needs of the Kingdom of Saudi Arabia.

INTRODUCTION TO SESP

Saudi Electric Services Polytechnic (SESP) is a non-profit institution established in 2012. Starting its operations at Baish, Jazan Province, SESP moved its headquarters to a second campus, Juaymah Training Center, at Al Qatif in 2013. SESP's third campus at Riyadh Training Center opened to trainees in 2014. The polytechnic was established through a partnership between Saudi Electricity Company (SEC) and the Technical and Vocational Training Corporation (TVTC). Please find a current list of the Board of Trustees on page 133. SESP is charged with the training and development of young Saudi trainees for careers in Saudi Electricity Company and local industries.

FIRST RATE FACILITIES

SESP prides itself on state of the art workshops and laboratories in the relevant field of study. With identical facilities at each SESP campus, trainees are also able to take advantage of prayer areas, full catering services, library resources, computer suites and social areas centred around the "student hub". Classrooms are all equipped with high-end audio-visual equipment and boards and located as an integrated feature of the labs and workshops or in the purpose built main building

NEW HORIZONS

SESP has, since its inception, geared its services to the power utility industry and will of course continue to do so.

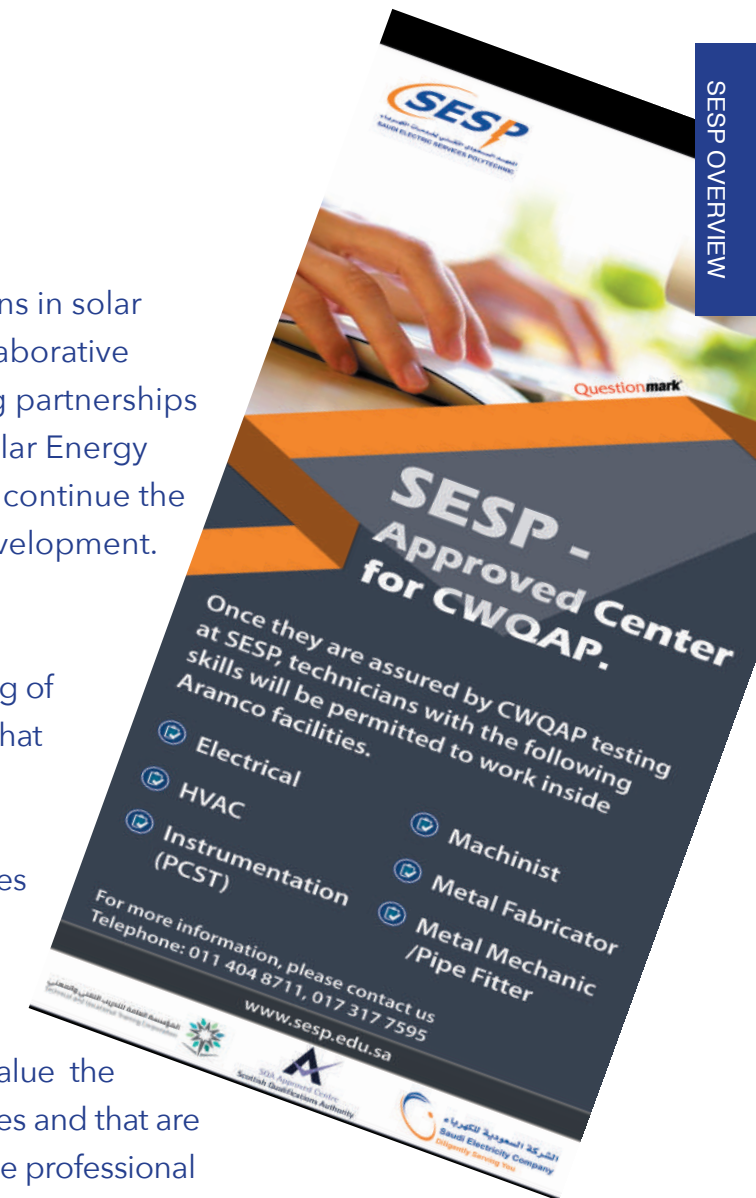
From 2018, SESP has stepped up research into the provision of new programs, in tune with Saudi Arabia's 2030 Vision, ever ready to provide work-ready graduates who are able to contribute to the new directions as mapped out by the Saudi Arabian government.

This inevitably involves the area of renewable and nuclear energies. SESP is in close collaboration with King Abdullah City for Atomic and Renewable Energy with a view to aiding training initiatives and program development in these specific areas.

Solar and wind energy are seen as a viable response to the Kingdom's future needs in electricity production, and as a result, our programs now provide practical courses and full programs that

train our future technicians in solar PV. SESP has sought collaborative partnerships and training partnerships with DNV-GL and SEI (Solar Energy International) in order to continue the very best of program development.

Another aspect of SESP's commitment to the forging of meaningful partnerships that strengthen our country's workforce skills is the provision of testing facilities and tests that attest to the employee's set of skills in a particular field. This is open to companies that value the skills of certified employees and that are willing to collaborate in the professional development of their staff.



CWQAP

CONTRACTOR WORKFORCE QUALIFICATION ASSURANCE PROGRAM

SESP is an approved center for testing and training center for Saudi Aramco's CWQAP program, the purpose of which is to assure the technical knowledge and awareness of Aramco's safety and security procedures of the technicians who will be working on Aramco's sites, and in their field of operation.

The Qualification Process involves a computer based test (CBT) and if passed the certificate is issued. If the test is failed then theoretical and practical training of varying duration may be undertaken to refresh the employee's knowledge and skills. This is then followed by retesting. The customer may choose to take the training first followed by the test.

SESP currently offers Tests and remedial training for SIX Aramco approved Crafts. These are: HVAC, Electrical, Machinist, Metal Mechanic/Pipe Fitter, Metal Fabricator, and Instrumentation (PCST) Technicians. Other crafts will be introduced by Saudi Aramco at later stages of the program.

The CWQAP is open to all upon the submission of a national ID Number/ Iqama Number. The benefits of such a program are easily identified:

- Opportunities for further Saudization of the workforce
- Authentication of compliance of a contractor's employees with the site safety regulations, and improvement in safety standards
- Simplification in the tracking of manpower by craft
- An individual serial number is issued which will aid future verification of the qualification
- The program will help improve local training facilities to meet Saudi Aramco standards should these be below requirements

Please submit enquiries concerning this program to any of our training centers

LABORATORIES AND WORKSHOPS

LUCAS NULLE SIMULATION LABS

These labs are equipped with the UniTrain-I training units. This is a computer-based training system that introduces electrical concepts such as electromagnetism and DC and AC technology. The multimedia software (Labsoft) combines cognitive and hands-on training concepts. Other courses studied in the Lucas Laboratories include three phase technology, electrical machines and different kinds of transformers. Once the basic concepts are established, trainees get exposure and training on other systems such as electrical machines and drives, SCADA simulation and protection relays.

MEGGER TESTING LAB

Trainees at SESP receive quality training with the test equipment available in the Megger Laboratory. Various transformer, switchgear and battery tests can be conducted. This laboratory also has a sheath test and fault location system that allows sheath testing on cables.

ROCKWELL AUTOMATION LAB (RIYADH AND JUAYMAH)

The Rockwell Automation Lab has the workspace and equipment for exploration of electricity, robotics, and mechanical design. Trainees are able to gain practical knowledge from creating experiments in circuitry. It's available in this state-of-the-art workshop.

e-terra LAB (RIYADH)

e-terra is a comprehensive set of tools of automation developed by the world's leader in energy management and electricity market systems: e-terra distribution, e-terra transmission and generation.

The Laboratory is made up of two servers and ten Thin Clients or Workstations. The two servers house the software necessary for simulation of the national grid and SCADA applications to log parameters such as voltages and mvars. E terra software can also be used to build new software applications like new substations, etc. The servers also contain a GPS Clock to provide very accurate network time and date. The servers, located in a secure data room, also include storage and back up devices.

The ten workstations are located in a laboratory. Trainees get instruction from an Instructor and can follow instructions on their work stations or large monitors that are mounted in the laboratory. Virtual machines and simulators are used to create real time grid scenarios. Training solutions for entry level trainees to experienced power system dispatchers are possible. Training can be given in the following topics:

- e-terra scada for data acquisition, processing and control
- e-terra transmission for network security analysis
- e-terra generation for generation dispatching
- e-terra load forecast for prediction of the demand
- e-terra simulator for power system simulation

Workshops Include:

WORKSHOP 1

In this workshop trainees learn how to use basic hand / power tools in Term 1 of their second- year studies. Then they start with training in Basic Process Fundamentals in order to gain knowledge in different process equipment.

They learn to identify different types of valves, how to do pre-start up checks to commission pumps, blowers, compressors, heat exchangers, cooling towers, steam turbines and power generators. They also learn about water treatment processes for water used as boiler feed water supply to steam boilers.

WORKSHOP 2

This workshop is also known as the Alley, it has been constructed to represent a portion of a town, complete with shop-like buildings, which is used as tuition class rooms. They contain a Drawing room, a practical workshop area, lecture rooms and electrical control laboratories. In here classes and practical training are presented for PSP and NWO (Power Supply Protection and Network Operations).

The trainees learn about protection relays, the main components like transformers and circuit breakers and different types of switchgear. They also learn about the basics of single line drawings.

SOLAR PV LABORATORY (SPV Lab)

The Solar PV Laboratory at SESP has been purpose built for the provision of Solar PV Designer and Solar PV Installer programs. The design of the laboratories has taken into account the recommendations of King Abdullah City for Atomic and Renewable Energy (KA CARE). The core activity in the SPV Laboratory is installing and designing the Solar PV system in compliance with the Saudi Electric Company (SEC) standards for small scale grid connected PV systems. In addition, the laboratory conducts various industry relevant testing and inspection activities to further improve the reliability of Solar PV installation. A dedicated software laboratory powered by PV Syst and PV Sol is used for Solar PV Designer courses and furthermore it is equipped with Seaward PV 200, Infrared cameras, Sun path finders, Multi and Clamp meters, Interphase protection, Smart Meters, Single and Three phase inverters, Crystalline and Thin film PV panels etc.

A plan is also in place, through acquisition of new equipment and know-how on equipment and system refinements and optimization, to improve the quality of the Solar PV laboratory.

WORKSHOP 3

The workshop is home to multiple disciplines, EPC (Cable Jointing) and SSM (Substation Electrical Maintenance). EPC – our trainees learn how to prepare cables for termination on 1 kv, 13.8 kv and 33 kv cables; how to prepare cables for joints and how to do the joints. They also practice with breaker switching, isolations and earthing.

SSM – our trainees learn how to carry out maintenance inspections in a sub-station. They are taught operations of transformers and switchgear. This also includes DC power supplies (DC power – Batteries.) They also learn how to read Single line drawings.

WORKSHOP 4

Here the trainees are taught basic hand and welding skills (Stick and Mig welding) In the T 5 course they identify pneumatic equipment and how to operate single and double action cylinders with mechanical valves and electrical solenoids. We also demonstrate knowledge of hydraulic power systems and applications. The trainees are taught in how to repair valves, pumps, blowers, compressors.

WORKSHOP 5

The trainees learn how to use hand and power tools and are introduced to the lathe machine. They gain knowledge on the pedestal and radial arm drill and milling machines. We teach them how to do DTI and laser alignments of motors, shafts, pumps, compressors etc.

WORKSHOP 6

Here the trainees are taught the activities of overhead line theory and practical, Lucas Nuller theory and practical for the electricity supply industry in KSA. They learn to apply knowledge and undertake practical learning of overhead line basic construction and dismantling of parts and overhead line materials; maintenance tasks of overhead lines from a bucket truck; climbing and replacing insulators; AC and DC technologies of power generation, transmission and distribution.

ADMISSIONS

SESP is a post- secondary vocational training institution offering admission to post-high school graduates over the age of 18. Unless otherwise stated in programmatic information, the level of occupation for the programs as described in this prospectus is that of technician or skilled helper (see graduate credentials).

Candidates should consult their prospective company sponsors regarding admission requirements for students with special needs.

Candidates should be aware that on undertaking a program at SESP they are agreeing to adhere to all SESP regulations and classroom procedures as mentioned in the contract between SESP and the trainee's company. Incoming trainees will sign an agreement to this effect during the orientation session.

No type of financial aid/ financial assistance/ tuition scholarship provided by SESP is currently available to trainees.

SAUDI ELECTRICITY COMPANY TRAINEES

To be eligible for admission to Saudi Electric Company (SEC) - sponsored programs at SESP, trainees must:

1. Currently be employed by their sponsor.
2. Comply with their sponsor's training requirements.
3. Meet the minimum age requirement of 18 years old.
4. Be proposed by SEC for a SESP program.

The above applicants for training at SESP should complete the admissions process in its entirety with the Saudi Electricity Company.

COMPANY TRAINEES OTHER THAN SEC

- Admission requirements include a SESP screening process that identifies those potential applicants who are deemed capable of successfully completing the training and only these trainees will be offered a place.
- ATB (Ability to Benefit) is not applicable to company placed trainees at SESP (no financial aid is available from either the company sponsor or SESP) and no ATB test is administered.
- SESP admission requirements for non-SEC trainees include:
 1. Inclusion in the company list of candidates to potential training at SESP
 2. Presentation of National Identity Card

3. Grade 12 High School Certificate
4. Successful interview (Demonstrating basic knowledge of math and English language)
5. No prior dismissal or withdrawal from a SESP program
6. Physical fitness capabilities associated with certain job characteristics
7. Compliance with the minimum age requirement of 18 years old

- On the successful completion of the interview stage, the applicant will be requested via SMS messaging to attend a medical check.
- Successful trainees who comply with all requirements including the medical check will be eligible for admission and informed regarding the date of commencement of the program.
- Timely and accurate information will be made available to the applicant regarding the program and courses of interest to him. No unreasonable barriers have been created which could prevent the prospective trainee from gaining access to his education and training.

MAXIMUM NUMBER OF TRAINEES

Theory classes have a maximum of 20 trainees per class.

Workshop/ Laboratory classes have a maximum of 16 trainees per class.

PROGRESSION

SESP trainees will be supported fairly by instructors, managers, and staff trained to help trainees move through each trimester, and year to year, to on-the-job training (OJT). SESP has fair policies to help trainees graduate and complete the program. Each trainee will be watched and evaluated for participation, learning, attendance, and regular exams. All SESP trainees must read the complete rules on passing, failing and progression by week one of year one. Satisfactory progress is evaluated every three months. The total number of clock hours for a diploma program is 268 clock hours (including OJT). To be making satisfactory academic progress, a student must attend at least 90% of the scheduled class hours on a cumulative basis during each evaluation period. Penalties for poor attendance are shown on the corresponding page of this prospectus.

Trainees must demonstrate sufficient academic progress to advance from Trimester to Trimester, Year 1 to Year 2, and then Year 2 to OJT. To progress, trainees must demonstrate sufficient academic progress to ensure their safety in, and readiness for, the workplace. SESP shall have fair and transparent procedures to monitor and support trainee progression, process involuntary withdrawals, and provide for graduation of trainees once they have successfully completed all

components of the program.

Trainees' progress will be monitored through:

- Trainee participation;
- Attendance;
- Summative Assessments; and
- Formative Assessments.

Trainees with a Passing Grade: Trainees with a passing grade (A, B, C, D, Ex, TC, CC, or CO) will be automatically progressed to the next level.

Trainees at Risk of Receiving Less Than a Passing Grade:

Teachers will use the Early Alert System to keep Trainee Advisor informed of academically challenged Trainees. HOD, teacher, and Trainee Advisor to agree on an intervention strategy.

- Trainee Advisor meets with academically challenged Trainees to develop remedial plans.
- Teachers, Heads of Department, Trainee Advisor, monitor progress of remedial plans and take appropriate action as may be necessary.



Trainees That Receive One Failure Grade (F) In a Trimester:

A Trainee that receives less than a passing grade in any course for a trimester shall receive an Academic Warning by the Registrar signed by the HOD and considered to be an at risk Trainee:

- Trainee Advisor prepares a Learning Contract;
- HOD reviews/approves Learning Contract;
- At risk trainee signs Learning Contract as a condition of progression;
- Teachers, Heads of Department, and Trainee Advisor, monitor progress of Learning Contract and take appropriate action as may be necessary; and
- Academic Review Committee is presented with the outcome of the Learning Contracts at the conclusion of each contract.

Trainees who Receive More Than one Failure Grade (F) in a Semester

Trainees can progress to the next trimester with a maximum of two course failure grades as long as Learning Contracts are in place and all remedial learning activities designed have a high margin of success. This trainee will be placed on Academic Probation by the Registrar and considered an Extreme Risk trainee.

Extreme risk trainees must obtain prior approval from the SESP Academic Leader and sign an Academic learning Contract before proceeding with Re-enrollment. Trainees who are denied enrollment may appeal to the SESP Managing Director.

Progression from Trimester Three to Trimester Four

A trainee must complete all Trimester One to Trimester Three courses successfully to progress to Trimester Four.

- On appeal to the Academic Committee one course may be carried over as long as its skills and knowledge are subsumed within another course in a subsequent Trimester.
- Trainees whose appeals have been denied by the Academic Committee may appeal to the SESP Managing Director.

Progression from Trimester 6 to On the Job Training

A Trainee must complete all courses successfully to enable movement onto the OJT component of his program. A Trainee who does not successfully complete all courses from Trimester One to Trimester Six inclusive automatically fails the program and is dismissed from SESP, subject to appeal if the trainee so wishes.

Appeals

An appeals process is in place for trainees. Please see the corresponding section of this prospectus.



Any request for transfer of credit must be addressed in the first instance to the Academic Leader of SESP. Transfer of credit will only be considered where the corresponding course grade obtained and considered for transfer is at or over a GPA of 2.00.

A. SESP considers transfer of a trainee between SESP training centers, between programs and with compliance regarding either of the following requirements:

1. The trainee's company authorizes such a transfer of credit for a trainee applying for a transfer between SESP centers (the trainee complies with the sponsor company's established guidelines/ requirements).
2. For a transfer between programs, the trainee's transcript to date identifies successfully completed courses that are eligible to be taken into account for prior credit.

B. A trainee may also request transfer of credit between programs if:

1. The trainee demonstrates some incompatibility with the program that was not previously known.

C. A trainee may also request transfer from other

institutions* if he complies with the following:

1. The institution from which the transfer is made must be accredited by an agency acceptable to SESP and to SESP's accrediting partners.
2. The trainee is required to submit his original official transcripts of all previous trimester/semesters of study to SESP authorities for verification.

In order to guarantee the quality of the credit, the trainee's prior credit to be considered is for courses where the medium of instruction has been in English and in a similar program or in an institution where similar programs are conducted. Such an institution must demonstrate that its programs align and are consistent with established recognized industry training standards.

3. To this end the following documentation is required:
 - a. The transfer applicant must have obtained a GPA of 2.0 out of 4 for such a course credit (transcript with evidence of course credit).
 - b. Syllabus of course to be considered.
 - c. Program outline (evidence of comparability of program).
 - d. Institutional Catalog (evidence of meeting recognized industrial training standards).

*Please note: SESP has no legal or articulation agreement with any institution in Saudi Arabia with regards to the transfer of trainees into its programs. The

training manager first considers the accredited status of the original institution, and then compares the syllabi of all courses studied to those of the program and then decides the courses the student can be exempted from. The evaluation of transfer credits by SESP is implemented in a fair, reasonable, and consistent basis. Trainees have the right to appeal a first credit decision by providing new documentation that might lead to the overturn of the decision made. The final decision taken by SESP regarding the transfer of credit is final in all of the above categories A-C.

No administrative fees are assessed for testing, evaluation, or granting transfer of credit in either category A, B or C.

D. Transfer of Credit to another Institution

1. SESP undertakes to assist any trainee who requests transfer of credit to another institution, providing guidance or counseling and providing an official transcript, syllabi, or course outlines as per the request of the trainee.
2. SESP will produce evidence when required to the third party as to the veracity of the transcripts.

ACCREDITED PROGRAMS:



SESP Centers and diploma programs* are accredited by the Scottish Qualifications Authority (SQA), having been granted such a distinction in 2016. This allows SESP certification to be based on the SCQF, the Scottish Credit and Qualifications Framework.

See **Graduate Credentials** on page 24 for SQA- accredited programs.

What does accreditation mean for you?

- SESP has been able to create a truly bespoke qualification catering to your program needs
- SQA accredits the trainee's own learning and he obtains recognition for it
- Accreditation processes increase skillslevels in your workforce and improve work practices and motivation
- Accredited programs provide recognition and development opportunities for employees
- SQA qualifications help meet regulatory requirements and demonstrate the competence of your employees to external parties.



SESP Centers and selected programs (See page 24) are also accredited and approved by ACCET, the Accrediting Council for Continuous Education and Training. This American accreditation agency is officially recognized by the U.S. Department of Education. Subsequent to an objective professional evaluation of our centers and programs, ACCET granted SESP accreditation in April, 2018.

In support of the Standards for Accreditation, SESP as an ACCET member, will uphold the following principles of professional ethics:

- To provide programs of study that are educationally sound, up-to-date, of high quality and are demonstrably effective.
- To maintain fair, ethical, and clearly stated advertising, admission, and enrollment practices by accurately and fairly representing the ACCET - accredited institution and its service to its constituency.
- To provide effective student counseling and motivational programs that recognize individual differences and ensure successful student retention, graduation and, where applicable, employability.
- To demonstrate the ultimate benefit of private educational training programs through satisfied participants.
- To maintain an effective peer review system that ensures proper and ethical administration of all financial operations of the institution.
- To promote the concept of voluntary self-regulation inherent in the accreditation process.
- To demonstrate a commitment to educational services through community involvement and participation.
- To promote continuing education and training programs of the highest quality and integrity.

GRADUATE CREDENTIALS

Trainees will receive one of the following on completion of their OJT component:

SQA-Accredited Programs (Technician Occupational Level) and ACCET-Approved Programs

Diploma in Operational and Maintenance Engineering (24 months+) is offered as:

- Substation Electrical Maintenance-I
- Electrical Distribution Network Maintenance-I
- Electric Power Cables-I
- Overhead Line Maintenance-I
- Power Plant Operation-I
- Power System Dispatching-I
- Power Plant Mechanical Maintenance-I
- Electrical Network Operation-I
- Instrumentation and Control
- Power System Protection and Control-I
- Power Plant Electrical Maintenance-I
- Welding and Machining-I

Non-SQA/ ACCET Accredited Programs

Diploma in Operational and Maintenance Engineering (24 months+)

- Air Conditioning and Refrigeration-I
- Renewable Energy Technology-I
- Non Destructive Testing
- Smart Grid-I
- Solar Energy-I

Diploma in Operational and Maintenance Management (24 months+)

- Foreman-I
- Health, Safety and Environment-I

Recognition statement:

The Customized Award, Diploma in Operational & Maintenance Engineering - Power Service Maintenance (Substation/Transmission) Technician was developed by SESP and is certificated and quality assured by SQA as a customized Award. This award has been credit rated by SQA at Level 7 on the Scottish Credit and Qualifications Framework (SCQF) with 280 credit points.

Associate Diploma in Operational and Maintenance Engineering (9 months- 12 months) is also offered as:

- System Control & Data Acquisition Systems
- Electrical Metering Inspection-I
- Electric Power Cables-II
- Renewable Energy-II
- Solar Energy-II
- Smart Grid-II
- Substation Electrical Maintenance-II
- Electrical Distribution Network Maintenance-II
- Overhead Line Maintenance-II
- Power Plant Operation-II
- Power System Dispatching-II
- Power Plant Mechanical Maintenance-II
- Electrical Network Operation-II
- Power System Protection and Control-II
- Power Plant Electrical Maintenance-II
- Welding and Machining-II
- Air Conditioning and Refrigeration-II

Associate Diploma in Health Safety & Environment (12 months)

- Health, Safety and Environment-II

Associate Diploma in Technology (9 months- 12 months) is awarded for the following job categories (skilled helper occupational level):

- Electrical Technician
- Pipe-Fitting Technician
- Instrumentation Technician
- Welding Technician
- Scaffolding Technician
- Foreman-II
- Rebar Fixing Technician
- Carpentry Technician

A ***Completion Certificate (3 months)*** – (specialized professional development programs)

- Power Plant Operation Program (Saudi Aramco)
- Electrical and Instrumentation Maintenance Program (Saudi Aramco)
- Electrical Metering Inspection-II

A ***Completion Certificate is also offered for the following Avocational Programs (Module format)***

- General English I and II
- Applied English Language for Technical Fields I and II
- Business English I and II



COURSE STRUCTURE

Year One of the program focuses on English language acquisition and Technical Bridging subjects:

- English Language
- Health and Safety
- Science
- Mathematics
- Technical Drawing
- Workshop Practice

On completion of Year One, trainees will have the language and technical bridging knowledge to enable them to move on to their specific technical programs.

Our Year Two is split into trimesters. Year Two focuses on the workshop environment with trainees carrying out real-world practical activities.

After successful completion of the two year program, a trainee will be placed in a six month SESP supervised on-the-job training (OJT) program situated in a company facility relevant to his technical program.

WEEKLY TIMETABLE

All classes have a weekly timetable which informs the trainee of the:

- Course location
- Session timings
- Instructor
- Subjects studied

EXPECTED HOURS OF STUDY

Diploma programs consist of 30-32 hours of taught study per week for Year One and Year Two courses. On the Job Training consists of 40 hours per week.

Associate Diploma programs consist of 30-35 hours of taught study per week for Year One courses. On the Job Training consists of 40 hours per week.

Please consult the study plans for individual program hours per week and total hours per program.

Trainees are advised that there is an expected minimum of 10 hours of after-class study per week.

ATTENDANCE POLICY

Attendance and punctuality are fundamental requirements at SESP. Trainees are expected to respect and adhere to all approval attendance requirements.

ATTENDANCE REQUIREMENTS

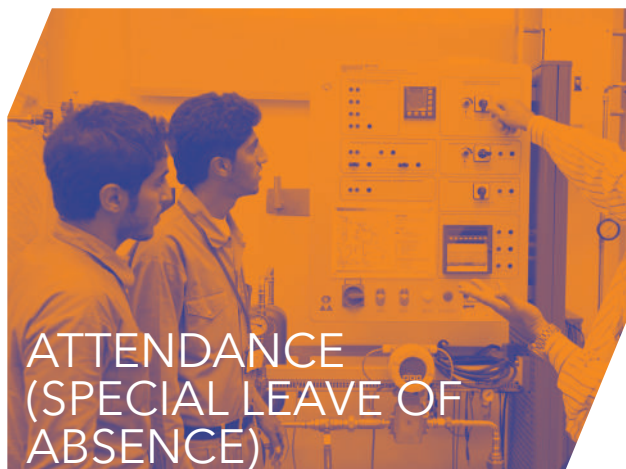
- Attend classes regularly
- Be on time every period
- Participate



YOU WILL BE MARKED ABSENT IF YOU:

- Do not attend a class.
- Arrive 1-5 minutes late (Two Lates = 1 Absence).
- Arrive more than 5 minutes late for a class.
- Leave class early.
- Do not have an approved reason for your absence.

Trainees have a maximum of 10% of academic hours from SESP for illness or injury.



ATTENDANCE (SPECIAL LEAVE OF ABSENCE)

Special Leave does not count towards the total number of trainee absences. Special Leave consists of:

- 3 days for marriage
- 1 day for the birth of a child
- 3 days for the death of a wife, parent, grandparent or brother/sister
- 5 days for Hajj (once only)

In these circumstances the trainee should discuss the matter with the Head of Department and Trainee Advisor. The following points apply to special leave of absence:

- The length and frequency of leaves of absence must not impede trainee progress and must be reasonable within the context of the program curriculum.
- A trainee must submit a signed and dated Trainee Application for Leave of Absence form for a leave

of absence in advance where possible, together with a reason for the absence. If a trainee does not request a leave of absence as per the above, he will be reported to the company sponsor who will have the right to withdraw the trainee from the program.

- The Head of Department will discuss the impact of the absence on the trainee's academic progress with the trainee, his teachers, and the Trainee Advisor.
- The trainee record will show an NC grade on the trimester report if assessments are not completed during the trimester. The trainee will attest to understanding the procedures and implications as explained to him regarding his return or failure to return to his course of study.
- The reason for the absence must be identified and evidence to that effect provided on the trainee's return.
- The maximum extended leave of absence within a twelve-month period is 180 days or one half the published program length, whichever is shorter.
- Leave of absence must be in compliance with any applicable requirements laid down by the sponsor company. If stricter, the sponsor company's requirements take precedence.

SICK LEAVE

- If a trainee is sick and cannot attend SESP, then he must visit a doctor and obtain a medical certificate known as sick leave.
- If a trainee is absent for more than one day, then the certificate must cover all days.
- The trainee must give his medical certificate to the Trainee Affairs Counsellor (TAC) on the first day that he returns to SESP.
- TAC will check the dates and the illness specified and adjust the attendance sheet accordingly.
- An excused absence still counts as an absence.
- An excused absence counts toward the total number of absences.
- A trainee should not exceed 10% of academic hours for excused or unexcused absences.
- All medical certificates will be kept in the trainee's permanent file.

ATTENDANCE COMMITTEE

- Attendance Committee shall consist of a minimum of four members.
- Attendance Committee is responsible for monitoring the absences of trainees.
- Attendance Committee shall forward its recommendations to the SESP Managing Director for further review and approval.

SESP Management will send its recommendations to the sponsor for their final action.

PENALTIES FOR POOR ATTENDANCE

Absences - Trimester System

Absence - Trimester System		Action	Recommendation	Pre-Approval	Approval
Excused	Unexcused				
8 absences		1 st warning	TAC	TAC	TAC
16 absences		2 nd warning	TAC	TAC	TAC
24 absences		Trainee Report	ATC	ATC	TM
+30 absences		Dismissal	ATC	MD	SPONSOR

Abbreviations

Trainee Affairs Counsellor	TAC	Attendance Committee	ATC
Managing Director	MD	Training Manager	TM

Actions taken by TAC

- 10+ Absences: Calling his sponsor to meet with TAC for advice. Sending email to the sponsor.
- 15+ Absences: Requesting his sponsor to come and sign an undertaking letter. Sending email to sponsor.
- 20+ Absences: Requesting his sponsor to come and sign an undertaking letter. Sending email to the sponsor.



ASSESSMENT

PASS OR FAIL

- All courses must have at least two major graded assessments.
- Grades are based on course performance.
- Grades may also be given for additional work/activities.
- Transcripts will be issued.

Graduation Requirements

To graduate from a SESP program, the trainee must fulfill the following graduation requirements:

- Successful completion of graduation requirements as per the study plan.
- Achieve an overall cumulative GPA of not less than 2.25 (C-Good).

Job Placement

Please note that on graduation from a SESP program, subsequent job placement in the sponsor company is stipulated according to the terms of the contract undertaken between the trainee and the sponsor company. SESP does not, therefore, enter into any agreement with the sponsor company or the trainee to guarantee job placement.

GRADING

The grading system used for trainee achievement in the major courses is illustrated in Table 1.

- Obtain a GPA of not less than 2.50 (Competent) in the practical field of specialization.
- Successfully complete all the course requirements in accordance with his specialization program.

Note: When a trainee approaches graduation, his academic record is reviewed and checked by the Trainee Affairs & Registration Department and academic leadership to verify that he fulfills all the graduation requirements.

Table 1: Grades and Grade Points

Marks	Grade	Grade Points
95 – 100	A+	4.00
90 – 94.5	A	3.75
85 – 89.5	A-	3.50
80 – 84.5	B+	3.25
75 – 79.5	B	3.00
70 – 74.5	B-	2.75
65 – 69.5	C+	2.50
60 – 64.5	C	2.25
55 – 59.5	C-	2.00
50 – 54.5	D	1.75
0 – 49.5	F	0

Ranks of Academic Excellence

GPA	Grade
3.75 - 4.00	Exceptional
3.50 - 3.74	Excellent
3.25 - 3.49	Superior
3.00 - 3.24	Very Good
2.50 - 2.99	Above Average
2.00 - 2.49	Good

ENGLISH AND TECHNICAL BRIDGING ASSESSMENT PROCEDURES

All SESP assessment components of Year 1 shown in Table 2 provide measurable evidence to reliably interpret a trainee’s technical and language learning competency as defined by the program objectives and specific learning objectives. The pass mark for both English and Technical Bridging is 55%; however, Workshop Practice is 65%.

Assignments

An assignment is an individual task which is designed by the instructor and could range from basic comprehension check questions to creating a video presentation.

The purpose of the assignments is to motivate trainees to practice productive skills inside/outside of class and encourage autonomy and participation. Assignments are a method of informal formative assessment.

Table 2: SESP Course Assessment Criteria

Course Category	Assessment Components	Assessed by			Weighting %
		Faculty	Peer/Self	Industry	
English Math Science Health and Safety	Assignments	✓			5
	Quizzes	✓			30
	Exam 1	✓			30
	Exam 2	✓			30
	Work Ethic	✓			5
	Total				100

Course Category	Assessment Components	Assessed by			Weighting %
		Faculty	Peer/Self	Industry	
Technical Drawing	Assignments	✓			5
	Drawing Assessment 1	✓			30
	Drawing Assessment 2	✓			30
	Drawing Assessment 3	✓			30
	Work Ethic	✓			5
	Total				100

Quizzes

The purpose of a quiz is to serve as a measurable benchmark to ensure that a trainee has mastered the learning goals. Quizzes are important for three reasons:

1. A quiz is formative. It not only helps give trainees feedback as to their strengths and weaknesses in mastering learning goals but also provides useful data to the department which can be used in the academic support classes.
2. A quiz directs trainees to a continuous seriousness of purpose as a learner and as an SESP vocational trainee. Through a quiz, a trainee is reminded of the connection between study and learning success, between the motivation to achieve a goal and meeting that goal.
3. Finally, it eliminates testing bias and the requirement for a mock exam.

Exams

These are high stake, summative assessments that aim to measure a trainee's mastery of particular outcomes over half a trimester (usually 6 weeks of study).

1. The exams provide valuable data to the trainee and instructor about a trainee's progress in the program. This data informs whether the trainee needs further academic support and counselling in continuing in the program. High marks (e.g., 90% or higher) provide data useful in directing the instructor to provide additional supplementary materials for a trainee or group of trainees as well as identify trainees who can serve as peer tutors within or outside of class.
2. The exams give valuable data to the Managing Director about a trainee's achievement of competency in meeting the learning goals. The results help inform and support additional evidence as to whether the trainee has achieved mastery of the learning outcomes in order to continue in the next trimester.
3. The trainee is entitled to re-sit the exam if he has failed but the maximum score he can receive is 55%.

Work Ethic

Trainees are awarded Work Ethic points in the English and Technical Bridging classes. Their scores are aligned with the criteria in the Trainee Disciplinary Report (SESP-02-03-01). Homeroom and Training Bridging instructors award points at the end of the day. Scores are recorded in the attendance spreadsheet.

Trainees lose a point if they do not meet one of the criteria listed below. The maximum points lost are 3:

1. Sleeping
2. Bad conduct
3. Unprepared for class (uniform, handouts, iPad, pencil, etc.)
4. Leaving class without permission
5. Uncooperative
6. Having a phone in class
7. Incomplete coursework

The procedure for a specific repeated infraction is listed below:

1. Verbal warning
2. Lose Work Ethic point
3. TDR and 0 points for the day

A trainee earns 0 points for the day if he is absent for any period or uses his mobile phone during class time.

TECHNICAL ASSESSMENT PROCEDURE

SESP assessment components for Year 2 shown in Table 3 provide measurable evidence to trainee's technical and hands-on skills competency as defined by the program objectives and specific learning objectives. The pass mark for Practical is 65% and Theory is 55%.

Table 3: SESP Technical Course Assessment Criteria

Course Category	Assessment Components	Assessed by			Weighting %
		Faculty	Peer/Self	Industry	
Generic Core	Practical (80% hands on skills + 20% log book)	✓			80
	Theory Exam	✓			15
	Work Ethic	✓			5
	Total				100

Course Category	Assessment Components	Assessed by			Weighting %
		Faculty	Peer/Self	Industry	
Technical (Major Core & Major Specialization)	Practical (80% hands on skills + 20% log book)	✓			80
	Theory Exam	✓			10
	Work Ethic	✓			5
	Quizzes	✓			5
	Total				100

Practical

The purpose of practical is to ensure that the trainees reach a level of competency in the skills that are required by the unit standards learning outcomes.

If a trainee fails a practical, he is entitled to redo the practical until he is considered competent but the maximum score he can receive is 65%.

Theory Exam

Theory Exam is a summative assessment that aims to measure a trainee's mastery of the learning outcomes associated with the unit standards.

The exam gives valuable data to the Managing Director about a trainee's achievement of competency in meeting the learning outcomes set out in the unit standards. The results help inform and support additional evidence as to whether the trainee has achieved mastery of the learning outcomes in order to continue into the next course.

The trainee is entitled to re-sit the exam if he has failed but the maximum score he can receive is 55%.

Quizzes

The purpose of a quiz is to serve as a measurable benchmark to ensure that a trainee has mastered the theory learning outcomes. A quiz is formative and therefore helps give trainees and instructors feedback as to their strengths and weaknesses.

Work Ethic

Trainees are awarded Work Ethic points in the technical classes. Their scores are aligned with the criteria in the Trainee Disciplinary Report. Technical instructors award points at the end of the day. Scores are recorded in the attendance spreadsheet.

Trainees lose a point if they do not meet one of the criteria listed below. The maximum points lost are 3:

1. Sleeping
2. Bad conduct
3. Unprepared for class (uniform, handouts, iPad, pencil, etc.)
4. Leaving class without permission
5. Uncooperative
6. Having a phone in class
7. Incomplete coursework

The procedure for a specific repeated infraction is listed below:

1. Verbal warning
2. Lose Work Ethic point
3. TDR and 0 points for the day

A trainee earns 0 points for the day if he is absent for any period or he uses his mobile phone in class.

ASSESSMENT RESULT REVIEW

A trainee has the right to review his assessment results within one week from the results announcement date. A trainee should contact Trainee Services in order to fill in an Exam Review Request Form.

Re-sit theory exams take place within three weeks of the results announcement date.

Note: English and Technical Bridging exams and Technical theory exams- the maximum mark a trainee can receive in a re-sit exam is 55%.

Technical Courses - If a trainee fails a practical, he is entitled to re-do the practical at any point thereafter (up to two weeks after the practical) until he is considered competent but the maximum score he can receive is 65%

EXTENUATING CIRCUMSTANCES

In extenuating circumstances (i.e., serious illness, accident or serious family problems, a trainee misses a scheduled assessment), these factors may be taken into consideration in granting a resit.

EXAM COMMITTEE

- Exam Committee consists of the Senior Training Coordinator (STC), Head of Department (HOD) and Assessment Developer.
- Exam Committee is responsible for creating a schedule for the exam dates and times and creating the exam and answer key.
- Exam Committee reviews all exam infractions and discrepancies.
- SESP Management approves the results.
- SESP will send the results to the sponsor.
- Trainees who fail an exam will retake that exam based on approval of the Managing Director.
- Trainees who fail the resit exam will sign a commitment undertaking.
- SESP Management will send their recommendation to the sponsor for their review and action.

BONUSES

At the end of the trimester, SESP Management will send a list of trainee names with the highest GPA and no absences to the sponsor in order to receive bonuses.



SESP offers the following services to its trainees:

- Academic advising - SESP offers counselling services based on its policy. Any questions on the counselling service as explained in orientation should be referred

to the Trainee Services Department.

- Remedial services - Remedial services are offered to those trainees who are understood to be in need of assistance in attaining their learning outcomes.
- Internet access - Internet access is available to trainees for use in the Hub social area.
- OJT mentoring - As an important part of vocational training, the trainee can take advantage of OJT mentoring in order to receive the most benefit from this experience.
- Medical services - Nursing services at a fully- equipped medical center on site and evacuation services are available to the trainee should he require medical attention.
- Subsidised catering services - Trainees can take advantage of low-price refreshments and hot/ cold food as available, at all SESP training centers.

TRAINEE RIGHT TO ACCESS RECORDS

Policy:

- All information relating to trainees in SESP must be stored securely and only accessed by authorized staff;
- A trainee will be allowed access to their own personal information in order to update or amend that information. Proof of identity must be obtained before release of the information is given;
- Information relating to trainee data may be released to an approved agency
- Information relating to trainees must not be released to non-approved third parties without a trainee's written consent. The only exception to this rule is in case of a legal or police matter where the request is put in writing and approved by the Managing Director;
- Personal information must only be collected for the purposes of supporting the functionality, goals and objectives of SESP.

CODE OF CONDUCT

Trainees are expected to be:

- Honest
- Responsible
- Respectful

Not following the Code of Conduct may result in:

- Written Warning
- Probation
- Dismissal

TYPES OF VIOLATIONS

Safety:

- Not wearing uniform
- Not wearing ID badge or PPE
- Not following safety rules

Attitude:

- Poor attendance
- Low participation
- Not bringing your books, equipment or iPad

Study Habits:

- Not doing your homework
- Not completing tests or quizzes
- Not participating in hands-on activities

CODE OF CONDUCT PROCESS

Violations are reported using a

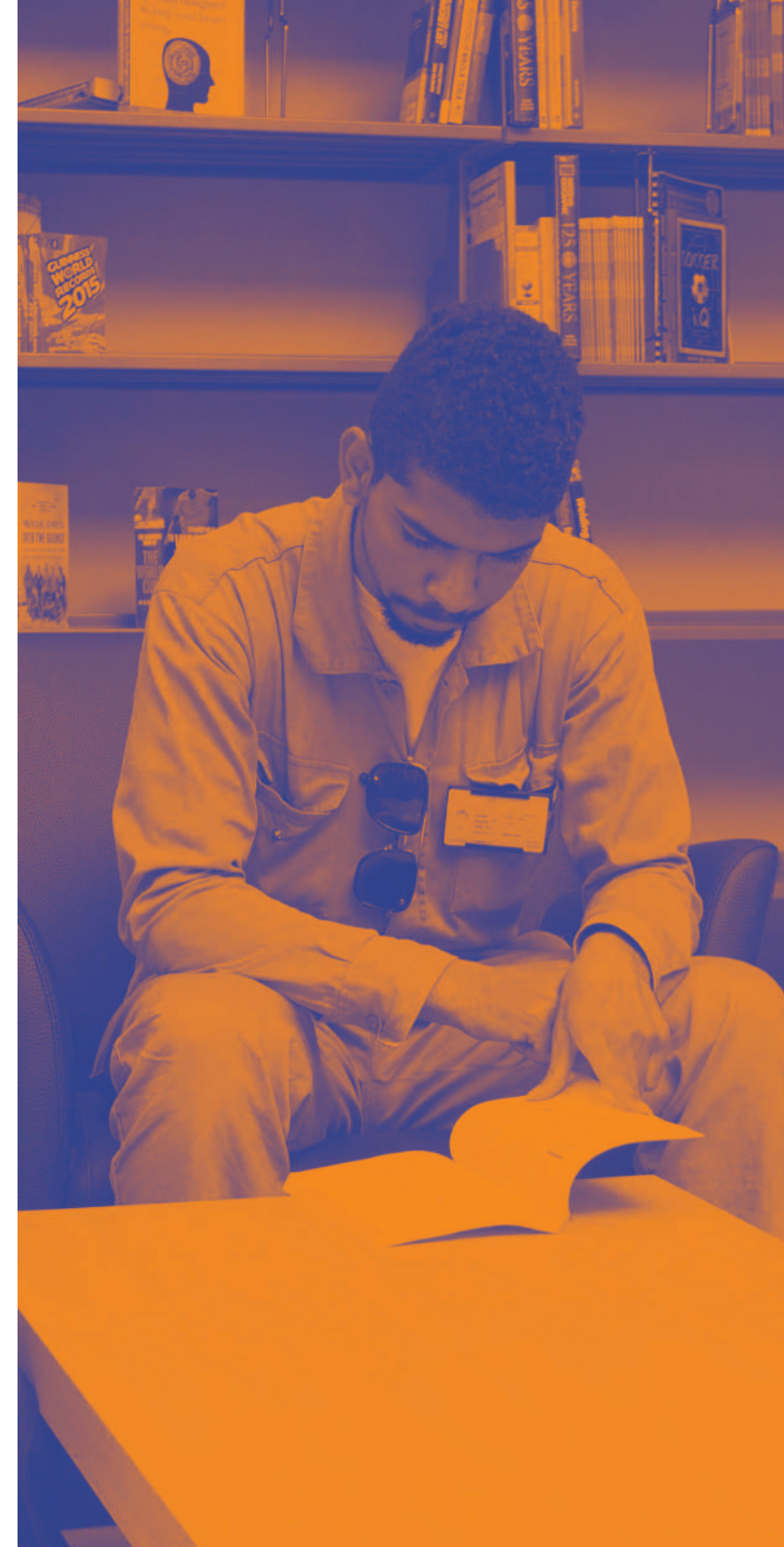
Trainee Disciplinary Report Form (TDR)

2 TDRs = Verbal Warning

3 TDRs = Written Warning

4 TDRs = Final Written Warning + Probation

6 TDRs = Dismissal (Disciplinary Committee)



DISCIPLINARY PROCESS

VW = Verbal Warning WW = Written Warning FW = Final Warning

Type of Violation	1st	2nd	3rd	4th
Fighting, threatening behaviour, bullying or harming others	FW	Dismiss		
Stealing, using the instructor’s computer without permission	Dismiss			
Misusing SESP’s materials and property	FW	Dismiss		
Damaging school property or property of others	Dismiss			
Taking books without permission	FW	Dismiss		
Failure to comply with instructions: i.e., haircut, uniform and safety	WW	FW	Dismiss	
Smoking on SESP campus	FW	Dismiss		
Not wearing ID badges and/or PPE	VW	WW	FW	Dismiss

DISCIPLINARY COMMITTEE

- Disciplinary Committee shall consist of a minimum of four members.
- Disciplinary Committee is responsible for enforcing campus-wide discipline and Code of Conduct.
- Disciplinary Committee will forward its recommendations to SESP Training Manager.
- SESP Management will send their recommendation to sponsor for further action.

APPEALS

Trainees can appeal decisions related to:

- Discipline
- Cheating
- Reviewing of Results
- Suspension

APPEALS PROCESS

- Appeals must be logged in writing.
- Appeals must be given to Trainee Affairs.
- Appeals must be turned in within two weeks of event/action being appealed.
- Final decision on appeals will be made within two weeks of submission.
- All decisions are final.

APPENDIX 1

Appendix 1: Induction Week
Prepping for Opening Day <ul style="list-style-type: none">Induction TimetableOpening Day CeremonyClassroom LocationSESP Instruction + Regulations + Academic CalendarDistribution: Safety Shoes + Uniforms
Forms <ul style="list-style-type: none">Insurance FormID FormSignature Sheets for ID, Uniforms, Books, iPad

Sample Induction Timetable

Day	Period 1 8:00-9:00	Break 20 min	Period 3 11:20-12:20	Lunch 12:20-1:05	Break 20 min
SUNDAY MONDAY	SEATING IN HUB		PHOTO ID, LOBBY 1 11:20-11:50 2 11:50 – 12:20 UNIFORM 3+4 SAFETY/TOUR		

APPENDIX 2

Sample Induction Timetable

Timetable	Periods	Sunday									Monday								
	Instructors	1	2	3	4	5	6	7	8	9	1	2	3	4	5	6	7	8	9
0700 - 0750	1	M	S	H	E	E	E	E	E	E	M	S	H	E	E	E	E	E	E
0800 - 0850	2	E	E	E	M	S	H	E	E	E	E	E	E	M	S	H	E	E	E
0900 - 0950	3	E	E	E	E	E	E	M	S	H	E	E	E	E	E	E	M	S	H
1020 - 1110	4	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E

Math

M

Science

S

Health & Safety

H

Quiz or Exam

Q

1

Mr. Thomas Smith

Room No.1210

APPENDIX 3

GPA Calculation

Trimester 1:

Course	Total	Grade	Credit Hours		Grade Points		Quality Points
EL-001	62%	C	22	x	2.25	=	49.50
Math-001	95%	A+	2	x	4.00	=	8.00
SCI-001	70%	B-	2	x	2.75	=	5.50
HSE-001	78%	B+	2	x	3.25	=	6.50
Draw-001	85%	A-	2	x	3.50	=	7.00
Total Credit Hours			30		Total Quality Points		76.50

$$\text{Trimester 1 GPA} = \frac{\text{Total Quality Points}}{\text{Total Credit Hours}} = \frac{76.50}{30} = 2.55$$

Trimester 2:

Course	Total	Grade	Credit Hours		Grade Points		Quality Points
EL-002	69%	C+	22	x	2.25	=	55.00
Math-002	75%	B	2	x	3.00	=	6.00
SCI-002	55%	C-	2	x	2.00	=	4.00
HSE-002	80%	B+	2	x	3.25	=	6.50
Draw-002	90%	A	2	x	3.75	=	7.50
Total Credit Hours			30		Total Quality Points		79.00

$$\text{Trimester 2 GPA} = \frac{\text{Total Quality Points}}{\text{Total Credit Hours}} = \frac{79.00}{30} = 2.63$$

Cumulative GPA Calculation:

$$\text{Trimester 2 CGPA} = \frac{\text{T1 Total Quality Points} + \text{T2 Total Quality Points}}{\text{T1 Total Credit Hours} + \text{T2 Total Credit Hours}} = \frac{76.50 + 79.00}{30 + 30} = 2.59$$

The background is a collage of mechanical and technical elements. It includes a large, diagonal ruler, a pair of pliers, a hammer, and various technical diagrams. One diagram shows a piston and crank mechanism with labels like 'Air Inlet', '1st Stage', and 'Crankcase Oil Dipstick'. Another diagram shows a multi-stage compressor with labels like 'Suction valve', 'Discharge valve', '1st Stage', and '2nd Stage'. The entire image has an orange tint.

SESP PROGRAMS

For study plans see pages 94-130



DIPLOMA IN OPERATIONAL AND MAINTENANCE ENGINEERING (DOME) 24-30 MONTHS

OVERHEAD LINE MAINTENANCE-I (OHL-I)

DESCRIPTION

An Overhead Line Maintenance Technician performs specialized techniques for preventive maintenance jobs including hot and cold line washing, troubleshooting, emergency response and patrolling and construction activities for high voltage overhead distribution lines. He also erects distribution structures, installs hardware and repairs broken or sagged conductors, fuses and transformer leads. Additionally, he has the skills to install communication antennas, drive and operate line equipment and climb distribution and transmission line towers or poles to perform overhead line maintenance. Furthermore, he communicates with SEC Power Dispatchers to coordinate all duties in accordance with set procedures and replaces damaged lightning arresters and insulators.

EDUCATIONAL/VOCATIONAL OBJECTIVES

The expected OHL educational/vocational objectives are that, upon completing all training courses including OJT, the trainee will be able to:

- Apply principles of mathematics and applied science, to perform technical calculations and solve technical problems of the types commonly encountered in operation and maintenance technology careers.

OVERHEAD LINE MAINTENANCE-I CONTINUED

- Demonstrate an ability to communicate effectively and function effectively with members of multi-disciplinary teams and with other workers in an industrial setting, including those from different backgrounds
- Provide technical support for preventive maintenance including line washing, troubleshooting, and an emergency response capability for the overhead distribution power lines and installations. Maintenance personnel will also support field crews in their construction activities
- Perform overhead line patrolling and preventive maintenance of overhead lines and associated equipment i.e. air break switches and re-closers.
- Perform specialized techniques for hot line work with a high degree of skill and proficiency
- Erect distribution structures such as wood poles or steel towers or poles and install guy wires, hardware, insulators and cut outs.
- Repair broken or sagged conductors, fuses, and transformer leads. Install communication antennas and other related cable works
- Coordinate with the power dispatcher to receive permission to commence hot and cold washing in accordance with set procedures.
- Assist in the cold and hot washing of overhead lines 69KV and lower voltages, and according to established schedules to maintain safe operating condition of overhead lines.
- Drive, and operate line equipment such as: digger/derrick, bucket truck, crane, line-wash truck and pump-truck etc.
- Climb distribution line towers or poles to perform specialized line maintenance.

SMART GRID-I (SG-I)

DESCRIPTION

This program examines operational considerations for the Smart Grid, focusing on operations for technicians who will install, control, monitor, and maintain the smart grid. The program is designed to ensure that technicians working on the smart grid have a balanced understanding of why and how the smart grid is operated, from the perspective of both the utility and the customer. The program will cover technologies and systems utilized. It will also cover the skills needed to maintain the smart grid, and address the safety precautions needed.

EDUCATIONAL/VOCATIONAL OBJECTIVES

The expected SG outcomes are that, upon completing all training courses including OJT, the trainee will be able to:

- Apply principles of mathematics and applied science, to perform technical calculations and solve technical problems of the types commonly encountered in operation and maintenance technology careers.
- Demonstrate an ability to communicate and function effectively with members of multi-disciplinary teams and with other workers in an industrial setting, including those from different backgrounds.
- Describe basic smart grid concepts, technologies and their benefits for future energy systems.
- Describe smart grid technology used in power distribution.
- Describe smart grid architecture and implementation.
- Advance his understanding of how communication technologies are integrated to enable smart grid operation and monitoring.
- Understand renewable energy integration with the smart grid.
- Develop an understanding of smart metering, the smart home and the smart city.

POWER SYSTEM PROTECTION AND CONTROL-I (PSP-I)

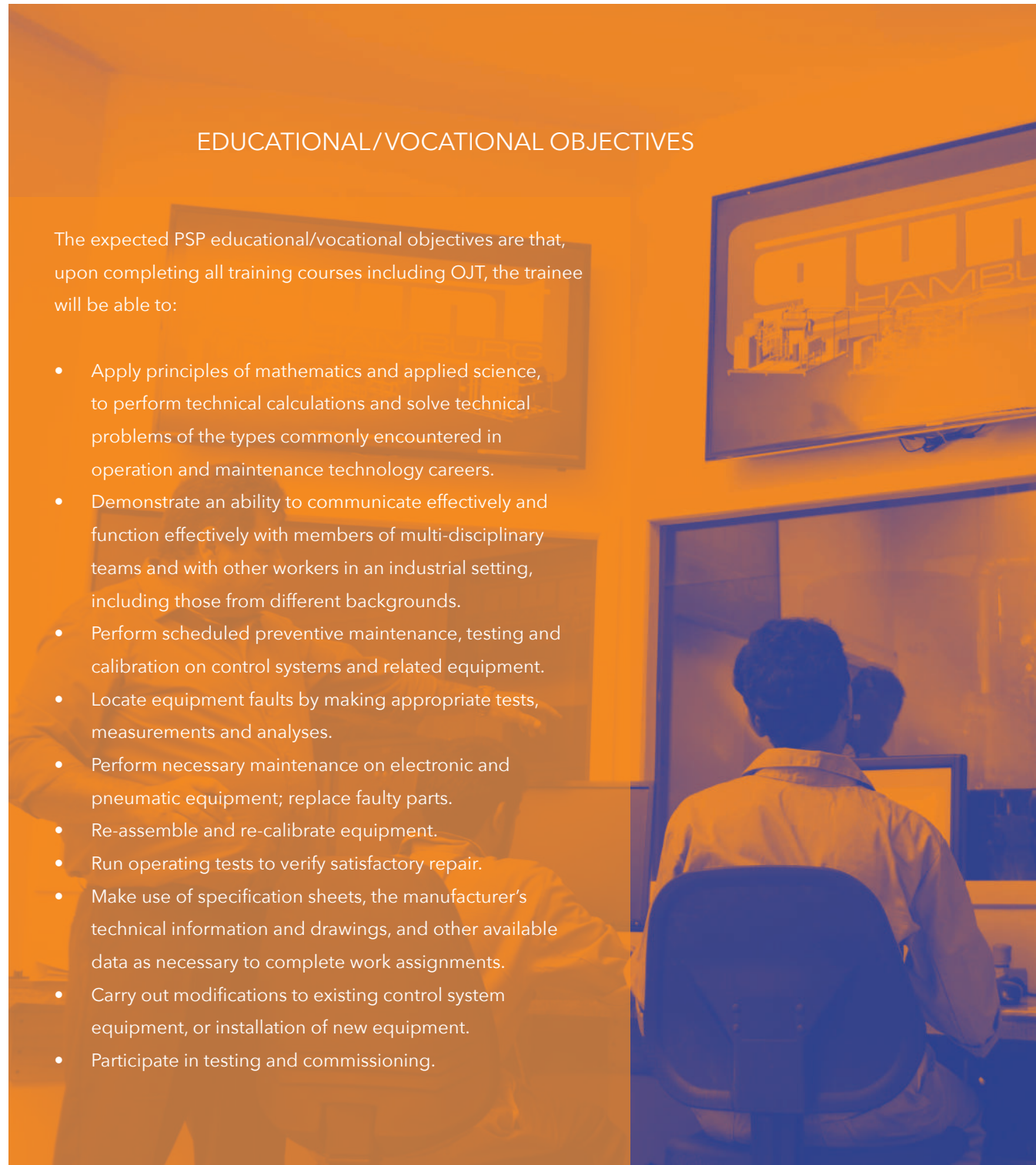
DESCRIPTION

A Power System Controller performs scheduled preventive maintenance jobs including testing, calibration and analysis on control systems or related equipment at the Power Control Center. He also locates and diagnoses faults with various diagnostic tests and measurements, makes use of specification sheets, drawings, and manufacturer's technical information, carries out modifications to existing control system equipment and participates in testing and commissioning events.

EDUCATIONAL/VOCATIONAL OBJECTIVES

The expected PSP educational/vocational objectives are that, upon completing all training courses including OJT, the trainee will be able to:

- Apply principles of mathematics and applied science, to perform technical calculations and solve technical problems of the types commonly encountered in operation and maintenance technology careers.
- Demonstrate an ability to communicate effectively and function effectively with members of multi-disciplinary teams and with other workers in an industrial setting, including those from different backgrounds.
- Perform scheduled preventive maintenance, testing and calibration on control systems and related equipment.
- Locate equipment faults by making appropriate tests, measurements and analyses.
- Perform necessary maintenance on electronic and pneumatic equipment; replace faulty parts.
- Re-assemble and re-calibrate equipment.
- Run operating tests to verify satisfactory repair.
- Make use of specification sheets, the manufacturer's technical information and drawings, and other available data as necessary to complete work assignments.
- Carry out modifications to existing control system equipment, or installation of new equipment.
- Participate in testing and commissioning.



ELECTRIC POWER CABLES-I (EPC-I)

DESCRIPTION

An Electric Power Cables Technician provides technical support for the testing, installation, fault localization, repair and splicing of cables in the power transmission system. He also helps to lay out spaces, cables and equipment in manholes, installs and terminates cables and performs cable splicing on various cable types in new transmission circuits. Additionally, he reports fault location and the nature of faults to supervisors for subsequent repair.

EDUCATIONAL/VOCATIONAL OBJECTIVES

The expected EPC educational/vocational objectives are that, upon completing all training courses including OJT, the trainee will be able to:

- Apply principles of mathematics and applied science, to perform technical calculations and solve technical problems of the types commonly encountered in operation and maintenance technology careers.
- Demonstrate an ability to communicate effectively and function effectively with members of multi-disciplinary teams and with other workers in an industrial setting, including those from different backgrounds.
- Provide technical support for the testing, installation, fault localization, repair, splicing and maintenance of cables present in the company power transmission system.
- Monitor oil pressure gauges, and maintain the oil pressure in oil-filled

cables at the required level.

- Perform inspection, testing and locating of cable faults in faulted cables using sophisticated cable test equipment and test vans.
- Report the location and nature of the fault to a supervisor for subsequent repair.
- Perform splicing and terminating of various types of cables to repair faults on the power system.
- Conduct various tests including High Pot tests on spliced or terminated cables in order to make sure that they are operating effectively and able to withstand high voltage stress.
- Perform splicing of cables of various types and voltages in new transmission circuits.
- Install and terminate cables in primary switches, pad mount switchgear and transformers, substations and overhead towers and poles.
- Help to lay out spaces, cables and equipment in manholes.
- Carry out preventive maintenance duties, such as inspecting cables and equipment for damage and leaking oil.

SUBSTATION ELECTRICAL MAINTENANCE-I (SSM-I)

DESCRIPTION

A Substation Maintenance Electrician performs preventive maintenance on low and high voltage substations. He maintains the operational status of the company transmission substations through commissioning, testing, fault diagnosis and maintenance planning procedures. He also has the technical skills to troubleshoot defective substation equipment, operate oil and SF₆ gas processing machines, take oil samples and run tests. In addition, he prepares, reviews and releases information on power outages from the SEC Power Control Center.

EDUCATIONAL/VOCATIONAL OBJECTIVES

The expected SSM educational/vocational objectives are that, upon completing all training courses including OJT, the trainee will be able to:

- Apply principles of mathematics and applied science, to perform technical calculations and solve technical problems of the types commonly encountered in operation and maintenance technology careers.
- Demonstrate an ability to communicate effectively and function effectively with members of multi-disciplinary teams and with other workers in an industrial setting, including those from different backgrounds.
- Maintain the operational status of the company transmission system substations by performing commissioning, testing, fault diagnosis, maintenance planning, and major and minor preventive maintenance on the various types of equipment installed.
- Troubleshoot defective high and low voltage substation equipment, including high voltage transformers and regulators, load tap changers, potential and current transformers, line tuners and traps, high voltage circuit breakers and switchgear, battery and charger systems, telemetering equipment, capacitor controls, emergency generators, disconnect switches, direct current supply systems, supervisory control and data acquisition equipment, air-conditioning systems and auxiliaries, safety and fire systems and yard/street lighting controls.
- Perform major and minor preventive maintenance on all types of low and high voltage substation
- Use and operate oil and SF₆ gas processing machines.
- Take oil samples of substation equipment, running tests for contaminants and filtering oil.
- Prepare, review, and release outages from/to the power control center.



INSTRUMENTATION AND CONTROL (INC)

DESCRIPTION

An Instrumentation and Control Technician undertakes activities related to installing, calibrating, maintaining and diagnosing faults in power plant digital and analog control systems. He participates in testing and commissioning events, runs operating tests and carries out modifications to existing control system equipment. He also has the skills to locate faults, identify/replace faulty parts, reassemble/re-calibrate equipment and make use of technical information as necessary to complete assignments.

EDUCATIONAL/VOCATIONAL OBJECTIVES

The expected INC educational/vocational objectives are that, upon completing all training courses including OJT, the trainee will be able to:

- Apply principles of mathematics and applied science, to perform technical calculations and solve technical problems of the types commonly encountered in operation and maintenance technology careers.
- Demonstrate an ability to communicate effectively and function effectively with members of multi-disciplinary teams and with other workers in an industrial setting, including those from different backgrounds.
- Undertake responsibility for participating in activities related to installing, calibrating, maintaining and diagnosing faults by performing testing, measurements and analysis to locate faults in power plant digital and analog control systems, associated electrical /electronic equipment, peripherals and instruments in order to achieve uninterrupted power generation.
- Locate equipment faults and operating irregularities by making appropriate diagnostic tests, measurements, and analyses.
- Perform maintenance on electronic/ pneumatic equipment and systems;
- Identify and replace faulty parts; reassemble and recalibrate equipment and systems
- Run operating tests to verify satisfactory repairs.
- Make use of specification sheets, the manufacturer's technical information and drawings, and other available data as necessary to complete work assignments.
- Carry out modifications to existing control system equipment, or installation of new equipment.
- Participate in testing and commissioning.
- Perform calibration, testing, and maintenance on test equipment

POWER PLANT ELECTRICAL MAINTENANCE-I (PPE-I)

DESCRIPTION

A Power Plant Electrical Technician provides technical expertise in activities related to installation, diagnosis, repair and maintenance of electrical equipment (e.g., transformers, switchgear, lighting, battery systems, meters, etc.) in power generation plants. He also locates and diagnoses faults using various diagnostic tests and measurements, performs scheduled preventive maintenance procedures, carries out field testing and modifications on existing equipment, replaces defective parts and installs and aligns new equipment.

EDUCATIONAL/VOCATIONAL OBJECTIVES

The expected PPE educational/vocational objectives are that, upon completing all training courses including OJT, the trainee will be able to:

- Apply principles of mathematics and applied science, to perform technical calculations and solve technical problems of the types commonly encountered in operation and maintenance technology careers.
- Demonstrate an ability to communicate effectively and function effectively with members of multi-disciplinary teams and with other workers in an industrial setting, including those from different backgrounds

- Provide technical expertise in activities related to installation, diagnosis, repair, and maintenance of electrical equipment in power generation plants including rotating electrical equipment, meters, motor controllers, switchgear, transformers, plant lighting, and battery systems, to ensure the safe and uninterrupted generation of power.
- Diagnose faults in electrical equipment; perform simple repair or replacement of defective parts and reassemble equipment.
- Perform scheduled preventive maintenance on electrical equipment.
- Carry out field testing and fault finding on electrical equipment.
- Locate equipment faults through various diagnostic tests and measurements.
- Carry out repairs and maintenance on various types of electrical equipment.
- Carry out the installation and alignment of equipment.
- Carry out modifications to existing equipment as assigned.
- Install all types of electrical rotating and fixed equipment.
- Install and repair light fixtures, appliances, power tools, fans, etc. both on and off plant grounds.



ELECTRICAL NETWORK OPERATION-I (NWO-I)

DESCRIPTION

An Electrical Network Operator operates substation equipment to maintain the integrity of the company transmission system. He performs switching operations and shutdowns, records or resets relay targets, makes temporary and permanent changes to system dispatching drawings and coordinates outage schedules for the Power Control Center scheduler. He provides assistance for preparing reports on incidents, malfunctioning equipment and maintenance activities performed during shifts. He also performs inspection on substations and substation equipment.

EDUCATIONAL/VOCATIONAL OBJECTIVES

The expected NWO educational/vocational objectives are that, upon completing all training courses including OJT, the trainee will be able to:

- Apply principles of mathematics and applied science, to perform technical calculations and solve technical problems of the types commonly encountered in operation and maintenance technology careers.
- Demonstrate an ability to communicate effectively and function effectively with members of multi-disciplinary teams and with other workers in an industrial setting, including those from different backgrounds.
- Operate substation equipment to maintain the integrity of the company transmission system by coordinating the outage schedules, performing switching in coordination with the power dispatcher and performing routine inspection of substation equipment.
- Perform switching operations for the power transmission equipment in the assigned area of responsibility.
- Record or reset relay targets.
- Help in preparing, receiving, and releasing the outage schedule for submission to the power control center scheduler.
- Coordinate with the power control center on all outages.
- Perform shutdowns for scheduled project executions.
- Make temporary and permanent changes to system dispatching drawings.
- Perform inspections of all substation equipment
- Help in the preparation of trouble reports of unusual incidents, malfunctioning equipment, or maintenance performed maintenance performed during the shift.

POWER PLANT MECHANICAL MAINTENANCE-I (PPM-I)

DESCRIPTION

A Mechanical Power Plant Technician performs scheduled preventive maintenance on mechanical equipment in power generation plants. He also carries out field testing with various diagnostic tests and performs plumbing and welding jobs with high quality materials, and executes machining operations on a lathe or milling machine. As a skilled craftsmen, he has the skills in pipe fitting, threading, cutting and anchoring as well as installing and removing blinds and valves. Furthermore, he is able to complete jobs requiring knowledge of the plant layouts and assembly/installation procedures of hydraulic systems and pneumatic systems and dial gauge, laser and pulley alignment.

EDUCATIONAL/VOCATIONAL OBJECTIVES

The expected PPM educational/vocational objectives are that, upon completing all training courses including OJT the trainee will be able to:

- Apply principles of mathematics and applied science, to perform technical calculations and solve technical problems of the types commonly encountered in maintenance technology careers.
- Demonstrate an ability to communicate effectively and function effectively with members of multi-disciplinary teams and with other workers in an industrial setting, including those from different backgrounds.
- Disassemble mechanical equipment; perform simple repair or replacement of defective parts, such as gaskets, bearings, etc.
- Reassemble equipment as indicated
- Perform scheduled preventive maintenance on mechanical equipment by lubrication, minor adjustment or repair.
- Carry out field testing and fault finding on power plant mechanical equipment. Locate equipment faults and operating irregularities by various diagnostic tests, such as vibration monitoring, temperature probes and measurements, and analyses.
- Perform machining operations on lathe or milling machine, generally under the guidance of a more experienced craftsman.
- Perform as a skilled craftsman, jobs requiring layouts, fabrication, assembly, installation and maintenance of piping systems in high pressure service such as gas, steam, water, air, oiled.
- Fit and connect pipe work on turbines, pumps, exchangers, furnaces, etc. by cutting and threading the pipe, making up pipe systems with the necessary fittings, anchoring the pipe to existing supports, installing and removing blinds and valves.
- Perform plumbing jobs including the assembly, installation and repair of pipes, fittings and fixtures of heating, water and drainage.
- Perform basic welding jobs requiring high-quality alloy welding and fabrication.

POWER PLANT OPERATION-I (PPO-I)

DESCRIPTION

A Power Plant Operator is able to undertake shift duties as subordinate operators with pre-determined work plans that involve the physical inspection of power plant systems and machines. He makes adjustments to equipment as instructed, initiates appropriate remedial action when equipment malfunctions occur, monitors different types of gauges, monitors instrumentation functioning and regularly logs readings of plant equipment. He will also identify actual or potential problems and, if possible, correct or report them to senior plant operators immediately.

EDUCATIONAL/VOCATIONAL OBJECTIVES


The expected PPO educational/vocational objectives are that, upon completing all training courses including OJT the trainee will be able to:

- Apply principles of mathematics and applied science, to perform technical calculations and solve technical problems of the types commonly encountered in operation and maintenance technology careers.

- Demonstrate an ability to communicate effectively and function effectively with members of multi-disciplinary teams and with other workers in an industrial setting, including those from different backgrounds.
- Undertake shift duties with responsibility for allocating to subordinate operators, and participating in, pre-determined work plans for the physical inspection of the operating status and mechanical condition of systems/machines within allocated areas/units of the power plant.
- Monitor the gauges and control instrumentation on all plant and equipment in his assigned area at established intervals and regularly log readings.
- Make adjustments to operating conditions of plant and equipment as instructed. Initiate appropriate remedial action when operating conditions such as low water, excess back pressure, fuel failure or other equipment malfunctions occur.
- Report any abnormal response to adjustments made to the senior plant operator immediately, and/or call for assistance as requested by a senior level power plant operator.
- Make regular physical inspections of plant facilities to ensure all plant is functioning at optimum operating performance.

- Check on the operating condition of equipment to identify actual or potential problems.
- Correct the problem if capable or refer situation to his supervisor.
- Check the operating condition of equipment not currently on line. Carry out other checks during plant shut-downs, operating fire and safety equipment as necessary.
- Troubleshoot problems encountered in the operation of equipment in the assigned area, or referred from subordinate operators, in order to regain the optimum operating status





AIR CONDITIONING AND REFRIGERATION-I (ACREF-I)

DESCRIPTION

This program explores the fundamentals of refrigeration, heating, ventilating and air-conditioning systems theoretically and practically. The course will also discuss refrigeration principles, vapor compression cycle, refrigeration systems, and the conditions for a comfortable and healthy indoor environment, such as physiological considerations, environmental indices, and control of indoor air quality. The course will introduce the analysis of air-conditioning/psychrometric processes, and then discuss the estimation of energy to be added to (heating load) or extracted from (cooling load) a space. The course will also discuss different HVAC system components such as air handling units, water chillers, hot water boilers, cooling towers, evaporative condensers, fans and pumps, including the water distribution system, duct design and air distribution method as well as cooling load calculation.. The main course of this program is maintenance of HVAC and refrigeration system will be discussed thoroughly

EDUCATIONAL/VOCATIONAL OBJECTIVES

The expected Air Conditioning and Refrigeration programs educational/vocational objectives are that, upon completing all training courses, the trainee will be able to:

- Apply principles of mathematics and applied science, to perform technical calculations and solve technical problems of the types commonly encountered in operation and maintenance technology careers.
- Demonstrate an ability to communicate effectively and function effectively with members of multi-disciplinary teams and with other workers in an industrial setting, including those from different backgrounds.
- Explain the performance of simple refrigeration and multi-pressure systems.
- Determine the appropriate cycle for given climatic conditions and represent it on the psychrometric chart.
- Identify the field of application of air conditioning systems and describe the components of different air conditioning systems.
- Choose appropriate air conditioning systems and select the appropriate fan or pump.
- Describe various components of the air handling unit and fan coil unit and study their performance.
- Respond to duct design and select air supply and return devices using tables.
- Calculate pressure loss in duct and fittings for chilled or hot water system.
- Design a piping system and select piping materials, connections and fittings for chilled or hot water systems.
- Calculate the pressure drop in a piping network, pump head, and the size of a simple piping system.
- Perform the maintenance required on air conditioning and refrigeration systems.
- Calculate cooling loads using load calculation programs; select air conditioning components using catalogs and software.

POWER SYSTEM DISPATCHING-I (PSD-I)

DESCRIPTION

A Power System Dispatcher is a direct power plant operator who coordinates and participates in electrical switching activities, investigates and isolates power outages and damaged equipment, ensures safety of electrical crews, maintains accurate dispatch records and performs other duties as assigned. A PSD is subject to 24-hour callout for emergency conditions.

EDUCATIONAL/VOCATIONAL OBJECTIVES

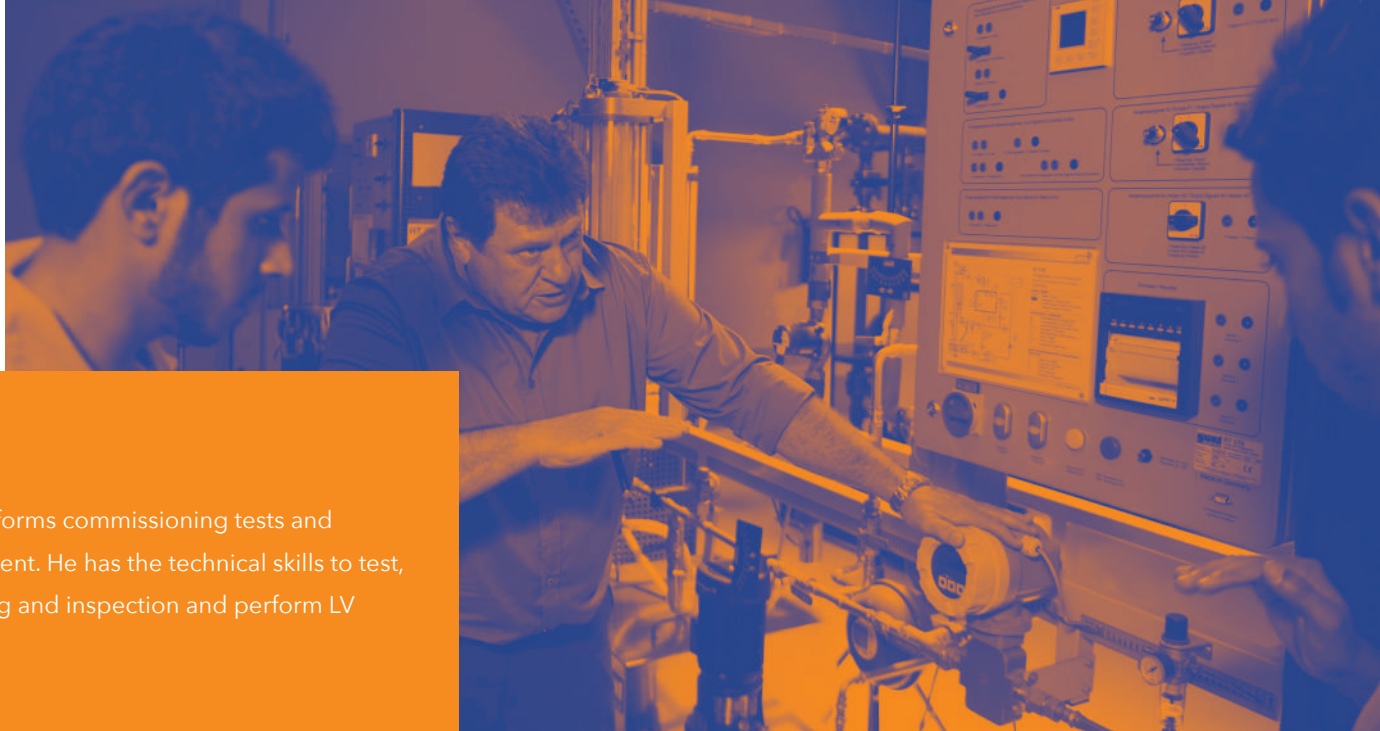
The expected PSD educational/vocational objectives are that, upon completing all training courses including OJT, the trainee will be able to:

- Apply principles of mathematics and applied science, to perform technical calculations and solve technical problems of the types commonly encountered in operation and maintenance technology careers.
- Demonstrate an ability to communicate effectively and function effectively with members of multi-disciplinary teams and with other workers in an industrial setting, including those from different backgrounds.
- Keep the power flowing from a plant to its consumers, making sure there is enough energy to meet customer demand, but not so much as to damage any delicate systems in the plant.
- Adjust the power production according to weather reports, responding to changes in energy consumption demand caused by extreme heat or extreme cold. Respond to surges in the amount of energy the plant can make (e.g. due to big storms), and make allowances to get rid of the excess and so protect transformers and power lines from blowing.
- Determine how much power the power plant has available. Then supply that power to the consumers. If consumer demand can't be met, the required power should be provided from other plants.
- Respond to transmission line failure or need for repairs by routing power to the affected area without disturbing the customers.

ELECTRICAL DISTRIBUTION NETWORK MAINTENANCE-I (EDM-I)

DESCRIPTION

An Electrical Distribution Network Maintenance Technician performs commissioning tests and functional checks on all types of safety and distribution equipment. He has the technical skills to test, calibrate and trouble-shoot equipment, read manuals for testing and inspection and perform LV cable joining and termination techniques.



EDUCATIONAL/VOCATIONAL OBJECTIVES

The expected EDM educational/vocational objectives are that, upon completing all training courses including OJT, the trainee will be able to:

- Apply principles of mathematics and applied science, to perform technical calculations and solve technical problems of the types commonly encountered in operation and maintenance technology careers.
- Demonstrate an ability to communicate effectively and function effectively with members of multi-disciplinary teams and with other workers in an industrial setting, including those from different backgrounds.
- Perform functional check of safety equipment for proper use.
- Read manuals for testing, inspection and maintenance.
- Test, calibrate, troubleshoot and make critical adjustments.
- Perform commission tests on all types of distribution equipment.
- Perform LV cable joining and termination.

RENEWABLE ENERGY TECHNOLOGY-I (RET-I)

DESCRIPTION

In this program trainees will learn about the sources of renewable energy such as Solar, Biomass, Wind and Hydro. Also, trainees will use this knowledge to demonstrate the ability to calculate/ determine the requirements of renewable energy systems. This is a two year program designed for technicians specialized in Renewable Energy to carry out design, installation, maintenance, and inspection

EDUCATIONAL/VOCATIONAL OBJECTIVES

The expected RET outcomes are that, upon completing all training courses including OJT, the trainee will be able to:

- Apply principles of mathematics and applied science, to perform technical calculations and solve technical problems.
- Demonstrate an ability to communicate effectively and function efficiently with members of multi-disciplinary teams in an industrial setting.
- Understand renewable energy sources and their benefits.
- Explain the environmental impact and safety of each source of renewable energy.
- Recognize the layout of the photovoltaic system and component names.
- Apply an understanding of the photovoltaic module, charge controller, inverter, cable connections and sizes, and batteries.
- Size up the requirements for a solar panel system.
- Demonstrate an ability to calculate/determine the requirements for other renewable energy sources such as biomass, wind and hydro.
- Explain economic issues around renewable energy sources.
- Evaluate, compare and select energy systems based on economic and environmental considerations.

SOLAR ENERGY-I (SE-I)

DESCRIPTION

This program focuses specifically on the Solar Energy field of renewable energy - one of particular interest and relevance to The Gulf region. Trainees in this program will be instructed on the fundamentals of Solar Energy and the science behind generating electricity from the sun. Trainees will learn how to set-up and calibrate solar panels, test and perform inspections upon them and finally adjust and calibrate solar plants for maximum efficiency. In addition, the course will seek to instill and promote teamwork, communication and workplace cohesion.

EDUCATIONAL/VOCATIONAL OBJECTIVES

The expected SE outcomes are that, upon completing all training courses including OJT, the trainee will be able to:

- Apply principles of mathematics and applied science, to perform technical calculations and solve technical problems of the types commonly encountered in in operation and maintenance technology careers.
- Demonstrate an ability to communicate effectively and function effectively with members of multi-disciplinary teams and with other workers in an industrial setting, including those from different backgrounds.
- Identify and explain the components of flat plate collectors.
- Identify the effects of dust, shading and incidence effect on flat plate collectors.
- Identify and explain the components of concentrating solar collectors.
- Identify and explain solar thermal power generation systems.
- Perform installation and designing of small scale PV plants.
- Read manuals for testing, inspection and maintenance.
- Test, calibrate, troubleshoot and make critical adjustments.
- Perform commission tests on all types of Solar PV plant.




WELDING AND MACHINING-I (WMC-I)

DESCRIPTION

A Welder Machinist is able to perform various metal cutting, machining and welding jobs. Based on the shape, thickness, form and composition of materials, he determines the methods and tools needed for each assigned job. He also has the skill to do simple fabrication and to use lathes, milling machines, shapers, radial drill, drill press and bench grinders.

EDUCATIONAL/VOCATIONAL OBJECTIVES

The expected WMC educational/vocational objectives are that, upon completing all training courses including OJT, the trainee will be able to:

- Apply principles of mathematics and applied science, to perform technical calculations and solve technical problems of the types commonly encountered in operation and maintenance technology careers.
 - Demonstrate an ability to communicate effectively and function effectively with members of multi-disciplinary teams and with other workers in an industrial setting, including those from different backgrounds.
 - Perform various cutting and machining jobs.
 - Perform various types of assigned welding jobs.
 - Explain the need for measuring tools in machining and maintenance operations.
- 

- Identify rigid rules, folding rules, depth rules, tape measures and measuring procedures; use the correct procedures to take accurate measurements.
- Identify the basic tools required and manual methods required, and use to manufacture replacement or repair parts for various types of equipment.
- Identify the basic control systems and machining methods used on vertical and horizontal milling machines; carry out the basic operations necessary in the manufacture of parts found in various types of equipment.
- Identify the basic lathe control systems and machining methods; carry out the basic operations required in the manufacture of replacement or repair parts for various types of equipment.
- Describe the proper erecting sequence of scaffolding and identify components used to build a scaffold and the different types of scaffolding used in various projects.
- Describe the design of wire ropes and install wire ropes properly using lubrication.
- Describe the design and importance of several types of rigging hardware.
- Describe various types of overhead cranes and responsibilities related to the operation, inspection, and maintenance of overhead cranes.
- Identify common welding hazards and corresponding safety procedures; apply the safety procedures to mitigate these hazards.
- Classify various metals and explain factors influencing their weldability.
- Describe the equipment, procedures, and function of the components and methods used in the following welding processes: shielded metal arc welding (SMAW); gas metal arc welding (GMAW); tungsten inert gas (TIG) welding; oxyacetylene welding (OAW).



NON-DESTRUCTIVE TESTING (NDT)


DESCRIPTION

Nondestructive testing is a technique used to investigate the material integrity of the test object. A number of other technologies - for instance, radio astronomy, voltage and amperage measurement and rheometry (flow measurement) - are nondestructive but are not used to evaluate material properties specifically. Nondestructive testing is concerned in a practical way with the performance of the test piece - how long may the piece be used and when does it need to be checked again?

EDUCATIONAL/VOCATIONAL OBJECTIVES

The expected NDT program outcomes are that, upon completing all training courses, the trainee will be able to:

- Apply principles of mathematics and applied science, to perform technical calculations and solve technical problems of the types commonly encountered in NDT.
- Demonstrate an ability to communicate effectively and function effectively with members of multi-disciplinary teams and with other workers in an industrial setting, including those from different backgrounds.
- Explain the purpose and application of NDT in science, industry, and manufacturing processes.
- Understand materials metallurgy, properties, characteristics, construction, and quality control.
- Explain material corrosion fundamentals, mechanisms, and corrosion prevention/mitigation.
- Identify material defects, discontinuity, flaws, cracks, etc.
- Calculate corrosion rates and estimate the remaining life of equipment.
- Choose the right method of NDT for the given application.
- Understand types and fundamentals of inspection and non-destructive evaluation.
- Explain welding methods, discontinuities, and inspection.
- Recognize the codes and standards governing the NDT.
- Demonstrate the theoretical knowledge and practical skills to perform different NDT methods such as:
 - o Liquid penetrant testing
 - o Magnetic particle testing
 - o Ultrasonic testing
 - o Visual testing
 - o Radiographic testing
 - o Eddy current testing
 - o Acoustic emission and thermography.



DIPLOMA IN OPERATIONAL AND MAINTENANCE MANAGEMENT (DOMM) 24 MONTHS

FOREMAN - I (FRMN-I)

DESCRIPTION

By the completion of the course, the trainee should have a good knowledge about reading plans, know how to do drawings, what specifications are, how to work safe on a site or in the plant. He should know how to organize the work on the site, the manpower and material for the job. He must also be able to communicate with the people working under him, as well as his superiors. He should also have a broad knowledge about the different trades he is working in. He should also be able to do practical work in the different trades.

For study plan see pages 76-105

FOREMAN - I (FRMN-I) CONTINUED

EDUCATIONAL/VOCATIONAL OBJECTIVES

The expected foreman-I program educational/vocational objectives are that, upon completing all training courses, the trainee will be able to:

- Apply principles of mathematics and applied science, to perform technical calculations and solve technical problems of the types commonly encountered in operation and maintenance technology careers.
- Demonstrate an ability to communicate effectively and function effectively with members of multi-disciplinary teams and with other workers in an industrial setting, including those from different backgrounds.
- Directly supervise, schedule and coordinate activities of construction or extraction workers.
- Read specifications, such as blueprints, to determine construction requirements or to plan procedures.
- Inspect work progress, equipment, or construction sites to verify safety or to ensure that specifications are met.
- Locate, measure, and mark site locations or placement of structures or equipment, using measuring and marking equipment.

HEALTH, SAFETY AND ENVIRONMENT-I (HSE-I)

DESCRIPTION

This program covers the importance of safety in process plants and deals with hazards, engineering & administrative controls, Auditing and incident investigation (root cause analysis) Risk management of fire, electricity, toxic chemicals, construction and process hazards. It provides specialized process safety and environmental management to meet ISO and international standards.

EDUCATIONAL/VOCATIONAL OBJECTIVES

On completion trainees will have acquired all underpinning knowledge and skills to pass exams for NEBOSH International Certificate in Health and Safety. The expected HSE educational/vocational objectives are that, upon completing all training courses including OJT, the trainee will be able to:

- Apply principles of mathematics and applied science, to perform technical calculations and solve technical problems of the types commonly encountered in operation and maintenance technology careers.
- Demonstrate an ability to communicate effectively and function effectively with members of multi-disciplinary teams and with other workers in an industrial setting, including those from different backgrounds.
- Perform the duties of an HSE advisor in the process sector.
- Be able to carry out internal audits, aligned to ISO standards.
- Effectively design, manage and monitor HSE management systems.
- Review workplace risk assessments.
- Provide specific HSE advice to senior managers.
- Systematically conduct incident investigations to identify root causes.
- Contribute to environmental plant management.

The background image shows a complex industrial system, likely a SCADA training rig. It features several large metal tanks, a network of pipes, and various control panels. One prominent panel on the left has a digital display and several analog gauges. The entire setup is housed in a well-lit industrial or laboratory environment with overhead lighting.

ASSOCIATE DIPLOMA IN OPERATIONAL AND MAINTENANCE ENGINEERING (ADOME) 9-12 MONTHS

SYSTEM CONTROL AND DATA ACQUISITION SYSTEMS (SCADA)

DESCRIPTION

A System Control and Data Acquisition Systems (SCADA) technician performs installation and configuration of device driver and troubleshoot network connectivity . He also, identify SCADA auxiliary equipment, power source and interface and understands the relation between SCADA and Smart Grid. Perform loopback test, IP address setting, ping device from remote location and explain and function of SCADA communication software and hardware

For study plans see pages 76-105

EDUCATIONAL/VOCATIONAL OBJECTIVES

The expected System Control and Data Acquisition Systems (SCADA) program educational/vocational objectives are that, upon completing all training courses, the trainee will be able to:

- Apply principles of mathematics and applied science, to perform technical calculations and solve technical problems of the types commonly encountered in operation and maintenance technology careers.
- Demonstrate an ability to communicate effectively and function effectively with members of multi-disciplinary teams and with other workers in an industrial setting, including those from different backgrounds.
- Explain the concepts of amplifier, modulation and demodulation.
- Count, convert and do arithmetic in the binary, hexadecimal and octal number systems.
- Connect different computers input and output devices.
- Install and demonstrate application software.
- Demonstrate different types of network topologies and protocols.
- Explain each layer of the OSI model and TCP/IP.
- Do basic software and hardware troubleshooting.
- Explain each layer of the OSI model and TCP/IP.
- Configure IP address, know the subnetting and default gateway.
- Demonstrate knowledge of data link layer fundamentals such as error detection, correction and flow control techniques.
- Identify the difference between PSTN and TCP/IP based networks.
- Explain the difference between LAN and WAN.
- Demonstrate remote access networking.
- Differentiate between microwave, satellite and radio communications.
- Connect network equipment and configure from the computer.
- Install and configure device drivers and troubleshoot network connectivity.
- Demonstrate SCADA field level equipment.
- Explain the function of SCADA communication software and hardware.
- Demonstrate how to calibrate voltage, current and set value.
- Identify SCADA auxiliary equipment, power source and interface.
- Test the power supply, input/output module and check the connection.
- Perform loopback tests, IP address setting, and ping device from the remote location.
- Install and configure the OPC server, collect data and check the event log.
- Explain the relation between SCADA and the Smart Grid.
- Monitor system processes, CPU usages, examine log file, correct OS error, back up critical data, and verify routine failover.

ELECTRICAL METERING INSPECTION (EMI-I)

DESCRIPTION

The EMI technician is able to undertake shift duties as an Electrical Metering Inspector who understand SEC grid, from generation ,transmission , distribution and reticulation, also understand the emergency procedures in case of shock or electrical explosions. Be familiar with Watt-Hour Meter construction and operation and understand different control measures used by SEC in the metering department and understand electricity generation and SI units Explain power factor correction and explain how and why it is done

EDUCATIONAL/VOCATIONAL OBJECTIVES

The expected Electrical Metering Inspection (EMI) program educational/vocational objectives are that, upon completing all training courses , the trainee will be able to:

- Apply principles of mathematics and applied science, to perform technical calculations and solve technical problems of the types commonly encountered in operation and maintenance technology careers.



- Demonstrate an ability to communicate effectively and function effectively with members of multi-disciplinary teams and with other workers in an industrial setting, including those from different backgrounds.
- Understand SEC grid, from generation ,transmission, distribution and reticulation.
- Demonstrate knowledge of emergency procedures in case of shock or electrical explosions.
- Be able to apply SEC construction standards pertaining to meters.
- Understand different control measures used by SEC in the metering department.
- Understand electricity generation and SI units.
- Describe Watt-Hour Meter construction and operation.
- Be able to install and remove 3-phase and single-phase meters.
- Explain the need for periodic inspections and maintenance of metering systems.
- Understand electro-magnetism and the internal operation of kWh meters.
- Explain the difference between 3-phase and single-phase metering by using generated sine waves.
- Calculate circuit parameters (voltage / current / power / combined resistors in series and parallel).

- Measure circuit parameters using multimeters.
- Maintain test records and customer contacts.
- Adhere to all safety precautions for the meter installation at customer premises or during maintenance routines.
- Perform routine maintenance tasks safely while working on metering equipment.
- Demonstrate a working knowledge of all testing methods used by SEC for single and three phase metering.
- Understand effects of resistive load and capacitive load, and how it affects metering.
- Explain power factor correction and how and why it is done.
- Recognize meter tampering methods and how to prevent them..
- Complete an accuracy test report in a standard test record sheet for meter tests performed.

ELECTRIC POWER CABLES-II (EPC-II)

DESCRIPTION

An Electric Power Cables Technician provides technical support for the testing, installation, fault localization, repair and splicing of cables in the power transmission system. He also helps to lay out spaces, cables and equipment in manholes, installs and terminates cables and performs cable splicing on various cable types in new transmission circuits. Additionally, he reports fault location and the nature of faults to supervisors for subsequent repair.



EDUCATIONAL/VOCATIONAL OBJECTIVES

The expected EPC educational/vocational objectives are that, upon completing all training courses including OJT, the trainee will be able to:

- Demonstrate an ability to communicate effectively and function effectively with members of multi-disciplinary teams and with other workers in an industrial setting, including those from different backgrounds.
- Provide technical support for the testing, installation, fault localization, repair, splicing and maintenance of cables present in the company power transmission system.
- Monitor oil pressure gauges, and maintain the oil pressure in oil-filled cables at the required level.
- Perform inspection, testing and locating of cable faults in faulted cables using sophisticated cable test equipment and test vans.
- Report the location and nature of the fault to a supervisor for subsequent repair.
- Perform splicing and terminating of various types of cables to repair faults on the power system.
- Conduct various tests including High Pot tests on spliced or terminated cables in order to make sure that they are operating effectively and able to withstand high voltage stress.
- Perform splicing of cables of various types and voltages in new transmission circuits.
- Install and terminate cables in primary switches, pad mount switchgear and transformers, substations and overhead towers and poles.
- Help to lay out spaces, cables and equipment in manholes.
- Carry out preventive maintenance duties, such as inspecting cables and equipment for damage and leaking oil.

RENEWABLE ENERGY TECHNOLOGY-II (RET-II)

DESCRIPTION

In this program trainees will learn about the sources of renewable energy such as Solar, Biomass, Wind and Hydro. Also, trainees will explore Solar Energy fundamentals and systems as the sun is the foundation of all different types of energy. This is a 9-12 month Associate Diploma program designed for technicians who would like to specialize in renewable energy systems and their installation, operation and inspection.

EDUCATIONAL/VOCATIONAL OBJECTIVES

The expected RET-II educational/vocational objectives are that, upon completing all training courses including OJT, the trainee will be able to:

- Apply principles of mathematics and applied science, to perform technical calculations and solve technical problems of the types commonly encountered in operation and maintenance technology careers.
- Demonstrate an ability to communicate and function effectively with members of multi-disciplinary teams and with other workers in an industrial setting, including those from different backgrounds.
- Understand renewable energy sources and the benefits of this type of energy.
- Explain energy principles and how they relate to using renewable energy sources.
- Describe the technology of the sources and conversion of renewable energy.
- Explain the environmental impact of these sources and safety parameters of each source of energy.
- Explain the economic issues around renewable energy sources.
- Evaluate, compare and select energy systems based on economic and environmental considerations.
- Apply the fundamentals of solar energy system installation, operation, and inspection.

SOLAR ENERGY-II (SE-II)

DESCRIPTION

This program focuses specifically on the Solar Energy field of renewable energy - one of particular interest and relevance to the Gulf region. Trainees in this program will be instructed on the fundamentals of Solar Energy and the science behind generating electricity from the sun. Trainees will learn how to set-up and calibrate solar panels, test and perform inspections upon them and finally adjust and calibrate solar plants for maximum efficiency. In addition, the course will seek to instill and promote teamwork, communication and workplace cohesion. Trainees benefit from having a purpose-built solar lab on site for practical training

EDUCATIONAL/VOCATIONAL OBJECTIVES

The expected SE-II educational/vocational objectives are that, upon completing all training courses including OJT, the trainee will be able to:

- Apply principles of mathematics and applied science, to perform technical calculations and solve technical problems of the types commonly encountered in operation and maintenance technology careers.
- Demonstrate an ability to communicate effectively and function effectively with members of multi-disciplinary teams and with other workers in an industrial setting, including those from different backgrounds.
- Identify and explain the components of flat plate collectors.
- Identify the effects of dust, shading and incidence effect on flat plate collectors.
- Identify and explain the components of concentrating solar collectors.
- Perform installation and designing of small scale PV plants.
- Read manuals for testing, inspection and maintenance.
- Test, calibrate, troubleshoot and make critical adjustments.
- Perform commission tests on all types of solar PV plant.



POWER PLANT OPERATION-II (PPO-II)

DESCRIPTION

A Power Plant Operator is able to undertake shift duties as subordinate operators with pre-determined work plans that involve the physical inspection of power plant systems and machines. He makes adjustments to equipment as instructed, initiates appropriate remedial action when equipment malfunctions occur, monitors different types of gauges, monitors instrumentation functioning and regularly logs readings of plant equipment. He will also identify actual or potential problems and, if possible, correct or report them to senior plant operators immediately.

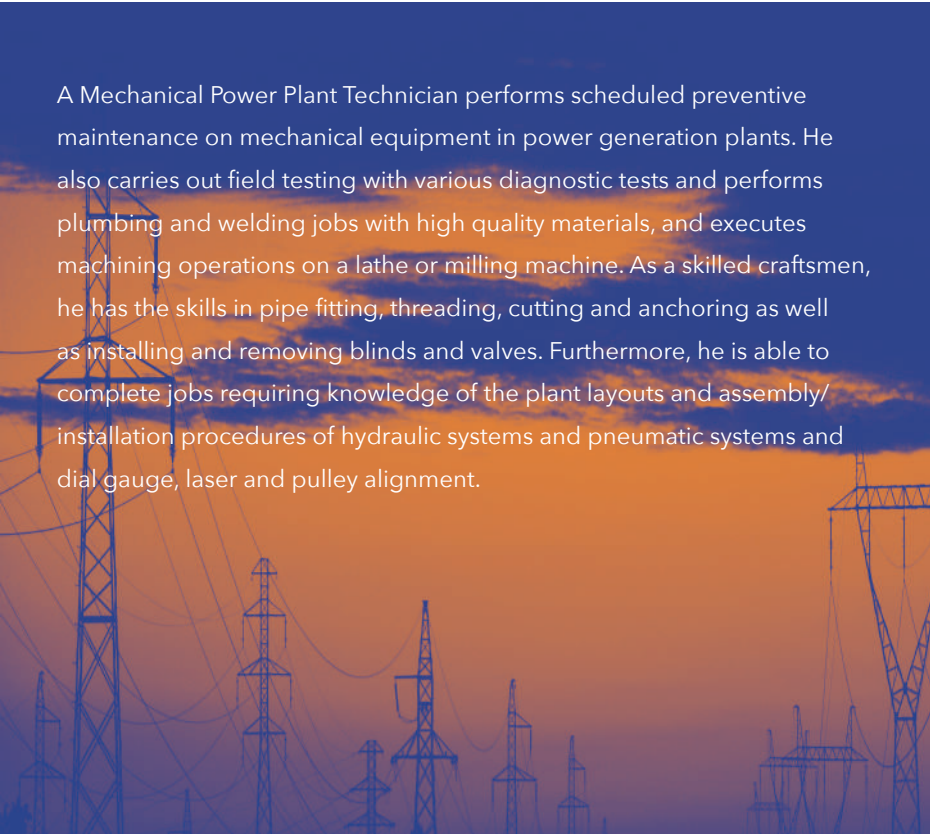
EDUCATIONAL/VOCATIONAL OBJECTIVES

The expected PPO-II educational/vocational objectives are that, upon completing all training courses including OJT the trainee will be able to:

- Demonstrate an ability to communicate effectively and function effectively with members of multi-disciplinary teams and with other workers in an industrial setting, including those from different backgrounds.
- Monitor the gauges and control instrumentation on all plant and equipment in his assigned area at established intervals and regularly log readings.
- Make adjustments to operating conditions of plant and equipment as instructed. Initiate appropriate remedial action when operating conditions such as low water, excess back pressure, fuel failure or other equipment malfunctions occur.
- Report any abnormal response to adjustments made to the Senior Plant Operator immediately, and/or call for assistance called for by senior level Power Plant Operator.
- Make regular physical inspections of plant facilities to ensure all plant is functioning at optimum operating performance.
- Check on the operating condition of equipment to identify actual or potential problems.
- Correct the problem if capable or refer situation to his supervisor
- Check the operating condition of equipment not currently online. Carry out other checks during plant shut-downs, operating fire and safety equipment as necessary.
- Troubleshoot problems encountered in the operation of equipment in the assigned area, or referred from subordinate operators, in order to regain the optimum operating status.

POWER PLANT MECHANICAL MAINTENANCE-II (PPM-II)

DESCRIPTION



A Mechanical Power Plant Technician performs scheduled preventive maintenance on mechanical equipment in power generation plants. He also carries out field testing with various diagnostic tests and performs plumbing and welding jobs with high quality materials, and executes machining operations on a lathe or milling machine. As a skilled craftsmen, he has the skills in pipe fitting, threading, cutting and anchoring as well as installing and removing blinds and valves. Furthermore, he is able to complete jobs requiring knowledge of the plant layouts and assembly/ installation procedures of hydraulic systems and pneumatic systems and dial gauge, laser and pulley alignment.

EDUCATIONAL/VOCATIONAL OBJECTIVES

The expected PPM-II educational/vocational objectives are that, upon completing all training courses including OJT the trainee will be able to:

- Demonstrate an ability to communicate effectively and function effectively with members of multi-disciplinary teams and with other workers in an industrial setting, including those from different backgrounds.
- Disassemble mechanical equipment; perform simple repair or replacement of defective parts, such as gaskets, bearings, etc.
- Reassemble equipment as indicated
- Perform scheduled preventive maintenance on mechanical equipment by lubrication, minor adjustment and repair.
- Carry out field testing and fault finding on power plant mechanical equipment. Locate equipment faults and operating irregularities through various diagnostic tests, such as vibration monitoring, temperature probes and measurements, and analyses.
- Perform machining operations on lathes or milling machines, generally under the guidance of a more experienced craftsman.
- Fit and connect pipe work on turbines, pumps, exchangers, furnaces, etc. by cutting and threading pipe, making up pipe systems with the necessary fittings, anchoring pipe to existing supports, installing and removing blinds and valves.
- Perform plumbing jobs including the assembly, installation and repair of pipes, fittings and fixtures of heating, water and drainage.
- Perform basic welding jobs requiring high-quality alloy welding and fabrication.

POWER PLANT ELECTRICAL MAINTENANCE-II (PPE-II)

DESCRIPTION

A Power Plant Electrical Technician provides technical expertise in activities related to installation, diagnosis, repair and maintenance of electrical equipment (e.g., transformers, switchgear, lighting, battery systems, meters, etc.) in power generation plants. He also locates and diagnoses faults using various diagnostic tests and measurements, performs scheduled preventive maintenance procedures, carries out field testing and modifications on existing equipment, replaces defective parts and installs and aligns new equipment.

EDUCATIONAL/VOCATIONAL OBJECTIVES

The expected PPE-II educational/vocational objectives are that, upon completing all training courses including OJT the trainee will be able to:

- Demonstrate an ability to communicate effectively and function effectively with members of multi-disciplinary teams and with other workers in an industrial setting, including those from different backgrounds.
- Provide technical expertise in activities related to installation, diagnosis, repair, and maintenance of electrical equipment in power generation plants including rotating electrical equipment, meters, motor controllers, switchgear, transformers, plant lighting, and battery systems, to ensure the safe and uninterrupted generation of power.
- Diagnose faults in electrical equipment; perform simple repair or replacement of defective parts and reassemble equipment.
- Perform scheduled preventive maintenance on electrical equipment.
- Carry out field testing and fault finding of electrical equipment.
- Locate equipment faults by various diagnostic tests and measurements.
- Carry out repairs and maintenance on various types of electrical equipment.
- Carry out the installation and alignment of equipment.
- Carry out modifications to existing equipment, as assigned.
- Install all types of electrical rotating and fixed equipment.
- Install and repair light fixtures, appliances, power tools, fans, etc., both on and off plant grounds.

SUBSTATION ELECTRICAL MAINTENANCE-II (SSM-II)

DESCRIPTION

A Substation Maintenance Electrician performs preventive maintenance on low and high voltage substations. He maintains the operational status of the company transmission substations through commissioning, testing, fault diagnosis and maintenance planning procedures. He also has the technical skills to troubleshoot defective substation equipment, operate oil and SF₆ gas processing machines, take oil samples and run tests. In addition, he prepares, reviews and releases information on power outages from the SEC Power Control Center.

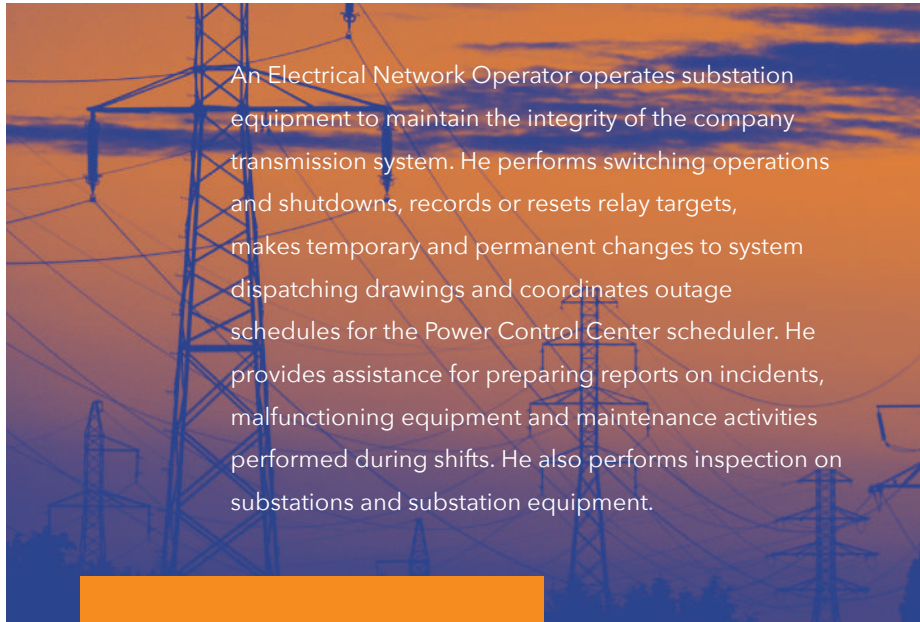
EDUCATIONAL/VOCATIONAL OBJECTIVES

The expected SSM educational/vocational objectives are that, upon completing all training courses including OJT, the trainee will be able to:

- Apply principles of mathematics and applied science, to perform technical calculations and solve technical problems of the types commonly encountered in operation and maintenance technology careers.
- Demonstrate an ability to communicate effectively and function effectively with members of multi-disciplinary teams and with other workers in an industrial setting, including those from different backgrounds.
- Maintain the operational status of company transmission system substations by performing commissioning, testing, fault diagnosis, maintenance planning, and major and minor preventive maintenance on the various types of equipment installed.
- Troubleshoot defective high and low voltage substation equipment, including high voltage transformers and regulators, load tap changers, potential and current transformers, line tuners and traps, high voltage circuit breakers and switchgear, battery and charger systems, telemetering equipment, capacitor controls, emergency generators, disconnect switches, direct current supply systems, supervisory control and data acquisition equipment, air-conditioning systems and auxiliaries, safety and fire systems and yard/street lighting controls.
- Perform major and minor preventive maintenance on all types of low and high voltage substations.
- Use and operate oil and SF₆ gas processing machines.
- Take oil samples of substation equipment, running tests for contaminants and filtering oil.
- Prepare, review, and release outages from/to the power control center.

ELECTRICAL NETWORK OPERATION-II (NWO-II)

DESCRIPTION



EDUCATIONAL/VOCATIONAL OBJECTIVES

The expected NWO educational/vocational objectives are that, upon completing all training courses including OJT, the trainee will be able to:

- Demonstrate an ability to communicate effectively and function effectively with members of multi-disciplinary teams and with other workers in an industrial setting, including those from different backgrounds.
- Operate substation equipment to maintain the integrity of the company transmission system by coordinating the outage schedules, performing switching in coordination with the power dispatcher and performing routine inspection of substation equipment.
- Perform switching operations for the power transmission equipment in the assigned area of responsibility.
- Record or reset relay targets.
- Help in preparing, receiving, and releasing outage schedules for submission to the power control center scheduler.
- Coordinate with the power control center on all outages.
- Perform shutdowns for scheduled project executions.
- Make temporary and permanent changes to system dispatching drawings.
- Perform inspections of all substation equipment
- Help in the preparation of trouble reports of unusual incidents, malfunctioning equipment, or maintenance performed during the shift.

POWER SYSTEM PROTECTION AND CONTROL-II (PSP-II)

DESCRIPTION

A Power System Controller performs scheduled preventive maintenance jobs including testing, calibration and analysis on control systems or related equipment at the Power Control Center. He also locates and diagnoses faults through the use of various diagnostic tests and measurements, makes use of specification sheets, drawings, and manufacturer's technical information, carries out modifications to existing control system equipment and participates in testing and commissioning events.

EDUCATIONAL/VOCATIONAL OBJECTIVES

The expected PSP-II educational/vocational objectives are that, upon completing all training courses including OJT, the trainee will be able to:

- Demonstrate an ability to communicate effectively and function effectively with members of multi-disciplinary teams and with other workers in an industrial setting, including those from different backgrounds.
- Apply principles of mathematics and applied science, to perform technical calculations and solve technical problems of the types commonly encountered in operation and maintenance technology careers.
- Perform scheduled preventive maintenance, testing and calibration on control systems and related equipment.
- Locate equipment faults by making appropriate tests, measurements and analyses.
- Perform necessary maintenance on electronic and pneumatic equipment; replace faulty parts.
- Re-assemble and re-calibrate equipment.
- Run operating tests to verify satisfactory repair.
- Make use of specification sheets, the manufacturer's technical information and drawings, and other available data as necessary to complete work assignments.
- Carry out modifications to existing control system equipment, or installation of new equipment.
- Participate in testing and commissioning.

OVERHEAD LINE MAINTENANCE-II (OHL-II)

DESCRIPTION

An Overhead Line Maintenance Technician performs specialized techniques for preventive maintenance jobs including hot and cold line washing, troubleshooting, emergency response and patrolling and construction activities for high voltage overhead distribution lines. He also erects distribution structures, installs hardware and repairs broken or sagged conductors, fuses and transformer leads. Additionally, he has the skills to install communication antennas, drive and operate line equipment and climb distribution and transmission line towers or poles to perform overhead line maintenance. Furthermore, he communicates with SEC Power Dispatchers to coordinate all duties in accordance with set procedures and replaces damaged lightning arresters and insulators.

EDUCATIONAL/VOCATIONAL OBJECTIVES

The expected OHL educational/vocational objectives are that, upon completing all training courses including OJT, the trainee will be able to:

- Demonstrate an ability to communicate effectively and function effectively with members of multi-disciplinary teams and with other workers in an industrial setting, including those from different backgrounds
- Provide technical support for preventive maintenance including line washing, troubleshooting, and an emergency response capability for the overhead distribution power lines and installations. Maintenance personnel will also support field crews in their construction activities
- Perform overhead line patrolling and preventive maintenance of overhead lines and associated equipment i.e. air break switches and re-closers.



- Perform specialized techniques for hot line work with a high degree of skill and proficiency.
- Erect distribution structures such as wood poles or steel towers or poles and install guy wires, hardware, insulators and cut outs.
- Repair broken or sagged conductors, fuses, and transformer leads. Install communication antennas and other related cable works.
- Coordinate with the power dispatcher to receive permission to commence hot and cold washing in accordance with set procedures.
- Help in the cold and hot washing of overhead lines 69KV and lower voltages, and according to established schedules to maintain the safe operating condition of overhead lines.
- Drive, and operate line equipment such as digger/ derrick, bucket truck, crane, line-wash truck and pump-truck etc.
- Climb distribution line towers or poles to perform specialized line maintenance.

ELECTRICAL DISTRIBUTION NETWORK MAINTENANCE-II (EDM-II)

DESCRIPTION

An Electrical Distribution Network Maintenance Technician performs commissioning tests and functional checks on all types of safety and distribution equipment. He has the technical skills to test, calibrate and trouble-shoot equipment, read manuals for testing and inspection and perform LV cable joining and termination techniques.

EDUCATIONAL/VOCATIONAL OBJECTIVES

The expected EDM educational/vocational objectives are that, upon completing all training courses including OJT, the trainee will be able to:

- Demonstrate an ability to communicate effectively and function effectively with members of multi-disciplinary teams and with other workers in an industrial setting, including those from different backgrounds.
- Perform functional check of safety equipment for proper use.
- Read manuals for testing, inspection and maintenance.
- Test, calibrate, troubleshoot and make critical adjustments.
- Perform commission tests on all types of distribution equipment.
- Perform LV cable joining and termination.

SMART GRID-II (SG-II)

DESCRIPTION

This program examines operational considerations for the Smart Grid, focusing on operations for technicians who will install, control, monitor, and maintain the smart grid. Technicians working on the smart grid will have a balanced understanding of why and how the smart grid is operated, from the perspective of both the utility and the customer. The program will cover technologies and systems utilized. It will also cover the skills needed to maintain the smart grid.

EDUCATIONAL/VOCATIONAL OBJECTIVES

The expected SG outcomes are that, upon completing all training courses including OJT, the trainee will be able to:

- Demonstrate an ability to communicate and function effectively with members of multi-disciplinary teams and with other workers in an industrial setting, including those from different backgrounds.
- Describe basic smart grid concepts, technologies and their benefits for future energy systems.
- Describe smart grid technology used in power distribution.
- Describe smart grid architecture and implementation.
- Advance his understanding of how communication technologies are integrated to enable smart grid operation and monitoring.
- Understand renewable energy integration with the smart grid.
- Develop an understanding of smart metering, the smart home and the smart city.

WELDING AND MACHINING-II (WMC-II)

DESCRIPTION

A Welder Machinist is able to perform various metal cutting, machining and welding jobs. Based on the shape, thickness, form and composition of materials, he determines the methods and tools needed for each assigned job. He also has the skill to do simple fabrication and to use lathes, milling machines, shapers, radial drill, drill press and bench grinders.

EDUCATIONAL/VOCATIONAL OBJECTIVES

The expected WMC-II educational/vocational objectives are that, upon completing all training courses including OJT, the trainee will be able to:

- Demonstrate an ability to communicate effectively and function effectively with members of multi-disciplinary teams and with other workers in an industrial setting, including those from different backgrounds.
- Perform various cutting and machining jobs.
- Perform various types of assigned welding jobs.
- Explain the need for measuring tools in machining and maintenance operations.
- Identify rigid rules, folding rules, depth rules, tape measures and measuring procedures; use the correct procedures to take accurate measurements.
- Identify the basic tools required and manual methods required and use to manufacture replacement or repair parts for various types of equipment.
- Identify the basic control systems and machining methods used on vertical and horizontal milling machines: carry out the basic operations necessary in the manufacture of parts used in various types of equipment.
- Identify the basic lathe control systems and machining methods; carry out the basic operations required in the manufacture of replacement or repair parts for various types of equipment.
- Describe the proper erecting sequence of scaffolding and identify the components used to build a scaffold and the different types of scaffolding used in various projects.
- Describe the design of wire ropes and install wire ropes properly using lubrication.
- Describe the design and importance of several types of rigging hardware.
- Describe various types of overhead cranes and responsibilities related to the operation, inspection, and maintenance of overhead cranes.
- Identify common welding hazards and corresponding safety procedures; apply the safety procedures to mitigate these hazards.
- Classify various metals and explain factors influencing their weldability.
- Describe the equipment, procedures, and function of the components and methods used in the following welding processes: shielded metal arc welding (SMAW); gas metal arc welding (GMAW); tungsten inert gas (TIG) welding; oxyacetylene welding (OAW).

POWER SYSTEM DISPATCHING-II (PSD-II)

DESCRIPTION

A Power System Dispatcher is a direct power plant operator who coordinates and participates in electrical switching activities, investigates and isolates power outages and damaged equipment, ensures safety of electrical crews, maintains accurate dispatch records and performs other duties as assigned. A PSD is subject to 24-hour callout for emergency conditions.

EDUCATIONAL/VOCATIONAL OBJECTIVES

The expected PSD-II educational/vocational objectives are that, upon completing all training courses including OJT, the trainee will be able to:

- Demonstrate an ability to communicate effectively and function effectively with members of multi-disciplinary teams and with other workers in an industrial setting, including those from different backgrounds.
- Keep the power flowing from a plant to its consumers and making sure there is enough energy to meet customer demand, but not so much as to damage any delicate systems in the plant.
- Adjust the power production according to weather reports, responding to changes in energy consumption demand caused by extreme heat or extreme cold. Respond to surges in the amount of energy the plant can make (e.g. due to big storms), and make allowances to get rid of the excess and so protect transformers and power lines from blowing.
- Determine how much power the power plant has available. Then supply that power to the consumers. If the demand can't be met, the required power should be provided from other plants.
- Respond to transmission line failure or need for repairs by routing power to the affected area without disturbing the customers.

AIR CONDITIONING AND REFRIGERATION-II (ACREF-II)

DESCRIPTION

This program explores the fundamentals of refrigeration, heating, ventilating and air-conditioning systems theoretically and practically. The course will also discuss refrigeration principles, the vapor compression cycle, refrigeration systems, and the conditions for a comfortable and healthy indoor environment, such as physiological considerations, environmental indices, and control of indoor air quality. The course will introduce the analysis of air-conditioning/psychrometric processes, and then discuss the estimation of energy to be added to (heating load) or extracted from (cooling load) a space. The course will also discuss different HVAC system components such as air handling units, water chillers, hot water boilers, cooling towers, evaporative condensers, fans and pumps, including the water distribution system, duct design and air distribution method. The main course of this program - maintenance of HVAC and refrigeration systems- will be discussed thoroughly

EDUCATIONAL/VOCATIONAL OBJECTIVES

The expected Air Conditioning and Refrigeration programs educational/vocational objectives are that, upon completing all training courses, the trainee will be able to:

- Demonstrate an ability to communicate effectively and function effectively with members of multi-disciplinary teams and with other workers in an industrial setting, including those from different backgrounds.
- Explain the performance of simple refrigeration and multi-pressure systems.
- Determine the appropriate cycle for given climatic conditions and represent it on the psychrometric chart.
- Identify the field of application of air conditioning systems and describe the components of different air conditioning systems.
- Choose appropriate air conditioning systems and select the appropriate fan or pump.
- Describe various components of the air handling unit and fan coil unit and study their performance.
- Respond to duct design and select air supply and return devices using tables.
- Calculate the pressure loss in a duct and fittings for chilled or hot water systems.
- Design a piping system and select piping materials, connections and fittings for chilled or hot water system.
- Calculate the pressure drop in a piping network, pump head, and the size of a simple piping system.
- Perform the maintenance on HVAC and refrigeration systems.



ASSOCIATE DIPLOMA IN HEALTH, SAFETY AND ENVIRONMENT (12 MONTHS)

HEALTH SAFETY AND ENVIRONMENT-II (HSE-II)

DESCRIPTION

This program covers the importance of safety in process plants and deals with hazards, engineering & administrative controls, Auditing and incident investigation (root cause analysis) Risk management of fire, electricity, toxic chemicals, construction and process hazards. The program of study seeks to develop and prepare the trainee to take on more of an advisory role in the field of Health & Safety. On completion trainees will have acquired all underpinning knowledge and skills to pass exams for NEBOSH International Certificate in Health and Safety.

EDUCATIONAL/VOCATIONAL OBJECTIVES

The expected learning outcomes are that, upon completing all level modules, the learner will be able to:

- Apply principles of mathematics and applied science, to perform technical calculations and solve technical problems of the types commonly encountered in operation and maintenance technology careers.
- Demonstrate an ability to communicate effectively and function effectively with members of multi-disciplinary teams and with other workers in an industrial setting, including those from different backgrounds.
- Perform the duties of an HSE advisor in the process sector.
- Be able to internally audit , aligned to ISO standards.
- Effectively design, manage and monitor HSE management systems.
- Review workplace risk assessments.
- Provide specific HSE advice to senior managers.
- Systematically conduct incident investigations to identify root causes.
- Contribute to environmental plant management.

The background image shows a welding workshop. On the left, there are two large gas cylinders (one blue, one red) mounted on a stand. In the center, there's a complex setup of pipes, valves, and a large white control unit. To the right, there's another large piece of equipment, possibly a welding power source or a large tank. The room has a concrete floor and a ceiling with industrial lighting. The overall color scheme is dominated by the blue and red of the equipment and the white of the control unit, set against a dark background.

ASSOCIATE DIPLOMA IN TECHNOLOGY (ADT) 9 -12 MONTH

WELDING TECHNICIAN (WLDT)

DESCRIPTION

Trainees will be introduced to three welding processes and learn to produce weld beads to industry standards in the four welding positions, i.e. Down hand; vertical; horizontal and overhead positions. They shall also demonstrate safe working practices within a welding environment or workshop especially when operating power tools and workshop machinery. Furthermore, they will be introduced to Thermal cutting processes and the safety aspects attached to those. Marking out and fabricating of components is a key skill to have and we shall endeavor to train the students some, if not all, the skills in the prescribed time. During this time we highlight good work ethics and conduct expected in a working environment.

For study plans see pages 76-105

EDUCATIONAL/VOCATIONAL OBJECTIVES (WELDING TECHNICIAN)

The expected Welding craft educational/vocational objectives are that, upon completing all training courses, the trainee will be able to:

- Weld steel components in flat, vertical, or overhead positions.
- Operate safety equipment and use safe work habits
- Lay out, position, align, and secure parts and assemblies prior to assembly, using straightedges, combination squares, calipers, and rulers.
- Examine work pieces for defects and measure work pieces with straightedges or templates to ensure conformance with specifications.
- Recognize, set up, and operate hand and power tools common to the welding trade, such as shielded metal arc and gas welding/ cutting equipment.
- Clamp, hold, tack-weld, heat-bend, grind or bolt component parts to obtain required configurations and positions for welding.
- Select and install torches, torch tips, filler rods, and flux, according to welding chart specifications or types and thicknesses of metals.
- Ignite torches or start power supplies and strike arcs by touching electrodes to metals being welded, completing electrical circuits.
- Connect and turn regulator valves to activate and adjust gas flow and pressure so that desired flames are obtained
- Obtain a certification in Basic Welding from the accreditation organization.



ELECTRICAL TECHNICIAN (ELCT)

DESCRIPTION

The trainee will be able to do installations, maintenance, testing and repairs on various electrical equipment ranging from street lights, intercom systems, electrical control systems, panels db's, cabling, conduit, wiring of circuits, portable and fixed equipment and fault finding. He wil also understand all the health and safety rules and regulations and how to use a variety of hand tools and power tools safely and correctly.

EDUCATIONAL/VOCATIONAL OBJECTIVES

The expected Electrical craft educational/vocational objectives are that, upon completing all training courses, the trainee will be able to:

- Install, maintain, and repair electrical wiring, equipment, and fixtures. Ensure that work is in accordance with relevant codes. May install or service street lights, intercom systems, or electrical control systems.
- Maintain current electrician's license or identification card to meet governmental regulations.
- Connect wires to circuit breakers, transformers, or other components.
- Repair or replace wiring, equipment, or fixtures, using hand tools or power tools.
- Assemble, install, test, or maintain electrical or electronic wiring, equipment, appliances, apparatus, or fixtures, using hand tools or power tools.

INSTRUMENTATION TECHNICIAN (INST)

DESCRIPTION

The expected instrumentation craft outcomes are that, upon completing all training courses, the trainee will be able to: Install, maintain, and repair electrical wiring, equipment, and fixtures. Ensure that work is in accordance with relevant codes. May install or service street lights, intercom systems, or electrical control systems. Finally, will be able to diagnose malfunctioning systems, apparatus, or components, using test equipment and hand tools to locate the cause of a breakdown and correct the problem.

EDUCATIONAL/VOCATIONAL OBJECTIVES

The expected instrumentation craft educational/vocational objectives are that, upon completing all training courses, the trainee will be able to:

- Install, maintain, and repair electrical wiring, equipment, and fixtures. Ensure that work is in accordance with relevant codes. May install or service street lights, intercom systems, or electrical control systems.
- Maintain current electrician's license or identification card to meet governmental regulations
- Connect wires to circuit breakers, transformers, or other components.
- Repair or replace wiring, equipment, or fixtures, using hand tools or power tools.
- Assemble, install, test, or maintain electrical or electronic wiring, equipment, appliances, apparatus, or fixtures, using hand tools or power tools.
- Test electrical systems or continuity of circuits in electrical wiring, equipment, or fixtures, using testing devices, such as ohmmeters, voltmeters, or oscilloscopes, to ensure the compatibility and safety of the system.
- Use a variety of tools or equipment, such as power construction equipment, measuring devices, power tools, and testing equipment, such as oscilloscopes, ammeters, or test lamps.
- Plan the layout and installation of electrical wiring, equipment, or fixtures, based on job specifications and local codes.
- Inspect electrical systems, equipment, or components to identify hazards, defects, or the need for adjustment or repair, and to ensure compliance with codes.
- Direct or train workers to install, maintain, or repair electrical wiring, equipment, or fixtures.
- Diagnose malfunctioning systems, apparatus, or components, using test equipment and hand tools to locate the cause of a breakdown and correct the problem.

PIPEFITTING TECHNICIAN (PPFT)

DESCRIPTION

Pipe fitting is the occupation of installing or repairing piping or tubing systems that convey liquid and gasses for industrial production systems. This work involves lay out, assemble, selecting and preparing pipe or tubing when joining it together by various means, and the location and repair of leaks. Pipe fitting also involves inspection or testing installed systems or pipe lines, using pressure gauges and hydrostatic tests. Skills to measure and mark pipes for cutting or threading will be required to install pipe lines on structures, with related materials such as supports, hangers or hydraulic cylinders according to specifications

EDUCATIONAL/VOCATIONAL OBJECTIVES

The expected pipefitting craft educational/vocational objectives are that, upon completing all training courses, the trainee will be able to:

- Lay out, assemble, install, or maintain pipe systems, pipe supports, or related hydraulic or pneumatic equipment for steam, hot water, heating, cooling, lubricating, sprinkling, for industrial production or processing systems.
- Plan pipe system layout, installation, or repair, according to specifications.
- Inspect, examine, or test installed systems or pipe lines, using pressure gauges, hydrostatic testing, observation, or other methods.
- Select pipe sizes, types, or related materials, such as supports, hangers, or hydraulic cylinders, according to specifications.
- Measure and mark pipes for cutting or threading.

FOREMAN-II (FRMN-II)

DESCRIPTION

By the completion of the course, the trainee should have a good knowledge about reading plans, know how to do drawings, what specifications are, how to work safe on a site or in the plant. He should know how to organize the work on the site, the manpower and material for the job. He must also be able to communicate with the people working under him, as well as his superiors. He should also have a broad knowledge about the different trades he is working in. He should also be able to do practical work in the different trades.

EDUCATIONAL/VOCATIONAL OBJECTIVES

The expected foreman-II craft educational/vocational objectives are that, upon completing all training courses, the trainee will be able to:

- Directly supervise, schedule and coordinate activities of construction or extraction workers.
- Read specifications, such as blueprints, to determine construction requirements or to plan procedures.
- Inspect work progress, equipment, or construction sites to verify safety or to ensure that specifications are met.
- Locate, measure, and mark site locations or placement of structures or equipment, using measuring and marking equipment.

REBAR FIXING TECHNICIAN (RBFT)

DESCRIPTION

The expected rebar fixer craft educational/vocational objectives are that, upon completing all training courses, the trainee will be able to set the formwork to the desired pitch and depth, and align them; he will also check the formwork that holds the concrete to see that it is properly constructed. He will be able to spread level, and smooth concrete, using rake, shovel, hand or power trowel, hand or power screed, and float. He will be able to direct the casting of the concrete and supervise laborers who use shovels or special tools to spread it. He will produce a rough concrete surface, using a broom.

EDUCATIONAL/VOCATIONAL OBJECTIVES

The expected rebar fixer craft educational/vocational objectives are that, upon completing all training courses, the trainee will be able to:

- Set the forms that hold concrete to the desired pitch and depth, and align them.
- Check the forms that hold the concrete to see that they are properly constructed.
- Spread, level, and smooth concrete, using a rake, shovel, hand or power trowel, hand or power screed, and float.
- Direct the casting of the concrete and supervise laborers who use shovels or special tools to spread it.
- Produce rough concrete surface, using a broom.



SCAFFOLDING TECHNICIAN (SCFT)

DESCRIPTION

The expected scaffolding craft outcomes are that, upon completing all training courses, the trainee will be able to fit together fit together steel pipes, support braces and clamps to form bases for scaffolds. He will also be able to lift and position sections of scaffolding and bolt pipes together to build up scaffolding. This will involve placing planks over horizontal bars to create platforms. He will check levels in the scaffolding structures and be able to dismantle scaffolding at the completion of a job.

EDUCATIONAL/VOCATIONAL OBJECTIVES

The expected scaffolding craft educational/vocational objectives are that, upon completing all training courses, the trainee will be able to:

- Fit together steel pipes, support braces and clamps to form bases for scaffolds.
- Lift and position sections of scaffolding and bolt pipes together to build up scaffolding.
- Place planks over horizontal bars to create platforms.
- Check levels in scaffolding structures.
- Dismantle scaffolding at the completion of a job.

CARPENTRY TECHNICIAN (CRPT)

DESCRIPTION

This is a nine month course and ideal for trainees who want to learn the carpentry skills. This course covering a range of very useful carpentry skills and is designed to provide the trainees with Carpentry knowledge to ensure that once you leave the SESP, you are confident to undertake the various tasks that you will have learned. SESP award a certificate at the completion of the requirements.

EDUCATIONAL/VOCATIONAL OBJECTIVES

The expected carpentry craft outcomes are that, upon completing all training courses, the trainee will be able to:

- Work safely on a construction site.
- Read plans and specifications, estimating cost, and calculating the cost of the materials and labor, etc.
- Identify the materials and tools used for a standard residential construction project as part of the construction process.
- Perform the tasks associated with the following areas; levelling, excavation, footings, foundations, back filling, shuttering, drainage system, floor beams, ceilings, roof trusses, concrete work, exterior finish and interior finish.

COMPLETION CERTIFICATE (3-24 MONTHS)

ELECTRICAL AND INSTRUMENTATION MAINTENANCE -ARAMCO

DESCRIPTION

This program of the proposal is suggested in order to cover topics of low and high voltage cable joining, substation commissioning and maintenance of its electrical systems, maintenance of electrical machines and componentry, PLC and SCADA systems, and instrumentation control systems maintenance.

For study plans see pages 76-105

EDUCATIONAL/VOCATIONAL OBJECTIVES

The expected learning educational/vocational objectives are that the trainees will be able to:

Electric Power Cables

- Provide technical support for the testing, installation, fault localization, repair, splicing and maintenance of cables present in the Company power transmission system.
- Carryout, testing and locating of cable faults in faulted cables using cable test equipment.
- Perform splicing and terminating of various types of cables. Conduct continuity tests on spliced or terminated cables..
- Install and terminate cables in primary switches, pad mount switchgear and transformers, substations.

Substation Commissioning and Maintenance

- Maintain operational status of Company Transmission System substations by performing commissioning, testing, fault diagnosis, maintenance planning, and program and minor preventive maintenance on various equipment.

Electrical Machines

- Understand and engage in activities related to installation, diagnosis, repair, and maintenance of electrical equipment in power generation plants including rotating electrical equipment, meters, motor controllers, to ensure the safe and uninterrupted generation of power.

Transformers, Circuit Breakers & Switchgear

- Troubleshoot defective high and low voltage substation equipment including high voltage transformers and regulators, load tap changers, potential and current transformers, high voltage circuit breakers and switchgear, battery and charger systems, emergency generators, disconnect switches, direct current supply systems, supervisory control and data acquisition equipment, air-conditioning systems and auxiliaries, safety and fire systems and yard/street lighting controls.
- Take oil samples of substation equipment, running tests for contaminants and filtering oil.

Instrumentation, Measurement and Control

- Perform maintenance on hydraulic / pneumatic equipment and systems.
- Demonstrate knowledge of sensors and their applications in industrial measurement.
- Demonstrate knowledge of hydraulic equipment used in industrial process control applications.
- Demonstrate knowledge of pneumatic control equipment used in industrial process control applications.
- Demonstrate knowledge of pressure, temperature, level and flow measurement theory and devices.
- Demonstrate a knowledge of chemical analyzers
- Outline the function of the operating log, record operational details and its analytical use.
- Describe Supervisory Control and Data Acquisition (SCADA) and how it is used to manage the power system.
- Demonstrate a knowledge and understanding of PLC and Ladder software.
- Demonstrate a knowledge of the SCADA system database.
- Demonstrate the use of SCADA Human Machine Interface (HMI) and full graphics environment in managing the power system.

POWER PLANT OPERATION -ARAMCO

DESCRIPTION

The first program of the proposal is suggested in order to provide Aramco trainees with a basic operational understanding and application of thermal & electrical engineering and mechanics to different power plant systems. Proposal may cover types, construction, working principles and performance of power plant equipment such as boilers/steam generators, steam and gas turbines, heat exchangers, cooling towers, internal combustion engines, electrical and control systems, and water treatment. Overall power plant performance is also introduced to enable the trainees to determine whether the power plants are running efficiently and effectively.

EDUCATIONAL/VOCATIONAL OBJECTIVES

The expected learning educational/vocational objectives are that the trainees will be able to:

- Define basic terms and properties used in thermodynamics, state laws of thermodynamics and apply them to different thermodynamics systems. Understand different types of power plants as well as principles of fluid mechanics.
- Learn the use of steam tables, represent types of power plant cycles on pressure - volume and temperature - entropy diagrams and calculate efficiencies
- List the methods and advantages of reheating of steam and explain the advantages of regeneration. Discuss function, types, and application of feed water heaters.
- List types, applications and describe working principles of common boilers/steam generators, HRSG, and their components. Describe types, advantages and operating principles of steam generators and auxiliary systems.
- Learn fuel types and combustion. Evaluate the operation performance of steam generators.
- Describe the construction and working principles of impulse and reaction steam turbines, and show an understanding of velocity diagram of turbines, and auxiliary and control systems. Evaluate the steam turbine performance. Describe condensers and cooling water system.
- Research the operating principles of various types of water treatment processes (Filtration, Sand filters, Demineralization, Reverse osmosis, Desalination by Evaporating process, De-aerators and Boiler feed water monitoring). Take Water samples and perform water testing.
- Describe the construction and working principles of gas turbine power plants. Evaluate the performance of a gas turbine power plant.
- Describe the construction, working principles and advantages of a combined gas turbine - steam turbine power plant and evaluate the performance of a combined cycle
- Describe the function of the instrumentation control within a process control system of a power plant
- Demonstrate a basic knowledge of electrical generators, types and components
- Demonstrate an understanding of single and three phases, frequency and excitation
- Demonstrate an understanding of phasing and synchronization and loading of a generator
- Demonstrate a knowledge of power transmission characteristics, transformation, and Uninterrupted Power Supply UPS
- Demonstrate a knowledge of principles of electrical generation and transmission.
- Demonstrate an understanding of the Principles of Process Control Loops
- Understand control systems in power plants and computerized plant control systems including Distribution Control System (DCS), Human Machine Interface (HMI), and local plant control.
- Understand the electrical protection systems associated with power generating processes

ELECTRICAL METERING INSPECTION-II (EMI-II)

DESCRIPTION

EMI-II is an intensive course for trainees who want to undertake shift duties as an Electrical Metering Inspector; be familiar with Watt-Hour Meter construction and operation and understand different control measures used by SEC in the metering department and understand electricity generation and SI units, and explain power factor correction and explain how and why it is done.

EDUCATIONAL/VOCATIONAL OBJECTIVES

The expected Electrical Metering Inspection (EMI-II) program educational/vocational objectives are that, upon completing all training courses, the trainee will have knowledge of:

- Understanding SEC grid, from generation, transmission, distribution and reticulation
- Demonstrate knowledge of emergency procedures in case of shock or electrical explosions
- Be able to apply SEC construction standards pertaining to meters
- Understanding different control measures used by SEC in the metering department
- Understanding electricity generation and SI units
- Describing Watt-Hour Meter construction and operation
- Explaining the need for periodic inspections and maintenance of metering systems
- Understand electro-magnetism and internal operation of kWh meters
- Understanding factors affecting AC generation
- Measuring circuit parameters using multimeters
- Maintaining test records and customer contacts
- Adhere to all safety precautions for the meter installation at customer premises or during maintenance routines.
- Perform routine maintenance tasks safely while working on metering equipment
- Understanding effects of resistive load and capacitive load, and how it affects metering
- Explaining power factor correction and explain how and why it is done
- Completing an accuracy test report in a standard test record sheet for meter tests performed.

BUSINESS ENGLISH I AND II

DESCRIPTION

Two Business English programs have been carefully designed to meet the needs of company employees at different language skill levels. This allows the trainee to either enter his program at beginner level (Business English I), engaging with predominantly general English structures while being able to undertake 3 twelve-week modules aimed at business practices and the business environment. On completion of the program, the same learner can either exit his training or continue to a pre-intermediate level to study Business English II.

More advanced learners may opt to enter his program at pre- intermediate level (Business English II), to complete 3 twelve- week modules that focus more intensively on the business environment and undertaking courses that include exam preparation for the Cambridge BEC Preliminary (Business English Certificates).

On completion of Business English II, there is the option of continuing to Business English Leadership



EDUCATIONAL/VOCATIONAL OBJECTIVES

The expected learning outcomes are that, upon completing all level modules, the learner will be able to:

- Apply English speaking and listening skills to perform interactions in a business context.
- Demonstrate an ability to communicate effectively and function effectively with members of multi-disciplinary teams and with other workers in a business setting, including those from different backgrounds.
- Handle himself in English in a variety of functional business contexts from negotiating, to using the telephone, to making presentations, to socializing.
- Apply English reading and writing skills to perform common tasks in a business context.
- Explain and present data, graphs, charts and tables in the English medium.
- (Business English II & Business English Leadership) – Answer BEC examination-type questions in an able manner.



APPLIED ENGLISH LANGUAGE FOR TECHNICAL FIELDS I AND II

DESCRIPTION

The program has been carefully designed to meet the needs of company employees at different language skill levels. This allows the trainee to either enter his program at beginner level for ALT 1, Applied English Language for Technical Fields I, engaging with predominantly general English structures while being able to undertake 3 twelve-week modules aimed at technical practices and the technical environment, or enter ALT II, Applied English Language for Technical Fields II directly (on establishing his language competency).

Design of the program has also considered language aspects of essential technical skills to create an applied language focus – word processing, for example.

The trainee will also receive a grounding in study skills to enable him to apply learning strategies that will bring him success in attaining his learning outcomes.

Common to all SESP programs is the emphasis on health and safety in the workplace.



EDUCATIONAL/VOCATIONAL OBJECTIVES

The expected learning outcomes are that, upon completing all level modules, the learner will be able to:

- Apply English speaking and listening skills to perform interactions in a technical context and solve technical problems of the types commonly encountered in a company setting.
- Demonstrate an ability to communicate effectively and function effectively with members of multi-disciplinary teams and with other workers in a technical setting, including those from different backgrounds.
- Handle himself in English in a variety of functional, technical contexts from understanding written texts or reports, receiving technical instructions, reporting, to understanding processes and basic technical vocabulary, and following rules and warnings.
- Apply English reading and writing skills to perform common tasks in a technical context.
- Manage data, check data and describe/present data

GENERAL ENGLISH I AND II

DESCRIPTION

The program has been carefully designed to meet the needs of a wide spectrum of language users and at different language skill levels. This allows the trainee to either enter his program at beginner level for General English I, engaging with predominantly general English structures while being able to undertake 3 twelve-week modules aimed at general language practices and the everyday environment, or enter General English II directly (on establishing his language competency). Design of the program has also considered essential language in functional situations with the aim of communicative language acquisition.

The trainee will also receive a grounding in study skills to enable him to apply learning strategies that will bring him success in attaining his learning outcomes.

EDUCATIONAL/VOCATIONAL OBJECTIVES

The expected learning outcomes are that, upon completing all level modules, the learner will be able to:

- Apply English speaking and listening skills to perform interactions in an English language context and solve tasks and problems of the types commonly encountered in a trainee's professional life.
- Demonstrate an ability to communicate effectively and function effectively with members of multi-disciplinary teams and with other workers in a technical setting, including those from different backgrounds.
- Handle himself in English in a variety of functional contexts from understanding written texts, receiving instructions, giving instructions, to understanding basic conversational English and vocabulary of a general nature encountered in common situations.
- Apply English reading and writing skills to perform common tasks.
- Use critical thinking skills to manage questions and answers.

SESP PROGRAM STUDY PLANS

- The mode of delivery for SESP programs is based on a trimester credit hour system. Three trimesters are conducted in a year. Each trimester comprises 13 weeks, five days a week.
- SESP represents its training in the following pages in both Credit Hours (CRH) and in Clock Hours/Contact hours (CLH/ CTH).
- SESP defines a clock hour and a contact hour as a 60-min span of time, with no less than 50 minutes of actual class instruction.
- Students will be given a break as per educational practice.
- Total Clock Hours refer to all hours of instruction representing the length of the full program and which include lecture, laboratory, and externship/ internship, where part of the program.
- Conversions from clock hours to credit hours are made available for SESP programs which all comply with ACCET* study requirements for Trimester credit-hour programs

FOR ALL PROGRAMS

CRH: CREDIT HOURS

L: LECTURE

P: PRACTICAL/ EXTERNSHIP/ INTERNSHIP

T: TUTORIAL/ LAB

CLH/CTH: CLOCK HOURS/ CONTACT HOURS

*ACCET - Accrediting Council for Continuing
Education & Training

OVERHEAD LINE MAINTENANCE-I (OHL-I)

YEAR ONE

	No.	Course Code	Course Name	Prerequisite	Equivalent	No. of Units				
						CRH	L	P	T	CTH
Trimester I	1	EL-111	English ESL/ESP -I			16	10	0	12	22
	2	Math-111	Technical Math-I			1	1	0	1	2
	3	SCI-111	Technical Science-I			1	1	0	1	2
	4	Draw-111	Technical Drawing-I			1	1	0	1	2
	5	HSE-111	Technical Health and Safety-I			1	1	0	1	2
Total Number of Units						20	14	0	16	30

	No.	Course Code	Course Name	Prerequisite	Equivalent	No. of Units				
						CRH	L	P	T	CTH
Trimester II	1	EL-122	English ESL/ESP -II	EL-111		16	10	0	12	22
	2	Math-122	Technical Math-II	Math-111		1	1	0	1	2
	3	SCI-122	Technical Science-II	SCI-111		1	1	0	1	2
	4	Draw-122	Technical Drawing-II	Draw-111		1	1	0	1	2
	5	HSE-122	Technical Health and Safety-II	HSE-111		1	1	0	1	2
Total Number of Units						20	14	0	16	30

	No.	Course Code	Course Name	Prerequisite	Equivalent	No. of Units				
						CRH	L	P	T	CTH
Trimester III	1	EL-133	English ESL/ESP -III	EL-122		12	8	0	8	16
	2	Math-133	Technical Math-III	Math-122		1	0	0	1	1
	3	SCI-133	Technical Science-III	SCI-122		1	0	0	1	1
	4	HSE-133	Technical Health and Safety-III	HSE-122		1	0	0	1	1
	5	GC-131	Generic Core			7	4	9	0	13
Total Number of Units						22	12	9	11	32

YEAR TWO

	No.	Course Code	Course Name	Prerequisite	Equivalent	No. of Units				
						CRH	L	P	T	CTH
Trimester I	1	EL-214	English ESL/ESP-IV	EL-133		3	2	0	2	4
	2	OHLF-211	Overhead Line Core Fundamentals	GC-131		16	10	18	0	28
Total Number of Units						19	12	18	2	32

	No.	Course Code	Course Name	Prerequisite	Equivalent	No. of Units				
						CRH	L	P	T	CTH
Trimester II	1	EL-225	English ESL/ESP-V	EL-214		3	2	0	2	4
	2	OHL-221	Planning and Construction	OHLF-211		7	3	11	0	14
	3	OHL-222	Specialized Tools			7	3	11	0	14
Total Number of Units						17	8	22	2	32

	No.	Course Code	Course Name	Prerequisite	Equivalent	No. of Units				
						CRH	L	P	T	CTH
Trimester III	1	EL-236	English ESL/ESP-VI	EL-225		3	2	0	2	4
	2	OHL-233	OHL Maintenance	OHL-222		7	3	11	0	14
	3	OHL-234	Overhead Maintenance Activities on Distribution (or Transmission) Lines and Services	OHL-222		7	3	11	0	14
Total Number of Units						17	8	22	2	32

YEAR THREE

	No.	Course Code	Course Name	Prerequisite	Equivalent	No. of Units				
						CRH	L	P	T	CTH
Trimester I	1	OHLOJT 311	Maintenance Activities on Distribution Systems	OHL-233 OHL-234		4	5	35	0	40
	Total Number of Units					4	5	35	0	40

	No.	Course Code	Course Name	Prerequisite	Equivalent	No. of Units				
						CRH	L	P	T	CTH
Trimester II	1	OHLOJT 322	Maintenance Activities on Transmission Structures	OHLOJT-311		4	5	35	0	40
	Total Number of Units					4	5	35	0	40

Total Number of Trimesters Credit Units						CRH	L	P	T	CTH
						123	78	141	49	268

TOTAL NUMBER OF PROGRAM CLH	13 X 268= 3484 CLOCK HOURS
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SMART GRID-I (SG-I)

YEAR ONE

Trimester I	No.	Course Code	Course Name	Prerequisite	Equivalent	No. of Units				
						CRH	L	P	T	CTH
	1	EL-111	English ESL/ESP -I			16	10	0	12	22
	2	Math-111	Technical Math-I			1	1	0	1	2
	3	SCI-111	Technical Science-I			1	1	0	1	2
	4	Draw-111	Technical Drawing-I			1	1	0	1	2
	5	HSE-111	Technical Health and Safety-I			1	1	0	1	2
Total Number of Units						20	14	0	16	30

Trimester II	No.	Course Code	Course Name	Prerequisite	Equivalent	No. of Units				
						CRH	L	P	T	CTH
	1	EL-122	English ESL/ESP -II	EL-111		16	10	0	12	22
	2	Math-122	Technical Math-II	Math-111		1	1	0	1	2
	3	SCI-122	Technical Science-II	SCI-111		1	1	0	1	2
	4	Draw-122	Technical Drawing-II	Draw-111		1	1	0	1	2
	5	HSE-122	Technical Health and Safety-II	HSE-111		1	1	0	1	2
Total Number of Units						20	14	0	16	30

Trimester III	No.	Course Code	Course Name	Prerequisite	Equivalent	No. of Units				
						CRH	L	P	T	CTH
	1	EL-133	English ESL/ESP -III	EL-122		12	8	0	8	16
	2	Math-133	Technical Math-III	Math-122		1	0	0	1	1
	3	SCI-133	Technical Science-III	SCI-122		1	0	0	1	1
	4	HSE-133	Technical Health and Safety-III	HSE-122		1	0	0	1	1
	5	GC-131	Generic Core			7	4	9	0	13
Total Number of Units						22	12	9	11	32

YEAR TWO

Trimester I	No.	Course Code	Course Name	Prerequisite	Equivalent	No. of Units				
						CRH	L	P	T	CTH
	1	EL-214	English ESL/ESP-IV	EL-133		3	2	0	2	4
	2	SG-211	Introduction to Smart Grid			8	5	9	0	14
	3	SG-212	Electric Grid Modernization (Smart Grid)			8	5	9	0	14
Total Number of Units						19	12	18	2	32

Trimester II	No.	Course Code	Course Name	Prerequisite	Equivalent	No. of Units				
						CRH	L	P	T	CTH
	1	EL-225	English ESL/ESP-V	EL-214		3	2	0	2	4
	2	SG-223	Smart Grid Technology Components	SG-211 SG-212		7	3	11	0	14
	3	SG-224	Implementation, Standards and Interoperability	SG-211 SG-212		7	3	11	0	14
Total Number of Units						17	8	22	2	32

Trimester III	No.	Course Code	Course Name	Prerequisite	Equivalent	No. of Units				
						CRH	L	P	T	CTH
	1	EL-236	English ESL/ESP-VI	EL-225		3	2	0	2	4
	2	SG-235	Smart Grid Deployment	SG-223		3	2	3	0	5
	3	SG-236	Smart Grid Operation and Maintenance	SG-224		11	4	15	4	23
Total Number of Units						17	8	18	6	32

YEAR THREE

Trimester I	No.	Course Code	Course Name	Prerequisite	Equivalent	No. of Units				
						CRH	L	P	T	CTH
	1	SGOJT-311	Operation Considerations for the Smart Grid -I	SG-235 SG-236		4	5	35	0	40
Total Number of Units						4	5	35	0	40

Trimester II	No.	Course Code	Course Name	Prerequisite	Equivalent	No. of Units				
						CRH	L	P	T	CTH
	1	SGOJT-322	Operation Considerations for the Smart Grid -II	SGOJT-311		4	5	35	0	40
Total Number of Units						4	5	35	0	40

Total Number of Trimesters Credit Units						CRH	L	P	T	CTH
						123	78	137	53	268

TOTAL NUMBER OF PROGRAM CLH	13 X 268 = 3484 CLOCK HOURS
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POWER SYSTEM PROTECTION AND CONTROL-I (PSP-I)

YEAR ONE

	No.	Course Code	Course Name	Prerequisite	Equivalent	No. of Units				
						CRH	L	P	T	CTH
Trimester I	1	EL-111	English ESL/ESP -I			16	10	0	12	22
	2	Math-111	Technical Math-I			1	1	0	1	2
	3	SCI-111	Technical Science-I			1	1	0	1	2
	4	Draw-111	Technical Drawing-I			1	1	0	1	2
	5	HSE-111	Technical Health and Safety-I			1	1	0	1	2
Total Number of Units						20	14	0	16	30

	No.	Course Code	Course Name	Prerequisite	Equivalent	No. of Units				
						CRH	L	P	T	CTH
Trimester II	1	EL-122	English ESL/ESP -II	EL-111		16	10	0	12	22
	2	Math-122	Technical Math-II	Math-111		1	1	0	1	2
	3	SCI-122	Technical Science-II	SCI-111		1	1	0	1	2
	4	Draw-122	Technical Drawing-II	Draw-111		1	1	0	1	2
	5	HSE-122	Technical Health and Safety-II	HSE-111		1	1	0	1	2
Total Number of Units						20	14	0	16	30

	No.	Course Code	Course Name	Prerequisite	Equivalent	No. of Units				
						CRH	L	P	T	CTH
Trimester III	1	AVAET-214	Applied Technical Vocabulary	EL-122		3	2	0	2	4
	2	GC-131	Generic Core			7	4	9	0	13
	3	CEFS-211	Core Electrical Fundamentals- INC & PSP			7	4	9	0	13
Total Number of Units						17	10	18	2	30

YEAR TWO

	No.	Course Code	Course Name	Prerequisite	Equivalent	No. of Units				
						CRH	L	P	T	CTH
Trimester I	1	EL-214	English ESL/ESP-IV	AVAET-214		3	2	0	2	4
	2	PSP-211	Introduction to Power System Protection	CEF-211		8	5	9	0	14
	3	PSP-212	Switchgear, Circuit Breaker and DC Control System	CEF-211		8	5	9	0	14
Total Number of Units						19	12	18	2	32

	No.	Course Code	Course Name	Prerequisite	Equivalent	No. of Units				
						CRH	L	P	T	CTH
Trimester II	1	EL-225	English ESL/ESP-V	EL-214		3	2	0	2	4
	2	PSP-223	Protection Relays: Connection, Setting & Testing	PSP-211		8	5	9	0	14
	3	PSP-224	Feeder, Transformer, Motor, Generator & Bus Protection Relays Protection	PSP-212		8	5	9	0	14
Total Number of Units						19	12	18	2	32

	No.	Course Code	Course Name	Prerequisite	Equivalent	No. of Units				
						CRH	L	P	T	CTH
Trimester III	1	EL-236	English ESL/ESP-VI	EL-225		3	2	0	2	4
	2	PSP-235	Specialized Relay Testing Techniques	PSP-223 PSP-224		8	5	9	0	14
	3	PSP-236	Main Control & Protection Function Groups	PSP-223 PSP-224		8	5	9	0	14
Total Number of Units						19	12	18	2	32

YEAR THREE

	No.	Course Code	Course Name	Prerequisite	Equivalent	No. of Units				
						CRH	L	P	T	CTH
Trimester I	1	PSPOJT-311	Plant Safety, Protective Relay Identification & System Familiarization	PSP-235 PSP-236		4	5	35	0	40
	Total Number of Units					4	5	35	0	40

	No.	Course Code	Course Name	Prerequisite	Equivalent	No. of Units				
						CRH	L	P	T	CTH
Trimester II	1	PSPOJT-322	Testing & Commissioning Techniques for Protection Relays	PSPOJT-311		4	5	35	0	40
	Total Number of Units					4	5	35	0	40

Total Number of Trimester Credit Units						CRH	L	P	T	CTH
						122	84	142	40	266

TOTAL NUMBER OF PROGRAM CLH	13 X 266= 3458 CLOCK HOURS
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ELECTRIC POWER CABLES-I (EPC-I)

YEAR ONE

Trimester I	No.	Course Code	Course Name	Prerequisite	Equivalent	No. of Units				
						CRH	L	P	T	CTH
	1	EL-111	English ESL/ESP -I			16	10	0	12	22
	2	Math-111	Technical Math-I			1	1	0	1	2
	3	SCI-111	Technical Science-I			1	1	0	1	2
	4	Draw-111	Technical Drawing-I			1	1	0	1	2
	5	HSE-111	Technical Health and Safety-I			1	1	0	1	2
Total Number of Units						20	14	0	16	30

Trimester II	No.	Course Code	Course Name	Prerequisite	Equivalent	No. of Units				
						CRH	L	P	T	CTH
	1	EL-122	English ESL/ESP-II	EL-111		16	10	0	12	22
	2	Math-122	Technical Math-II	Math-111		1	1	0	1	2
	3	SCI-122	Technical Science-II	SCI-111		1	1	0	1	2
	4	Draw-122	Technical Drawing-II	Draw-111		1	1	0	1	2
	5	HSE-122	Technical Health and Safety-II	HSE-111		1	1	0	1	2
Total Number of Units						20	14	0	16	30

Trimester III	No.	Course Code	Course Name	Prerequisite	Equivalent	No. of Units				
						CRH	L	P	T	CTH
	1	EL-133	English ESL/ESP-III	EL-122		12	8	0	8	16
	2	Math-133	Technical Math-III	Math-122		1	0	0	1	1
	3	SCI-133	Technical Science-III	SCI-122		1	0	0	1	1
	4	HSE-133	Technical Health and Safety-III	HSE-122		1	0	0	1	1
	5	GC-131	Generic Core			7	4	9	0	13
Total Number of Units						22	12	9	11	32

YEAR TWO

Trimester I	No.	Course Code	Course Name	Prerequisite	Equivalent	No. of Units				
						CRH	L	P	T	CTH
	1	EL-214	English ESL/ESP-IV	EL-133		3	2	0	2	4
	2	CEF-211	Core Electrical Fundamentals	GC-131		16	10	18	0	28
Total Number of Units						19	12	18	2	32

Trimester II	No.	Course Code	Course Name	Prerequisite	Equivalent	No. of Units				
						CRH	L	P	T	CTH
	1	EL-225	English ESL/ESP-V	EL-214		3	2	0	2	4
	2	EPC-221	Health and Safety for Cable Jointers	HSE-133		7	3	11	0	14
	3	EPC-222	General Skills for Cable Jointers	CEF-211		7	3	11	0	14
Total Number of Units						17	8	22	2	32

Trimester III	No.	Course Code	Course Name	Prerequisite	Equivalent	No. of Units				
						CRH	L	P	T	CTH
	1	EL-236	English ESL/ESP-VI	EL-225		3	2	0	2	4
	2	EPC-233	Low Voltage Jointing and Terminating	EPC-221 EPC-222		7	3	11	0	14
	3	EPC-234	Medium & High Voltage Jointing and Terminating	EPC-221 EPC-222		7	3	11	0	14
Total Number of Units						17	8	22	2	32

YEAR THREE

Trimester I	No.	Course Code	Course Name	Prerequisite	Equivalent	No. of Units				
						CRH	L	P	T	CTH
	1	EPCOJT-311	Power Cable Safety, Equipment Identification and System Familiarization	EPC-233 EPC-234		4	5	35	0	40
Total Number of Units						4	5	35	0	40

Trimester II	No.	Course Code	Course Name	Prerequisite	Equivalent	No. of Units				
						CRH	L	P	T	CTH
	1	EPCOJT-322	Power Cable Inspection, Preventive and Corrective Maintenance	EPC-311		4	5	35	0	40
Total Number of Units						4	5	35	0	40

Total Number of Trimesters Credit Units						CRH	L	P	T	CTH
						123	78	141	49	268

TOTAL NUMBER OF PROGRAM CLH	13 X 268 = 3484 CLOCK HOURS
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SUBSTATION ELECTRICAL MAINTENANCE-I (SSM-I)

YEAR ONE

Trimester I	No.	Course Code	Course Name	Prerequisite	Equivalent	No. of Units				
						CRH	L	P	T	CTH
	1	EL-111	English ESL/ESP-I			16	10	0	12	22
	2	Math-111	Technical Math-I			1	1	0	1	2
	3	SCI-111	Technical Science-I			1	1	0	1	2
	4	Draw-111	Technical Drawing-I			1	1	0	1	2
	5	HSE-111	Technical Health and Safety-I			1	1	0	1	2
Total Number of Units						20	14	0	16	30

Trimester II	No.	Course Code	Course Name	Prerequisite	Equivalent	No. of Units				
						CRH	L	P	T	CTH
	1	EL-122	English ESL/ESP-II	EL-111		16	10	0	12	22
	2	Math-122	Technical Math-II	Math-111		1	1	0	1	2
	3	SCI-122	Technical Science-II	SCI-111		1	1	0	1	2
	4	Draw-122	Technical Drawing-II	Draw-111		1	1	0	1	2
	5	HSE-122	Technical Health and Safety-II	HSE-111		1	1	0	1	2
Total Number of Units						20	14	0	16	30

Trimester III	No.	Course Code	Course Name	Prerequisite	Equivalent	No. of Units				
						CRH	L	P	T	CTH
	1	EL-133	English ESL/ESP-III	EL-122		12	8	0	8	16
	2	Math-133	Technical Math-III	Math-122		1	0	0	1	1
	3	SCI-133	Technical Science-III	SCI-122		1	0	0	1	1
	4	HSE-133	Technical Health and Safety-III	HSE-122		1	0	0	1	1
	5	GC-131	Generic Core			7	4	9	0	13
Total Number of Units						22	12	9	11	32

YEAR TWO

Trimester I	No.	Course Code	Course Name	Prerequisite	Equivalent	No. of Units				
						CRH	L	P	T	CTH
	1	EL-214	English ESL/ESP-IV	EL-133		3	2	0	2	4
	2	CEF-211	Core Electrical Fundamentals	GC-131		16	10	18	0	28
Total Number of Units						19	12	18	2	32

Trimester II	No.	Course Code	Course Name	Prerequisite	Equivalent	No. of Units				
						CRH	L	P	T	CTH
	1	EL-225	English ESL/ESP-V	EL-214		3	2	0	2	4
	2	SSM-221	Electrical Switchgear Inspection, Maintenance and Operation	CEF-211		7	3	11	0	14
	3	SSM-222	Transformer Inspection, Maintenance and Operation	CEF-211		7	3	11	0	14
Total Number of Units						17	8	22	2	32

Trimester III	No.	Course Code	Course Name	Prerequisite	Equivalent	No. of Units				
						CRH	L	P	T	CTH
	1	EL-236	English ESL/ESP-VI	EL-225		3	2	0	2	4
	2	SSM-233	DC Systems & Lighting Inspection, Maintenance and Operation	SSM-221 SSM-222		7	3	11	0	14
	3	SSM-234	Substation Equipment Inspection and Maintenance	SSM-221 SSM-222		7	3	11	0	14
Total Number of Units						17	8	22	2	32

YEAR THREE

Trimester I	No.	Course Code	Course Name	Prerequisite	Equivalent	No. of Units				
						CRH	L	P	T	CTH
	1	SSMOJT-311	Substation Safety, Equipment Identification and System Familiarization	SSM-233 SSM-234		4	5	35	0	40
Total Number of Units						4	5	35	0	40

Trimester II	No.	Course Code	Course Name	Prerequisite	Equivalent	No. of Units				
						CRH	L	P	T	CTH
	1	SSMOJT-322	Substation Equipment Preventive and Corrective Maintenance	SSMOJT-311		4	5	35	0	40
Total Number of Units						4	5	35	0	40

Total Number of Trimesters Credit Units						CRH	L	P	T	CTH
						123	78	141	49	268

TOTAL NUMBER OF PROGRAM CLH	13 X 268 = 3484 CLOCK HOURS
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INSTRUMENTATION AND CONTROL (INC)

YEAR ONE

Trimester I	No.	Course Code	Course Name	Prerequisite	Equivalent	No. of Units				
						CRH	L	P	T	CTH
	1	EL-111	English ESL/ESP-I			16	10	0	12	22
	2	Math-111	Technical Math-I			1	1	0	1	2
	3	SCI-111	Technical Science-I			1	1	0	1	2
	4	Draw-111	Technical Drawing-I			1	1	0	1	2
	5	HSE-111	Technical Health and Safety-I			1	1	0	1	2
Total Number of Units						20	14	0	16	30

Trimester II	No.	Course Code	Course Name	Prerequisite	Equivalent	No. of Units				
						CRH	L	P	T	CTH
	1	EL-122	English ESL/ESP-II	EL-111		16	10	0	12	22
	2	Math-122	Technical Math-II	Math-111		1	1	0	1	2
	3	SCI-122	Technical Science-II	SCI-111		1	1	0	1	2
	4	Draw-122	Technical Drawing-II	Draw-111		1	1	0	1	2
	5	HSE-122	Technical Health and Safety-II	HSE-111		1	1	0	1	2
Total Number of Units						20	14	0	16	30

Trimester III	No.	Course Code	Course Name	Prerequisite	Equivalent	No. of Units				
						CRH	L	P	T	CTH
	1	AVAET-214	Applied Technical Vocabulary	EL-122		3	2	0	2	4
	2	GC-131	Generic Core			7	4	9	0	13
	3	CEFS-211	Core Electrical Fundamentals - INC and PSP			7	4	9	0	13
Total Number of Units						17	10	18	2	30

YEAR TWO

Trimester I	No.	Course Code	Course Name	Prerequisite	Equivalent	No. of Units				
						CRH	L	P	T	CTH
	1	EL-214	English ESL/ESP-IV	AVAET-214		3	2	0	2	4
	2	INC-211	Measurement Fundamentals	CEF-212		8	5	9	0	14
	3	INC-212	Common Measurement Systems	CEF-212		8	5	9	0	14
Total Number of Units						19	12	18	2	32

Trimester II	No.	Course Code	Course Name	Prerequisite	Equivalent	No. of Units				
						CRH	L	P	T	CTH
	1	EL-225	English ESL/ESP-V	EL-214		3	2	0	2	4
	2	INC -223	Measurement and Control Elements	INC-212		8	5	9	0	14
	3	INC -224	Digital controllers	INC-212		8	5	9	0	14
Total Number of Units						19	12	18	2	32

Trimester III	No.	Course Code	Course Name	Prerequisite	Equivalent	No. of Units				
						CRH	L	P	T	CTH
	1	EL-236	English ESL/ESP-VI	EL-225		3	2	0	2	4
	2	INC -235	Control Instrumentation Inspection, Wiring and Maintenance	INC-223 INC-224		8	5	9	0	14
	3	INC -236	Advanced Digital Control and Reporting	INC-223 INC-224		8	5	9	0	14
Total Number of Units						19	12	18	2	32

YEAR THREE

Trimester I	No.	Course Code	Course Name	Prerequisite	Equivalent	No. of Units				
						CRH	L	P	T	CTH
	1	INCOJT -311	Plant Safety, Instrumentation Identification and System Familiarization	INC-235 INC-236		4	5	35	0	40
Total Number of Units						4	5	35	0	40

Trimester II	No.	Course Code	Course Name	Prerequisite	Equivalent	No. of Units				
						CRH	L	P	T	CTH
	1	INCOJT -322	Plant Instrumentation Calibration, Preventive and Corrective Maintenance	INCOJT-311		4	5	35	0	40
Total Number of Units						4	5	35	0	40

Total Number of Trimesters Credit Units						CRH	L	P	T	CTH
						122	84	142	40	266

TOTAL NUMBER OF PROGRAM CLH	13 X 266 = 3458 CLOCK HOURS
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POWER PLANT ELECTRICAL MAINTENANCE-I (PPE-I)

YEAR ONE

Trimester I	No.	Course Code	Course Name	Prerequisite	Equivalent	No. of Units				
						CRH	L	P	T	CTH
	1	EL-111	English ESL/ESP-I			16	10	0	12	22
	2	Math-111	Technical Math-I			1	1	0	1	2
	3	SCI-111	Technical Science-I			1	1	0	1	2
	4	Draw-111	Technical Drawing-I			1	1	0	1	2
	5	HSE-111	Technical Health and Safety-I			1	1	0	1	2
Total Number of Units						20	14	0	16	30

Trimester II	No.	Course Code	Course Name	Prerequisite	Equivalent	No. of Units				
						CRH	L	P	T	CTH
	1	EL-122	English ESL/ESP-II	EL-111		16	10	0	12	22
	2	Math-122	Technical Math-II	Math-111		1	1	0	1	2
	3	SCI-122	Technical Science-II	SCI-111		1	1	0	1	2
	4	Draw-122	Technical Drawing-II	Draw-111		1	1	0	1	2
	5	HSE-122	Technical Health and Safety-II	HSE-111		1	1	0	1	2
Total Number of Units						20	14	0	16	30

Trimester III	No.	Course Code	Course Name	Prerequisite	Equivalent	No. of Units				
						CRH	L	P	T	CTH
	1	EL-133	English ESL/ESP-III	EL-122		12	8	0	8	16
	2	Math-133	Technical Math-III	Math-122		1	0	0	1	1
	3	SCI-133	Technical Science-III	SCI-122		1	0	0	1	1
	4	HSE-133	Technical Health and Safety-III	HSE-122		1	0	0	1	1
	5	GC-131	Generic Core			7	4	9	0	13
Total Number of Units						22	12	9	11	32

YEAR TWO

Trimester I	No.	Course Code	Course Name	Prerequisite	Equivalent	No. of Units				
						CRH	L	P	T	CTH
	1	EL-214	English ESL/ESP-IV	EL-133		3	2	0	2	4
	2	CEF-211	Core Electrical Fundamentals	GC-131		16	10	18	0	28
Total Number of Units						19	12	18	2	32

Trimester II	No.	Course Code	Course Name	Prerequisite	Equivalent	No. of Units				
						CRH	L	P	T	CTH
	1	EL-225	English ESL/ESP-V	EL-214		3	2	0	2	4
	2	PPE-221	Electrical Switchgear Inspection Maintenance and Operation	CEF-211		7	3	11	0	14
	3	PPE-222	Transformer Inspection, Maintenance and Operation	CEF-211		7	3	11	0	14
Total Number of Units						17	8	22	2	32

Trimester III	No.	Course Code	Course Name	Prerequisite	Equivalent	No. of Units				
						CRH	L	P	T	CTH
	1	EL-236	English ESL/ESP-VI	EL-225		3	2	0	2	4
	2	PPE-233	DC Systems and Lighting Inspection, Maintenance and Operation	PPE-221 PPE-222		7	3	11	0	14
	3	PPE-234	Power Plant Equipment Inspection and Maintenance	PPE-221 PPE-222		7	3	11	0	14
Total Number of Units						17	8	22	2	32

YEAR THREE

Trimester I	No.	Course Code	Course Name	Prerequisite	Equivalent	No. of Units				
						CRH	L	P	T	CTH
	1	PPEOJT-311	Power Plant Safety, Systems and Electrical Equipment Familiarization	PPE-233 PPE-234		4	5	35	0	40
Total Number of Units						4	5	35	0	40

Trimester II	No.	Course Code	Course Name	Prerequisite	Equivalent	No. of Units				
						CRH	L	P	T	CTH
	1	PPEOJT-322	Power Plant Preventive and Corrective Maintenance of Electrical Equipment	PPEOJT-311		4	5	35	0	40
Total Number of Units						4	5	35	0	40

Total Number of Trimesters Credit Units						CRH	L	P	T	CTH
						123	78	141	49	268

TOTAL NUMBER OF PROGRAM CLH)	13 X 268 = 3484 CLOCK HOURS
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ELECTRICAL NETWORK OPERATION-I (NWO-I)

YEAR ONE

Trimester I	No.	Course Code	Course Name	Prerequisite	Equivalent	No. of Units				
						CRH	L	P	T	CTH
	1	EL-111	English ESL/ESP-I			16	10	0	12	22
	2	Math-111	Technical Math-I			1	1	0	1	2
	3	SCI-111	Technical Science-I			1	1	0	1	2
	4	Draw-111	Technical Drawing-I			1	1	0	1	2
	5	HSE-111	Technical Health and Safety-I			1	1	0	1	2
Total Number of Units						20	14	0	16	30

Trimester II	No.	Course Code	Course Name	Prerequisite	Equivalent	No. of Units				
						CRH	L	P	T	CTH
	1	EL-122	English ESL/ESP-II	EL-111		16	10	0	12	22
	2	Math-122	Technical Math-II	Math-111		1	1	0	1	2
	3	SCI-122	Technical Science-II	SCI-111		1	1	0	1	2
	4	Draw-122	Technical Drawing-II	Draw-111		1	1	0	1	2
	5	HSE-122	Technical Health and Safety-II	HSE-111		1	1	0	1	2
Total Number of Units						20	14	0	16	30

Trimester III	No.	Course Code	Course Name	Prerequisite	Equivalent	No. of Units				
						CRH	L	P	T	CTH
	1	EL-133	English ESL/ESP-III	EL-122		12	8	0	8	16
	2	Math-133	Technical Math-III	Math-122		1	0	0	1	1
	3	SCI-133	Technical Science-III	SCI-122		1	0	0	1	1
	4	HSE-133	Technical Health and Safety-III	HSE-122		1	0	0	1	1
	5	GC-131	Generic Core			7	4	9	0	13
Total Number of Units						22	12	9	11	32

YEAR TWO

Trimester I	No.	Course Code	Course Name	Prerequisite	Equivalent	No. of Units				
						CRH	L	P	T	CTH
	1	EL-214	English ESL/ESP-IV	EL-133		3	2	0	2	4
	2	CEF-211	Core Electrical Fundamentals	GC-131		16	10	18	0	28
Total Number of Units						19	12	18	2	32

Trimester II	No.	Course Code	Course Name	Prerequisite	Equivalent	No. of Units				
						CRH	L	P	T	CTH
	1	EL-225	English ESL/ESP-V	EL-214		3	2	0	2	4
	2	NWO-221	Electrical Switchgear Inspection, Maintenance and Operation	CEF-211		7	3	11	0	14
	3	NWO-222	Transformer Inspection, Maintenance and Operation	CEF-211		7	3	11	0	14
Total Number of Units						17	8	22	2	32

Trimester III	No.	Course Code	Course Name	Prerequisite	Equivalent	No. of Units				
						CRH	L	P	T	CTH
	1	EL-236	English ESL/ESP-VI	EL-225		3	2	0	2	4
	2	NWO-233	Testing and Inspection of Network Equipment	NWO-221 NWO-222		7	3	11	0	14
	3	NWO-234	Developing and Implementing Operation Plans	NWO-221 NWO-222		7	3	11	0	14
Total Number of Units						17	8	22	2	32

YEAR THREE

Trimester I	No.	Course Code	Course Name	Prerequisite	Equivalent	No. of Units				
						CRH	L	P	T	CTH
	1	NWOOJT-311	Power Network Safety, Equipment and System Familiarization	NWO-233 NWO-234		4	5	35	0	40
Total Number of Units						4	5	35	0	40

Trimester II	No.	Course Code	Course Name	Prerequisite	Equivalent	No. of Units				
						CRH	L	P	T	CTH
	1	NWOOJT-322	Emergency and Fault Actions by Network Operator	NWOOJT-311		4	5	35	0	40
Total Number of Units						4	5	35	0	40

Total Number of Trimesters Credit Units						CRH	L	P	T	CTH
						123	78	141	49	268

TOTAL NUMBER OF PROGRAM CLH	13 X 268 = 3484 CLOCK HOURS
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POWER PLANT MECHANICAL MAINTENANCE-I (PPM-I)

YEAR ONE

	No.	Course Code	Course Name	Prerequisite	Equivalent	No. of Units				
						CRH	L	P	T	CTH
Trimester I	1	EL-111	English ESL/ESP-I			16	10	0	12	22
	2	Math-111	Technical Math-I			1	1	0	1	2
	3	SCI-111	Technical Science-I			1	1	0	1	2
	4	Draw-111	Technical Drawing-I			1	1	0	1	2
	5	HSE-111	Technical Health and Safety-I			1	1	0	1	2
Total Number of Units						20	14	0	16	30

	No.	Course Code	Course Name	Prerequisite	Equivalent	No. of Units				
						CRH	L	P	T	CTH
Trimester II	1	EL-122	English ESL/ESP-II	EL-111		16	10	0	12	22
	2	Math-122	Technical Math-II	Math-111		1	1	0	1	2
	3	SCI-122	Technical Science-II	SCI-111		1	1	0	1	2
	4	Draw-122	Technical Drawing-II	Draw-111		1	1	0	1	2
	5	HSE-122	Technical Health and Safety-II	HSE-111		1	1	0	1	2
Total Number of Units						20	14	0	16	30

	No.	Course Code	Course Name	Prerequisite	Equivalent	No. of Units				
						CRH	L	P	T	CTH
Trimester III	1	EL-133	English ESL/ESP-III	EL-122		12	8	0	8	16
	2	Math-133	Technical Math-III	Math-122		1	0	0	1	1
	3	SCI-133	Technical Science-III	SCI-122		1	0	0	1	1
	4	HSE-133	Technical Health and Safety-III	HSE-122		1	0	0	1	1
	5	GC-131	Generic Core			7	4	9	0	13
Total Number of Units						22	12	9	11	32

YEAR TWO

	No.	Course Code	Course Name	Prerequisite	Equivalent	No. of Units				
						CRH	L	P	T	CTH
Trimester I	1	EL-214	English ESL/ESP-IV	EL-133		3	2	0	2	4
	2	CMF-211	Core Mechanical Fundamentals	GC-131		16	10	18	0	28
Total Number of Units						19	12	18	2	32

	No.	Course Code	Course Name	Prerequisite	Equivalent	No. of Units				
						CRH	L	P	T	CTH
Trimester II	1	EL-225	English ESL/ESP-V	EL-214		3	2	0	2	4
	2	PPM-221	Mechanical Pumps	CMF-211		7	3	11	0	14
	3	PPM-222	Mechanical Gearboxes	CMF-211		7	3	11	0	14
Total Number of Units						17	8	22	2	32

	No.	Course Code	Course Name	Prerequisite	Equivalent	No. of Units				
						CRH	L	P	T	CTH
Trimester III	1	EL-236	English ESL/ESP-VI	EL-225		3	2	0	2	4
	2	PPM-233	Mechanical Blowers and Compressors	PPM-221 PPM-222		7	3	11	0	14
	3	PPM-234	Mechanical Ancillary Systems	PPM-221 PPM-222		7	3	11	0	14
Total Number of Units						17	8	22	2	32

YEAR THREE

	No.	Course Code	Course Name	Prerequisite	Equivalent	No. of Units				
						CRH	L	P	T	CTH
Trimester I	1	PPMOJT-311	Mechanical Power Plant Maintenance and Fault-Finding	PPM-233 PPM-234		4	5	35	0	40
	Total Number of Units					4	5	35	0	40

	No.	Course Code	Course Name	Prerequisite	Equivalent	No. of Units				
						CRH	L	P	T	CTH
Trimester II	1	PPMOJT-322	Fabrication, Machining and Piping	PPMOJT-311		4	5	35	0	40
	Total Number of Units					4	5	35	0	40

Total Number of Trimester Credit Units						CRH	L	P	T	CTH
						123	78	141	49	268

TOTAL NUMBER OF PROGRAM CLH	13 X 268 = 3484 CLOCK HOURS
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POWER PLANT OPERATION-I (PPO-I)

YEAR ONE

Trimester I	No.	Course Code	Course Name	Prerequisite	Equivalent	No. of Units				
						CRH	L	P	T	CTH
	1	EL-111	English ESL/ESP-I			16	10	0	12	22
	2	Math-111	Technical Math-I			1	1	0	1	2
	3	SCI-111	Technical Science-I			1	1	0	1	2
	4	Draw-111	Technical Drawing-I			1	1	0	1	2
	5	HSE-111	Technical Health and Safety-I			1	1	0	1	2
Total Number of Units						20	14	0	16	30

Trimester II	No.	Course Code	Course Name	Prerequisite	Equivalent	No. of Units				
						CRH	L	P	T	CTH
	1	EL-122	English ESL/ESP-II	EL-111		16	10	0	12	22
	2	Math-122	Technical Math-II	Math-111		1	1	0	1	2
	3	SCI-122	Technical Science-II	SCI-111		1	1	0	1	2
	4	Draw-122	Technical Drawing-II	Draw-111		1	1	0	1	2
	5	HSE-122	Technical Health and Safety-II	HSE-111		1	1	0	1	2
Total Number of Units						20	14	0	16	30

Trimester III	No.	Course Code	Course Name	Prerequisite	Equivalent	No. of Units				
						CRH	L	P	T	CTH
	1	EL-133	English ESL/ESP-III	EL-122		12	8	0	8	16
	2	Math-133	Technical Math-III	Math-122		1	0	0	1	1
	3	SCI-133	Technical Science-III	SCI-122		1	0	0	1	1
	4	HSE-133	Technical Health and Safety-III	HSE-122		1	0	0	1	1
	5	GC-131	Generic Core			7	4	9	0	13
Total Number of Units						22	12	9	11	32

YEAR TWO

Trimester I	No.	Course Code	Course Name	Prerequisite	Equivalent	No. of Units				
						CRH	L	P	T	CTH
	1	EL-214	English ESL/ESP-IV	EL-133		3	2	0	2	4
	2	PPOF-211	Core Power Plant Operation Fundamentals	GC-131		16	10	18	0	28
Total Number of Units						19	12	18	2	32

Trimester II	No.	Course Code	Course Name	Prerequisite	Equivalent	No. of Units				
						CRH	L	P	T	CTH
	1	EL-225	English ESL/ESP-V	EL-214		3	2	0	2	4
	2	PPO-221	Process Fundamentals	PPOF-211		7	3	11	0	14
	3	PPO-222	Control and Operation	PPOF-211		7	3	11	0	14
Total Number of Units						17	8	22	2	32

Trimester III	No.	Course Code	Course Name	Prerequisite	Equivalent	No. of Units				
						CRH	L	P	T	CTH
	1	EL-236	English ESL/ESP-VI	EL-225		3	2	0	2	4
	2	PPO -233	Heat Recovery Steam Generator	PPO-221 PPO-222		3	2	3	0	5
	3	PPO -234	Power Generation	PPO-221 PPO-222		11	4	15	4	23
Total Number of Units						17	8	18	6	32

YEAR THREE

Trimester I	No.	Course Code	Course Name	Prerequisite	Equivalent	No. of Units				
						CRH	L	P	T	CTH
	1	PPOOJT -311	Demonstrate Knowledge of Utility Systems	PPO-233 PPO-234		4	5	35	0	40
Total Number of Units						4	5	35	0	40

Trimester II	No.	Course Code	Course Name	Prerequisite	Equivalent	No. of Units				
						CRH	L	P	T	CTH
	1	PPOOJT -322	Demonstrate Knowledge of Process Equipment	PPOOJT-311		4	5	35	0	40
Total Number of Units						4	5	35	0	40

Total Number of Trimester Credit Units						CRH	L	P	T	CTH
						123	78	137	53	268

TOTAL NUMBER OF PROGRAM CLH	13 X 268 = 3484 CLOCK HOURS
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AIR CONDITIONING AND REFRIGERATION-I (ACREF-I)

YEAR ONE

	No.	Course Code	Course Name	Prerequisite	Equivalent	No. of Units				
						CRH	L	P	T	CTH
Trimester I	1	AVEL-111	English -I			15	10	0	10	20
	2	G.Math-111	General Math-I			4	3	0	2	5
	3	G.HSE-111	Generic Health and Safety			4	3	0	2	5
	4	T. Draw-111	Technical Drawing-I			3	2	0	2	4
Total Number of Units						26	18	0	16	34

	No.	Course Code	Course Name	Prerequisite	Equivalent	No. of Units				
						CRH	L	P	T	CTH
Trimester II	1	AVEL-121	English -II	AVEL-111		15	10	0	10	20
	2	G.Math-122	General Math-II	G.Math-111		3	2	0	2	4
	3	T. Draw-122	Technical Drawing-II	T. Draw-111		3	2	0	2	4
	4	Comp -121	Basic Computer Skills			3	2	0	2	4
	5	Proj-121	Project Management			2	2	0	0	2
Total Number of Units						26	18	0	16	34

	No.	Course Code	Course Name	Prerequisite	Equivalent	No. of Units				
						CRH	L	P	T	CTH
Trimester III	1	AVBUS-211	Business English I	AVEL-121		7	4	0	6	10
	2	RAC-131	Thermal Science Principles			6	3	3	4	10
	3	RAC-132	Refrigeration and HVAC workshop			6	2	12	0	14
Total Number of Units						19	9	15	10	34

YEAR TWO

	No.	Course Code	Course Name	Prerequisite	Equivalent	No. of Units				
						CRH	L	P	T	CTH
Trimester I	1	AVBUS-212	Business Meetings	AVBUS-211		3	2	0	2	4
	2	HVAC-211	Principles of HVAC	RAC-131		6	4	3	2	9
	3	REF-211	Principles of Refrigeration	RAC-131		6	4	3	2	9
	4	CONT-211	Principles of Control			7	5	3	2	10
Total Number of Units						22	15	9	8	32

	No.	Course Code	Course Name	Prerequisite	Equivalent	No. of Units				
						CRH	L	P	T	CTH
Trimester II	1	RW-121	Report writing - I	AVBUS-212		3	2	0	2	4
	2	HVAC-222	HVAC Systems and Equipment	HVAC-211		6	4	3	2	9
	3	REF-222	Refrigeration Systems and Cold Stores	REF-211		6	4	3	2	9
	4	CONT-222	Refrigeration and Air Conditioning Control Systems	REF-211 CONT-211		7	5	3	2	10
Total Number of Units						22	15	9	8	32

	No.	Course Code	Course Name	Prerequisite	Equivalent	No. of Units				
						CRH	L	P	T	CTH
Trimester III	1	RW-132	Report Writing - II	RW-121		3	2	0	2	4
	2	HVAC-233	Central Air Conditioning	HVAC-222		6	4	3	2	9
	3	RACM-233	Refrigeration and Air Conditioning Maintenance	REF-222		6	4	3	2	9
	4	CARAC-231	Computer Application in Refrigeration and Air Conditioning	HVAC-222 REF-222		7	5	3	2	10
Total Number of Units						22	15	9	8	32

YEAR THREE

	No.	Course Code	Course Name	Prerequisite	Equivalent	No. of Units				
						CRH	L	P	T	CTH
Trimester I	1	ACREFOJT-311	Maintenance of HVAC and Refrigeration	HVAC-233 RACM-233 CARAC-231		4	5	35	0	40
	Total Number of Units					4	5	35	0	40

Total Number of Trimester Credit Units						CRH	L	P	T	CTH
						141	95	77	66	238

TOTAL NUMBER OF PROGRAM CLH	13 X 238 = 3094 CLOCK HOURS
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POWER SYSTEM DISPATCHING-I (PSD-I)

YEAR ONE

Trimester I	No.	Course Code	Course Name	Prerequisite	Equivalent	No. of Units				
						CRH	L	P	T	CTH
	1	EL-111	English ESL/ESP-I			16	10	0	12	22
	2	Math-111	Technical Math-I			1	1	0	1	2
	3	SCI-111	Technical Science-I			1	1	0	1	2
	4	Draw-111	Technical Drawing-I			1	1	0	1	2
	5	HSE-111	Technical Health and Safety-I			1	1	0	1	2
Total Number of Units						20	14	0	16	30

Trimester II	No.	Course Code	Course Name	Prerequisite	Equivalent	No. of Units				
						CRH	L	P	T	CTH
	1	EL-122	English ESL/ESP-II	EL-111		16	10	0	12	22
	2	Math-122	Technical Math-II	Math-111		1	1	0	1	2
	3	SCI-122	Technical Science-II	SCI-111		1	1	0	1	2
	4	Draw-122	Technical Drawing-II	Draw-111		1	1	0	1	2
	5	HSE-122	Technical Health and Safety-II	HSE-111		1	1	0	1	2
Total Number of Units						20	14	0	16	30

Trimester III	No.	Course Code	Course Name	Prerequisite	Equivalent	No. of Units				
						CRH	L	P	T	CTH
	1	EL-133	English ESL/ESP-III	EL-122		12	8	0	8	16
	2	Math-133	Technical Math-III	Math-122		1	0	0	1	1
	3	SCI-133	Technical Science-III	SCI-122		1	0	0	1	1
	4	HSE-133	Technical Health and Safety-III	HSE-122		1	0	0	1	1
	5	GC-131	Generic Core			7	4	9	0	13
Total Number of Units						22	12	9	11	32

YEAR TWO

Trimester I	No.	Course Code	Course Name	Prerequisite	Equivalent	No. of Units				
						CRH	L	P	T	CTH
	1	EL-214	English ESL/ESP-IV	EL-133		3	2	0	2	4
	2	CEF-211	Core Electrical Fundamentals	GC-131		16	10	18	0	28
Total Number of Units						19	12	18	2	32

Trimester II	No.	Course Code	Course Name	Prerequisite	Equivalent	No. of Units				
						CRH	L	P	T	CTH
	1	EL-225	English ESL/ESP-V	EL-214		3	2	0	2	4
	2	PSD-221	Power Generation and Loading in a Power System	CEF-211		7	3	11	0	14
	3	PSD-222	Transformers, Switchgear and Protection in a Power System	CEF-211		7	3	11	0	14
Total Number of Units						17	8	22	2	32

Trimester III	No.	Course Code	Course Name	Prerequisite	Equivalent	No. of Units				
						CRH	L	P	T	CTH
	1	EL-236	English ESL/ESP-VI	EL-225		3	2	0	2	4
	2	PSD-233	Power System Dispatching Fundamentals	PSD-221 PSD-222		7	3	11	0	14
	3	PSD-234	Power Grid Operations and Restoration	PSD-221 PSD-222		7	3	11	0	14
Total Number of Units						17	8	22	2	32

YEAR THREE

Trimester I	No.	Course Code	Course Name	Prerequisite	Equivalent	No. of Units				
						CRH	L	P	T	CTH
	1	PSDOJT-311	Power System Dispatching	PSD-233 PSD-234		4	5	35	0	40
Total Number of Units						4	5	35	0	40

Trimester II	No.	Course Code	Course Name	Prerequisite	Equivalent	No. of Units				
						CRH	L	P	T	CTH
	1	PSDOJT-322	Power System Diagnosis and Restoration	PSDOJT-311		4	5	35	0	40
Total Number of Units						4	5	35	0	40

Total Number of Trimester Credit Units						CRH	L	P	T	CTH
						123	78	141	49	268

TOTAL NUMBER OF PROGRAM CLH	13 X 268 = 3484 CLOCK HOURS
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ELECTRICAL DISTRIBUTION NETWORK MAINTENANCE-I (EDM-I)

YEAR ONE

Trimester I	No.	Course Code	Course Name	Prerequisite	Equivalent	No. of Units				
						CRH	L	P	T	CTH
	1	EL-111	English ESL/ESP-I			16	10	0	12	22
	2	Math-111	Technical Math-I			1	1	0	1	2
	3	SCI-111	Technical Science-I			1	1	0	1	2
	4	Draw-111	Technical Drawing-I			1	1	0	1	2
	5	HSE-111	Technical Health and Safety-I			1	1	0	1	2
Total Number of Units						20	14	0	16	30

Trimester II	No.	Course Code	Course Name	Prerequisite	Equivalent	No. of Units				
						CRH	L	P	T	CTH
	1	EL-122	English ESL/ESP-II	EL-111		16	10	0	12	22
	2	Math-122	Technical Math-II	Math-111		1	1	0	1	2
	3	SCI-122	Technical Science-II	SCI-111		1	1	0	1	2
	4	Draw-122	Technical Drawing-II	Draw-111		1	1	0	1	2
	5	HSE-122	Technical Health and Safety-II	HSE-111		1	1	0	1	2
Total Number of Units						20	14	0	16	30

Trimester III	No.	Course Code	Course Name	Prerequisite	Equivalent	No. of Units				
						CRH	L	P	T	CTH
	1	EL-133	English ESL/ESP-III	EL-122		12	8	0	8	16
	2	Math-133	Technical Math-III	Math-122		1	0	0	1	1
	3	SCI-133	Technical Science-III	SCI-122		1	0	0	1	1
	4	HSE-133	Technical Health and Safety-III	HSE-122		1	0	0	1	1
	5	GC-131	Generic Core			7	4	9	0	13
Total Number of Units						22	12	9	11	32

YEAR TWO

Trimester I	No.	Course Code	Course Name	Prerequisite	Equivalent	No. of Units				
						CRH	L	P	T	CTH
	1	EL-214	English ESL/ESP-IV	EL-133		3	2	0	2	4
	2	CEF-211	Core Electrical Fundamentals	GC-131		16	10	18	0	28
Total Number of Units						19	12	18	2	32

Trimester II	No.	Course Code	Course Name	Prerequisite	Equivalent	No. of Units				
						CRH	L	P	T	CTH
	1	EL-225	English ESL/ESP-V	EL-214		3	2	0	2	4
	2	EDM-221	Electrical Switchgear Inspection, Maintenance & Operation	CEF-211		7	3	11	0	14
	3	EDM-222	Transformer Inspection, Maintenance & Operation	CEF-211		7	3	11	0	14
Total Number of Units						17	8	22	2	32

Trimester III	No.	Course Code	Course Name	Prerequisite	Equivalent	No. of Units				
						CRH	L	P	T	CTH
	1	EL-236	English ESL/ESP-VI	EL-225		3	2	0	2	4
	2	EDM-233	Testing and Inspection of Network Equipment	EDM-221 EDM-222		7	3	11	0	14
	3	EDM-234	Maintenance of Residential Network Equipment	EDM-221 EDM-222		7	3	11	0	14
Total Number of Units						17	8	22	2	32

YEAR THREE

Trimester I	No.	Course Code	Course Name	Prerequisite	Equivalent	No. of Units				
						CRH	L	P	T	CTH
	1	EDMOJT-311	Distribution Network Safety, Equipment Identification and System Familiarization	EDM-233 EDM-234		4	5	35	0	40
Total Number of Units						4	5	35	0	40

Trimester II	No.	Course Code	Course Name	Prerequisite	Equivalent	No. of Units				
						CRH	L	P	T	CTH
	1	EDMOJT-322	Distribution Network Equipment Preventive and Corrective Maintenance	EDMOJT-311		4	5	35	0	40
Total Number of Units						4	5	35	0	40

Total Number of Trimester Credit Units						CRH	L	P	T	CTH
						123	78	141	49	268

TOTAL NUMBER OF PROGRAM CLH	13 X 268 = 3484 CLOCK HOURS
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RENEWABLE ENERGY TECHNOLOGY-I (RET-I)

YEAR ONE

Trimester I	No.	Course Code	Course Name	Prerequisite	Equivalent	No. of Units				
						CRH	L	P	T	CTH
	1	EL-111	English ESL/ESP-I			16	10	0	12	22
	2	Math-111	Technical Math-I			1	1	0	1	2
	3	SCI-111	Technical Science-I			1	1	0	1	2
	4	Draw-111	Technical Drawing-I			1	1	0	1	2
	5	HSE-111	Technical Health and Safety-I			1	1	0	1	2
Total Number of Units						20	14	0	16	30

Trimester II	No.	Course Code	Course Name	Prerequisite	Equivalent	No. of Units				
						CRH	L	P	T	CTH
	1	EL-122	English ESL/ESP-II	EL-111		16	10	0	12	22
	2	Math-122	Technical Math-II	Math-111		1	1	0	1	2
	3	SCI-122	Technical Science-II	SCI-111		1	1	0	1	2
	4	Draw-122	Technical Drawing-II	Draw-111		1	1	0	1	2
	5	HSE-122	Technical Health and Safety-II	HSE-111		1	1	0	1	2
Total Number of Units						20	14	0	16	30

Trimester III	No.	Course Code	Course Name	Prerequisite	Equivalent	No. of Units				
						CRH	L	P	T	CTH
	1	EL-133	English ESL/ESP-III	EL-122		12	8	0	8	16
	2	Math-133	Technical Math-III	Math-122		1	0	0	1	1
	3	SCI-133	Technical Science-III	SCI-122		1	0	0	1	1
	4	HSE-133	Technical Health and Safety-III	HSE-122		1	0	0	1	1
	5	GC-131	Generic Core			7	4	9	0	13
Total Number of Units						22	12	9	11	32

YEAR TWO

Trimester I	No.	Course Code	Course Name	Prerequisite	Equivalent	No. of Units				
						CRH	L	P	T	CTH
	1	EL-214	English ESL/ESP-IV	EL-133		3	2	0	2	4
	2	RET-211	Introduction to Renewable Energy			5	3	6	0	9
	3	RET-212	Solar Energy Technology			9	4	15	0	19
Total Number of Units						17	9	21	2	32

Trimester II	No.	Course Code	Course Name	Prerequisite	Equivalent	No. of Units				
						CRH	L	P	T	CTH
	1	EL-225	English ESL/ESP-V	EL-214		3	2	0	2	4
	2	RET-223	Solar Thermal Systems and Solar Thermal Power Generation	RET-211 RET-212		9	3	15	2	20
	3	RET-224	Biomass Energy	RET-211		2	1	0	2	3
	4	RET-225	Hydro Energy	RET-211		3	2	3	0	5
Total Number of Units						17	8	18	6	32

Trimester III	No.	Course Code	Course Name	Prerequisite	Equivalent	No. of Units				
						CRH	L	P	T	CTH
	1	EL-236	English ESL/ESP-VI	EL-225		3	2	0	2	4
	2	RET-236	Photovoltaic Systems	RET-223		8	2	15	2	19
	3	RET-237	Solar Process Economics	RET-223		3	2	0	2	4
	4	RET-238	Wind Energy			3	2	3	0	5
Total Number of Units						17	8	18	6	32

YEAR THREE

Trimester I	No.	Course Code	Course Name	Prerequisite	Equivalent	No. of Units				
						CRH	L	P	T	CTH
	1	RETOJT-311	Installation of Renewable Energy Systems	RET-236		4	5	35	0	40
Total Number of Units						4	5	35	0	40

Trimester II	No.	Course Code	Course Name	Prerequisite	Equivalent	No. of Units				
						CRH	L	P	T	CTH
	1	RETOJT-322	Troubleshooting and Repair of Renewable Energy Systems	RETOJT-311		4	5	35	0	40
Total Number of Units						4	5	35	0	40

Total Number of Trimester Credit Units						CRH	L	P	T	CTH
						121	75	136	57	268

TOTAL NUMBER OF PROGRAM CLH	13 X 268 = 3484 CLOCK HOURS
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SOLAR ENERGY-I (SE-I)

YEAR ONE

Trimester I	No.	Course Code	Course Name	Prerequisite	Equivalent	No. of Units				
						CRH	L	P	T	CTH
	1	EL-111	English ESL/ESP-I			16	10	0	12	22
	2	Math-111	Technical Math-I			1	1	0	1	2
	3	SCI-111	Technical Science-I			1	1	0	1	2
	4	Draw-111	Technical Drawing-I			1	1	0	1	2
	5	HSE-111	Technical Health and Safety-I			1	1	0	1	2
Total Number of Units						20	14	0	16	30

Trimester II	No.	Course Code	Course Name	Prerequisite	Equivalent	No. of Units				
						CRH	L	P	T	CTH
	1	EL-122	English ESL/ESP-II	EL-111		16	10	0	12	22
	2	Math-122	Technical Math-II	Math-111		1	1	0	1	2
	3	SCI-122	Technical Science-II	SCI-111		1	1	0	1	2
	4	Draw-122	Technical Drawing-II	Draw-111		1	1	0	1	2
	5	HSE-122	Technical Health and Safety-II	HSE-111		1	1	0	1	2
Total Number of Units						20	14	0	16	30

Trimester III	No.	Course Code	Course Name	Prerequisite	Equivalent	No. of Units				
						CRH	L	P	T	CTH
	1	EL-133	English ESL/ESP-III	EL-122		12	8	0	8	16
	2	Math-133	Technical Math-III	Math-122		1	0	0	1	1
	3	SCI-133	Technical Science-III	SCI-122		1	0	0	1	1
	4	HSE-133	Technical Health and Safety-III	HSE-122		1	0	0	1	1
	5	GC-131	Generic Core			7	4	9	0	13
Total Number of Units						22	12	9	11	32



YEAR TWO

Trimester I	No.	Course Code	Course Name	Prerequisite	Equivalent	No. of Units				
						CRH	L	P	T	CTH
	1	EL-214	English ESL/ESP-IV	EL-133		3	2	0	2	4
	2	SE-211	Introduction to Solar Energy	GC-131		4	2	6	0	8
	3	RET-223	Solar Thermal Systems and Power Generation	GC-131		12	8	12	0	20
Total Number of Units						19	12	18	2	32

Trimester II	No.	Course Code	Course Name	Prerequisite	Equivalent	No. of Units				
						CRH	L	P	T	CTH
	1	EL-225	English ESL/ESP-V	EL-214		3	2	0	2	4
	2	SE-222	Solar PV Modules Design and Operation	SE-211		7	3	11	0	14
	3	SE-223	Solar PV Systems and Applications	SE-211		7	3	11	0	14
Total Number of Units						17	8	22	2	32

Trimester III	No.	Course Code	Course Name	Prerequisite	Equivalent	No. of Units				
						CRH	L	P	T	CTH
	1	EL-236	English ESL/ESP-VI	EL-225		3	2	0	2	4
	2	SE-234	Economics of Solar PV system			5	4	0	2	6
	3	SE-235	Designing Stand-Alone and Grid-tied Solar PV Plant	SE-222 SE-223		10	3	15	4	22
Total Number of Units						18	9	15	8	32

YEAR THREE

Trimester I	No.	Course Code	Course Name	Prerequisite	Equivalent	No. of Units				
						CRH	L	P	T	CTH
	1	SEOJT-311	Renewable Energy Systems Technical Training – I: Installation	SE-235		4	5	35	0	40
Total Number of Units						4	5	35	0	40

Trimester II	No.	Course Code	Course Name	Prerequisite	Equivalent	No. of Units				
						CRH	L	P	T	CTH
	1	SEOJT-322	Solar PV Systems Technical Training- II: Troubleshooting & Repair	SEOJT-311		4	5	35	0	40
Total Number of Units						4	5	35	0	40

Total Number of Trimesters Credit Units						CRH	L	P	T	CTH
						124	79	137	53	268

TOTAL NUMBER OF PROGRAM CLH	13 X 268 = 3484 CLOCK HOURS
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WELDING AND MACHINING-I (WMC-I)

YEAR ONE

Trimester I	No.	Course Code	Course Name	Prerequisite	Equivalent	No. of Units				
						CRH	L	P	T	CTH
	1	EL-111	English ESL/ESP-I			16	10	0	12	22
	2	Math-111	Technical Math-I			1	1	0	1	2
	3	SCI-111	Technical Science-I			1	1	0	1	2
	4	Draw-111	Technical Drawing-I			1	1	0	1	2
	5	HSE-111	Technical Health and Safety-I			1	1	0	1	2
Total Number of Units						20	14	0	16	30

Trimester II	No.	Course Code	Course Name	Prerequisite	Equivalent	No. of Units				
						CRH	L	P	T	CTH
	1	EL-122	English ESL/ESP-II	EL-111		16	10	0	12	22
	2	Math-122	Technical Math-II	Math-111		1	1	0	1	2
	3	SCI-122	Technical Science-II	SCI-111		1	1	0	1	2
	4	Draw-122	Technical Drawing-II	Draw-111		1	1	0	1	2
	5	HSE-122	Technical Health and Safety-II	HSE-111		1	1	0	1	2
Total Number of Units						20	14	0	16	30

Trimester III	No.	Course Code	Course Name	Prerequisite	Equivalent	No. of Units				
						CRH	L	P	T	CTH
	1	EL-133	English ESL/ESP-III	EL-122		12	8	0	8	16
	2	Math-133	Technical Math-III	Math-122		1	0	0	1	1
	3	SCI-133	Technical Science-III	SCI-122		1	0	0	1	1
	4	HSE-133	Technical Health and Safety-III	HSE-122		1	0	0	1	1
	5	GC-131	Generic Core			7	4	9	0	13
Total Number of Units						22	12	9	11	32

YEAR TWO

Trimester I	No.	Course Code	Course Name	Prerequisite	Equivalent	No. of Units				
						CRH	L	P	T	CTH
	1	EL-214	English ESL/ESP-IV	EL-133		3	2	0	2	4
	2	CWMF-211	Core Welding and Machining Fundamentals	GC-131		16	10	18	0	28
Total Number of Units						19	12	18	2	32

Trimester II	No.	Course Code	Course Name	Prerequisite	Equivalent	No. of Units				
						CRH	L	P	T	CTH
	1	EL-225	English ESL/ESP-V	EL-214		3	2	0	2	4
	2	WMC-221	Fabrication and Welding I for the Power Industry	CWMF-211		7	3	11	0	14
	3	WMC-222	Turning and Machining I for the Power Industry	CWMF-211		7	3	11	0	14
Total Number of Units						17	8	22	2	32

Trimester III	No.	Course Code	Course Name	Prerequisite	Equivalent	No. of Units				
						CRH	L	P	T	CTH
	1	EL-236	English ESL/ESP-VI	EL-225		3	2	0	2	4
	2	WMC-233	Fabrication and Welding II for the Power Industry	WMC-221 WMC-222		7	3	11	0	14
	3	WMC-234	Turning and Machining II for the Power Industry	WMC-221 WMC-222		7	3	11	0	14
Total Number of Units						17	8	22	2	32

YEAR THREE

Trimester I	No.	Course Code	Course Name	Prerequisite	Equivalent	No. of Units				
						CRH	L	P	T	CTH
	1	WMCJOJT-311	Fabrication and Welding Activities in a Power Plant Environment	WMC-233 WMC-234		4	5	35	0	40
Total Number of Units						4	5	35	0	40

Trimester II	No.	Course Code	Course Name	Prerequisite	Equivalent	No. of Units				
						CRH	L	P	T	CTH
	1	WMCJOJT-322	Maintenance and Machining Activities in a Power Plant Environment	WMCJOJT-311		4	5	35	0	40
Total Number of Units						4	5	35	0	40

Total Number of Trimester Credit Units						CRH	L	P	T	CTH
						123	78	141	49	268

TOTAL NUMBER OF PROGRAM CLH	13 X 268 = 3484 CLOCK HOURS
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NON-DESTRUCTIVE TESTING (NDT)

YEAR ONE

Trimester I	No.	Course Code	Course Name	Prerequisite	Equivalent	No. of Units				
						CRH	L	P	T	CTH
1	AVAET-211	Technical English I				7	4	0	6	10
2	G.Math-111	General Math-I				4	3	0	2	5
3	G.Ch-111	General Chemistry				3	2	3	0	5
4	T.Draw-111	Technical Drawing-I				3	2	0	2	4
5	HSE-111	Technical Health and Safety-I				2	2	0	0	2
Total Number of Units						19	13	3	10	26

Trimester II	No.	Course Code	Course Name	Prerequisite	Equivalent	No. of Units				
						CRH	L	P	T	CTH
1	AVAET-221	Technical English II		AVAET-211		7	4	0	6	10
2	CAL-122	Calculus		G. Math-111		3	2	0	2	4
3	F.Phy-122	Fundamentals of Physics				3	2	3	0	5
4	T.Draw-122	Technical Drawing-II		T.Draw-111		3	2	0	2	4
5	HSE-122	Technical Health and Safety-II		HSE-111		2	2	0	0	2
Total Number of Units						18	12	3	10	25

Trimester III	No.	Course Code	Course Name	Prerequisite	Equivalent	No. of Units				
						CRH	L	P	T	CTH
1	AVBUS-211	Business English I		AVAET-221		7	4	0	6	10
2	OBWE-131	Organizational Behavior and Work Ethics				2	2	0	0	2
3	CorF-131	Corrosion Fundamentals		G.Ch-111		3	2	3	0	5
4	EEPR-131	Electrical and Electronics Principles		F.Phy-122		3	2	3	0	5
5	NDT-131	Manufacturing Processes and NDT				3	2	3	0	5
Total Number of Units						18	12	9	6	27

YEAR TWO

Trimester I	No.	Course Code	Course Name	Prerequisite	Equivalent	No. of Units				
						CRH	L	P	T	CTH
1	AVBUS-212	Business Meetings		AVBUS-211		3	2	0	2	4
2	MMS-211	Metallurgy and Material Sciences				5	3	6	0	9
3	WI-211	Welding and Inspection				5	3	6	0	9
4	NDT-211	Visual Testing				4	2	6	0	8
Total Number of Units						17	10	18	2	30

Trimester II	No.	Course Code	Course Name	Prerequisite	Equivalent	No. of Units				
						CRH	L	P	T	CTH
1	RW-121	Report Writing-I				3	2	0	2	4
2	NDT-222	Liquid Penetrant Testing (LPT)				3	2	3	0	5
3	NDT-223	Magnetic Particle Testing (MPT)				4	2	6	0	8
4	NDT-224	Ultrasonic Testing (UT)		EEPR-131		4	2	6	0	8
5	NDT-225	Metrology and Quality Control				3	2	3	0	5
Total Number of Units						17	10	18	2	30

Trimester III	No.	Course Code	Course Name	Prerequisite	Equivalent	No. of Units				
						CRH	L	P	T	CTH
1	RW-132	Report Writing-II		RW-121		3	2	0	2	4
2	NDT-236	NDT Codes and Standards				4	2	0	4	6
3	NDT-227	Eddy Current Testing (ET)		EEPR-131		3	2	4	0	6
4	NDT-228	Radiographic Testing (RT)				4	2	6	0	8
5	NDT-229	Advanced NDT – PAUT and TOFD		NDT-224		3	2	4	0	6
Total Number of Units						17	10	14	6	30

YEAR THREE

Trimester I	No.	Course Code	Course Name	Prerequisite	Equivalent	No. of Units				
						CRH	L	P	T	CTH
1	NDT-OJT-311	NDT Work Experience-OJT				4	5	35	0	40
Total Number of Units						4	5	35	0	40

Total Number of TrimesterCredit Units						CRH	L	P	T	CTH
						110	72	100	36	208

TOTAL NUMBER OF PROGRAM CLH	13 X 208 = 2704 CLOCK HOURS
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FOREMAN-I (FRMN-I)

YEAR ONE

Trimester I	No.	Course Code	Course Name	Prerequisite	Equivalent	No. of Units				
						CRH	L	P	T	CTH
	1	AVEL-111	English I			15	10	0	10	20
	2	G.Math-111	General Math-I			4	3	0	2	5
	3	G.HSE-111	Generic Health and Safety			4	3	0	2	5
	4	T.Draw-111	Technical Drawing-I			3	2	0	2	4
	Total Number of Units					26	18	0	16	34

Trimester II	No.	Course Code	Course Name	Prerequisite	Equivalent	No. of Units				
						CRH	L	P	T	CTH
	1	AVEL-121	English II	AVEL-111		15	10	0	10	20
	2	G.Math-122	General Math-II	G.Math-111		3	2	0	2	4
	3	T.Draw-122	Technical Drawing-II	T.Draw-111		3	2	0	2	4
	4	Comp-121	Basic Computer Skills			3	2	0	2	4
	5	Proj-121	Project Management			2	2	0	0	2
	Total Number of Units					26	18	0	16	34

Trimester III	No.	Course Code	Course Name	Prerequisite	Equivalent	No. of Units				
						CRH	L	P	T	CTH
	1	AVEL-131	English-III	AVEL-121		15	10	0	10	20
	2	WP-131	Workshop Practice (Electrical & Mechanical)			6	3	9	0	12
	Total Number of Units					21	13	9	10	32

YEAR TWO

Trimester I	No.	Course Code	Course Name	Prerequisite	Equivalent	No. of Units				
						CRH	L	P	T	CTH
	1	AVBUS-212	Business Meetings	AVEL-131		3	2	0	2	4
	2	FRMN-211	Read and Interpret Plans & Specifications			10	6	0	8	14
	3	FRMN-212	Follow Occupational Health and Safety Policies and Procedures			9	6	6	2	14
	Total Number of Units					22	14	6	12	32

Trimester II	No.	Course Code	Course Name	Prerequisite	Equivalent	No. of Units				
						CRH	L	P	T	CTH
	1	RW-121	Report Writing - I	AVBUS-212		3	2	0	2	4
	2	FRMN-223	Plan, Organize Work & Record Keeping			9	6	0	6	12
	3	FRMN-224	Conduct Workplace Communication			12	8	0	8	16
	Total Number of Units					24	16	0	16	32

Trimester III	No.	Course Code	Course Name	Prerequisite	Equivalent	No. of Units				
						CRH	L	P	T	CTH
	1	RW-132	Report Writing-II	RW-121		3	2	0	2	4
	2	FRMN-235	Managerial Skills			19	10	0	18	28
	Total Number of Units					22	12	0	20	32

YEAR THREE

Trimester I	No.	Course Code	Course Name	Prerequisite	Equivalent	No. of Units				
						CRH	L	P	T	CTH
	1	FRMNOJT-311	Foreman- I Practice			4	5	35	0	40
	Total Number of Units					4	5	35	0	40

Total Number of Trimester Credit Units						CRH	L	P	T	CTH
						145	96	50	90	236

TOTAL NUMBER OF PROGRAM CLH	13 X 236 = 3068 CLOCK HOURS
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HEALTH, SAFETY AND ENVIRONMENT-I (HSE-I)

YEAR ONE

Trimester I	No.	Course Code	Course Name	Prerequisite	Equivalent	No. of Units				
						CRH	L	P	T	CTH
	1	EL-111	English ESL/ESP-I			16	10	0	12	22
	2	Math-111	Technical Math-I			1	1	0	1	2
	3	SCI-111	Technical Science-I			1	1	0	1	2
	4	Draw-111	Technical Drawing-I			1	1	0	1	2
	5	HSE-111	Technical Health and Safety-I			1	1	0	1	2
	Total Number of Units					20	14	0	16	30

Trimester II	No.	Course Code	Course Name	Prerequisite	Equivalent	No. of Units				
						CRH	L	P	T	CTH
	1	EL-122	English ESL/ESP-II	EL-111		16	10	0	12	22
	2	Math-122	Technical Math-II	Math-111		1	1	0	1	2
	3	SCI-122	Technical Science-II	SCI-111		1	1	0	1	2
	4	Draw-122	Technical Drawing-II	Draw-111		1	1	0	1	2
	5	HSE-122	Technical Health and Safety-II	HSE-111		1	1	0	1	2
	Total Number of Units					20	14	0	16	30

Trimester III	No.	Course Code	Course Name	Prerequisite	Equivalent	No. of Units				
						CRH	L	P	T	CTH
	1	EL-133	English ESL/ESP-III	EL-122		12	8	0	8	16
	2	Math-133	Technical Math-III	Math-122		1	0	0	1	1
	3	SCI-133	Technical Science-III	SCI-122		1	0	0	1	1
	4	HSE-133	Technical Health and Safety-III	HSE-122		1	0	0	1	1
	5	GC-131	Generic Core			7	4	9	0	13
	Total Number of Units					22	12	9	11	32

YEAR TWO

Trimester I	No.	Course Code	Course Name	Prerequisite	Equivalent	No. of Units				
						CRH	L	P	T	CTH
	1	EL-214	English ESL/ESP-IV	EL-133		3	2	0	2	4
	2	CSE-211	Safety Core for Electro-Mechanical Environment			17	11	15	2	28
	Total Number of Units					20	13	15	4	32

Trimester II	No.	Course Code	Course Name	Prerequisite	Equivalent	No. of Units				
						CRH	L	P	T	CTH
	1	EL-225	English ESL/ESP-V	EL-214		3	2	0	2	4
	2	HSE-221	Plan a Health and Safety Environment			7	3	11	0	14
	3	HSE-222	Risk Management and Ergonomics in Health and Safety			7	3	11	0	14
	Total Number of Units					17	8	22	2	32

Trimester III	No.	Course Code	Course Name	Prerequisite	Equivalent	No. of Units				
						CRH	L	P	T	CTH
	1	EL-236	English ESL/ESP-VI	EL-225		3	2	0	2	4
	2	HSE-233	Site Control, Auditing and Incident Investigation	HSE-221		7	3	11	0	14
	3	HSE-234	Control Electrical, Fire and Dangerous Substance Environments	HSE-222		7	3	11	0	14
	Total Number of Units					17	8	22	2	32

YEAR THREE

Trimester I	No.	Course Code	Course Name	Prerequisite	Equivalent	No. of Units				
						CRH	L	P	T	CTH
	1	HSEOJT-311	Maintaining a Healthy and Safe Environment in the Workplace	HSE-233 HSE-234		4	5	35	0	40
	Total Number of Units					4	5	35	0	40

Trimester II	No.	Course Code	Course Name	Prerequisite	Equivalent	No. of Units				
						CRH	L	P	T	CTH
	1	HSEOJT-322	Manage a Health and Safety Environment for Process Industries	HSEOJT-311		4	5	35	0	40
	Total Number of Units					4	5	35	0	40

Total Number of Trimester Credit Units						CRH	L	P	T	CTH
						124	79	138	51	268

TOTAL NUMBER OF PROGRAM CLH	13 X 268 = 3484 CLOCK HOURS
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HEALTH SAFETY AND ENVIRONMENT-II (HSE-II)

YEAR ONE

Trimester I	No.	Course Code	Course Name	Prerequisite	Equivalent	No. of Units				
						CRH	L	P	T	CTH
	1	AVAET-211	Technical English-I			7	4	0	6	10
	2	G.Math-111	Technical Math-I			3	1	0	4	5
	3	G.HSE-111	Generic Health and Safety			3	2	3	0	5
	4	SCEM-111	Safety Core for Electro Mechanical Environment			9	6	9	0	15
Total Number of Units						22	13	12	10	35

Trimester II	No.	Course Code	Course Name	Prerequisite	Equivalent	No. of Units				
						CRH	L	P	T	CTH
	1	AVAET-221	Technical English-II	AVAET-211		7	4	0	6	10
	2	HSE-221	Plan a Health and Safety Environment	SCEM-111		6	3	9	0	12
	3	HSE-222	Risk Management and Ergonomics in Health and Safety	SCEM-111		7	4	9	0	13
Total Number of Units						20	11	18	6	35

Trimester III	No.	Course Code	Course Name	Prerequisite	Equivalent	No. of Units				
						CRH	L	P	T	CTH
	1	HSE -233	Site Control, Auditing and Incident Investigation	HSE-221		10	6	11	0	17
	2	HSE -234	Control Electrical, Fire and Dangerous Substance Environments	HSE-222		10	6	12	0	18
Total Number of Units						20	12	23	0	35

YEAR TWO

Trimester I	No.	Course Code	Course Name	Prerequisite	Equivalent	No. of Units				
						CRH	L	P	T	CTH
	1	HSEOJT-311	Maintaining a Healthy and Safe Environment in the Workplace	HSE-233 HSE-224		4	5	35	0	40
Total Number of Units						4	5	35	0	40

Total Number of Trimester Credit Units						CRH	L	P	T	CTH
						66	41	88	16	145

TOTAL NUMBER OF PROGRAM CLH	13 X 145 = 1885 CLOCK HOURS
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SYSTEM CONTROL AND DATA ACQUISITION SYSTEMS (SCADA)

YEAR ONE

Trimester I	No.	Course Code	Course Name	Prerequisite	Equivalent	No. of Units				
						CRH	L	P	T	CTH
	1	AVEL-122	Building English Fluency- CALL-II			3	2	0	2	4
	2	ELEC-111	Basic Electronics-I			7	3	9	2	14
	3	ELEC-112	Basic Electronics-II			7	3	9	2	14
Total Number of Units						17	8	18	6	32

Trimester II	No.	Course Code	Course Name	Prerequisite	Equivalent	No. of Units				
						CRH	L	P	T	CTH
	1	RW-121	Report Writing-I	AVEL-122		3	2	0	2	4
	2	SCD-121	Electronic Devices and Circuits	ELEC-111		7	3	9	2	14
	3	SCD-122	Network Fundamentals	ELEC-112		7	3	9	2	14
Total Number of Units						17	8	18	6	32

Trimester III	No.	Course Code	Course Name	Prerequisite	Equivalent	No. of Units				
						CRH	L	P	T	CTH
	1	RW-132	Report Writing-II	RW-121		3	2	0	2	4
	2	SCD-133	Communication and Network Protocols	SCD-121 SCD-122		7	3	9	2	14
	3	SCD-134	Industrial Control Systems	SCD-121 SCD-122		7	3	9	2	14
Total Number of Units						17	8	18	6	32

YEAR TWO

Trimester I	No.	Course Code	Course Name	Prerequisite	Equivalent	No. of Units				
						CRH	L	P	T	CTH
	1	SCDOJT-211	Maintenance of SCADA Systems	SCD-133 SCD-134		4	5	35	0	40
Total Number of Units						4	5	35	0	40

Total Number of Trimester Credit Unit						CRH	L	P	T	CTH
						55	29	89	18	136

TOTAL NUMBER OF PROGRAM CLH	13 X 136 = 1768 CLOCK HOURS
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ELECTRICAL METERING INSPECTION-I (EMI-I)

YEAR ONE

Trimester I	No.	Course Code	Course Name	Prerequisite	Equivalent	No. of Units				
						CRH	L	P	T	CTH
	1	EL-122	English ESL/ESP -II			16	10	0	12	22
	2	Math-122	Technical Math-II			1	1	0	1	2
	3	SCI-122	Technical Science-II			1	1	0	1	2
	4	HSE-122	Technical Health and Safety-II			1	1	0	1	2
	5	BWP-111	Basic Workshop Practice			3	1	6	0	7
Total Number of Units						22	14	6	15	35

Trimester II	No.	Course Code	Course Name	Prerequisite	Equivalent	No. of Units				
						CRH	L	P	T	CTH
	1	RW-121	Report Writing-I	EL-122		3	2	0	2	4
	2	EMI-121	Energy and Tariff Meter-I	SCI-122 BWP-111		8	4	6	4	14
	3	EMI-122	Energy and Tariff Meter-II	SCI-122 BWP-111		8	4	6	4	14
Total Number of Units						19	10	12	10	32

Trimester III	No.	Course Code	Course Name	Prerequisite	Equivalent	No. of Units				
						CRH	L	P	T	CTH
	1	RW-132	Report Writing-II	RW-121		3	2	0	2	4
	2	EMI-133	Energy and Tariff Meter-III	EMI-121 EMI-122		8	4	6	4	14
	3	EMI-134	Energy and Tariff Meter-IV	EMI-121 EMI-122		8	4	6	4	14
Total Number of Units						19	10	12	10	32

YEAR TWO

Trimester I	No.	Course Code	Course Name	Prerequisite	Equivalent	No. of Units				
						CRH	L	P	T	CTH
	1	EMIOJT-211	Electrical Metering Inspection-OJT	EMI-133 EMI-134		4	5	35	0	40
Total Number of Units						4	5	35	0	40

Total Number of Trimester Credit Units						CRH	L	P	T	CTH
						64	39	65	35	139

TOTAL NUMBER OF PROGRAM CLH	13 X 139 = 1807 CLOCK HOURS
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RENEWABLE ENERGY TECHNOLOGY-II (RET-II)

YEAR ONE

Trimester I	No.	Course Code	Course Name	Prerequisite	Equivalent	No. of Units				
						CRH	L	P	T	CTH
	1	AVAET-211	Technical English-I			7	4	0	6	10
	2	G.Math-122	General Math-II			3	2	0	2	4
	3	G.HSE-111	Generic Health and Safety			4	3	0	2	5
	4	G.SCI-111	Generic Technical Science			4	3	0	2	5
	5	G.Draw-111	Generic Technical Drawing			4	2	0	4	6
Total Number of Units						22	14	0	16	30

Trimester II	No.	Course Code	Course Name	Prerequisite	Equivalent	No. of Units				
						CRH	L	P	T	CTH
	1	RW-121	Report Writing-I	AVAET-211		3	2	0	2	4
	2	REGC-121	Renewable Energy Generic Core	G.SCI-111		4	3	3	0	6
	3	RET-121	Introduction to Renewable Energy: Solar, Wind, Hydro and Biomass			6	4	6	0	10
	4	RET-125	Solar Energy Technology			5	2	6	2	10
Total Number of Units						18	11	15	4	30

Trimester III	No.	Course Code	Course Name	Prerequisite	Equivalent	No. of Units				
						CRH	L	P	T	CTH
	1	RW-132	Report Writing-II	RW-121		3	2	0	2	4
	2	RET-136	Solar Thermal Applications	RET-121		6	3	9	0	12
	3	RET-137	Photovoltaic Systems	RET-125		6	3	9	0	12
	4	RET-237	Solar Process Economics			3	2	0	2	4
Total Number of Units						18	10	18	4	32

YEAR TWO

Trimester I	No.	Course Code	Course Name	Prerequisite	Equivalent	No. of Units				
						CRH	L	P	T	CTH
	1	RETOJT-311S	Installation of Renewable Energy Systems	RET-136 RET-137		2	5	15	0	20
	2	RETOJT-322S	Troubleshooting and Repair of Renewable Energy Systems	RETOJT-311S		2	5	15	0	20
Total Number of Units						4	10	30	0	40

Total Number of Trimester Credit Units						CRH	L	P	T	CTH
						62	45	63	24	132

TOTAL NUMBER OF PROGRAM CLH	13 X 132 = 1716 CLOCK HOURS
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SOLAR ENERGY-II (SE-II)

YEAR ONE

Trimester I	No.	Course Code	Course Name	Prerequisite	Equivalent	No. of Units				
						CRH	L	P	T	CTH
	1	AVAET-211	Technical English-I			7	4	0	6	10
	2	G.Math-122	General Math-II			3	2	0	2	4
	3	G.HSE-111	Generic Health and Safety			4	3	0	2	5
	4	G. SCI-111	Generic Technical Science			4	3	0	2	5
	5	G.Draw-111	Generic Technical Drawing			4	2	0	4	6
Total Number of Units						22	14	0	16	30

Trimester II	No.	Course Code	Course Name	Prerequisite	Equivalent	No. of Units				
						CRH	L	P	T	CTH
	1	RW-121	Report Writing-I	AVAET-211		3	2	0	2	4
	2	SEGC-121	Solar Energy Generic Core	G.SCI-111		6	3	9	0	12
	3	SES-211	Introduction to Solar Energy			2	1	3	0	4
	4	SES-222	Solar PV Modules Design and Operation			4	3	3	0	6
	5	RETS-223	Solar Thermal Systems and Power Generation			4	3	3	0	6
Total Number of Units						19	12	18	2	32

Trimester III	No.	Course Code	Course Name	Prerequisite	Equivalent	No. of Units				
						CRH	L	P	T	CTH
	1	RW-132	Report Writing-II	RW-121		3	2	0	2	4
	2	SES-223	Solar PV Systems and Applications- Stand Alone Systems			5	2	8	0	10
	3	SE-234	Economics of Solar PV System	SES-211		5	4	0	2	6
	4	SE-235	Designing Stand-Alone and Grid- Tied Solar PV Plant	SES-223		6	3	9	0	12
Total Number of Units						19	11	17	4	32

YEAR TWO

Trimester I	No.	Course Code	Course Name	Prerequisite	Equivalent	No. of Units				
						CRH	L	P	T	CTH
	1	SEOJT-311S	Solar PV Systems Technical Training - I: Installation	SE-223 SE-235		2	5	15	0	20
	2	SEOJT-322S	Solar PV Systems Technical Training - II: Troubleshooting and Repair	SEOJT-311S		2	5	15	0	20
Total Number of Units						4	10	30	0	40

Total Number of Trimester Credit Units						CRH	L	P	T	CTH
						64	47	65	22	134

TOTAL NUMBER OF PROGRAM CLH	13 X 134 = 1742 CLOCK HOURS
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ELECTRIC POWER CABLES-II (EPC-II)

YEAR ONE

	No.	Course Code	Course Name	Prerequisite	Equivalent	No. of Units				
						CRH	L	P	T	CTH
Trimester I	1	EL-122	English ESL/ESP-II			16	10	0	12	22
	2	Math-122	Technical Math-II			1	1	0	1	2
	3	SCI-122	Technical Science-II			1	1	0	1	2
	4	HSE-122	Technical Health and Safety-II			1	1	0	1	2
	5	BWP-111	Basic Workshop Practice			3	1	6	0	7
Total Number of Units						22	14	6	15	35

	No.	Course Code	Course Name	Prerequisite	Equivalent	No. of Units				
						CRH	L	P	T	CTH
Trimester II	1	RW-121	Report Writing-I	EL-122		3	2	0	2	4
	2	EPC-221	Health and Safety for Cable Jointers	HSE-122		8	5	9	0	14
	3	EPC-222	General Skills for Cable Jointers	BWP-111		8	5	9	0	14
Total Number of Units						19	12	18	2	32

	No.	Course Code	Course Name	Prerequisite	Equivalent	No. of Units				
						CRH	L	P	T	CTH
Trimester III	1	RW-132	Report Writing-II	RW-121		3	2	0	2	4
	2	EPC-233	Low Voltage Jointing and Terminating	EPC-222		8	5	9	0	14
	3	EPC-234	Medium and High Voltage Jointing and Terminating	EPC-222		8	5	9	0	14
Total Number of Units						19	12	18	2	32

YEAR TWO

	No.	Course Code	Course Name	Prerequisite	Equivalent	No. of Units				
						CRH	L	P	T	CTH
Trimester I	1	EPCOJT-311S	Power Cable Safety, Equipment Identification and Systems Familiarization	EPC-233 EPC-234		2	5	15	0	20
	2	EPCOJT-322S	Power Cable Inspection, Preventive and Corrective Maintenance	EPCOJT-311S		2	5	15	0	20
Total Number of Units						4	10	30	0	40

Total Number of Trimester Credit Units						CRH	L	P	T	CTH
						64	48	72	19	139

TOTAL NUMBER OF PROGRAM CLH		13 X 139 = 1807 CLOCK HOURS								
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POWER PLANT OPERATION-II (PPO-II)

YEAR ONE

	No.	Course Code	Course Name	Prerequisite	Equivalent	No. of Units				
						CRH	L	P	T	CTH
Trimester I	1	EL-122	English ESL/ESP-II			16	10	0	12	22
	2	Math-122	Technical Math-II			1	1	0	1	2
	3	SCI-122	Technical Science-II			1	1	0	1	2
	4	HSE-122	Technical Health and Safety- II			1	1	0	1	2
	5	BWP-111	Basic Workshop Practice			3	1	6	0	7
Total Number of Units						22	14	6	15	35

	No.	Course Code	Course Name	Prerequisite	Equivalent	No. of Units				
						CRH	L	P	T	CTH
Trimester II	1	RW-121	Report Writing-I	EL-122		3	2	0	2	4
	2	PPO-221	Process Fundamentals	BWP-111		8	5	9	0	14
	3	PPO-222	Control and Operation	BWP-111		8	5	9	0	14
Total Number of Units						19	12	18	2	32

	No.	Course Code	Course Name	Prerequisite	Equivalent	No. of Units				
						CRH	L	P	T	CTH
Trimester III	1	RW-132	Report Writing-II	RW-121		3	2	0	2	4
	2	PPO-233	Heat Recovery Steam Generator	PPO-221 PPO-222		3	2	3	0	5
	3	PPO-234	Power Generation	PPO-221 PPO-222		11	4	15	4	23
Total Number of Units						17	8	18	6	32

YEAR TWO

	No.	Course Code	Course Name	Prerequisite	Equivalent	No. of Units				
						CRH	L	P	T	CTH
Trimester I	1	PPOOJT-311S	Process Equipment Identification and familiarization	PPO-233 PPO-234		2	5	15	0	20
	2	PPOOJT-322S	Power Utility System Operation	PPOOJT-311S		2	5	15	0	20
Total Number of Units						4	10	30	0	40

Total Number of Trimester Credit Units						CRH	L	P	T	CTH
						62	44	112	23	139

TOTAL NUMBER OF PROGRAM CLH		13 X 139 = 1807 CLOCK HOURS								
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POWER PLANT MECHANICAL MAINTENANCE-II (PPM-II)

YEAR ONE

	No.	Course Code	Course Name	Prerequisite	Equivalent	No. of Units				
						CRH	L	P	T	CTH
Trimester I	1	EL-122	English ESL/ESP-II			16	10	0	12	22
	2	Math-122	Technical Math-II			1	1	0	1	2
	3	SCI-122	Technical Science-IIss			1	1	0	1	2
	4	HSE-122	Technical Health and Safety- II			1	1	0	1	2
	5	BWP-111	Basic Workshop Practice			3	1	6	0	7
Total Number of Units						22	14	6	15	35

	No.	Course Code	Course Name	Prerequisite	Equivalent	No. of Units				
						CRH	L	P	T	CTH
Trimester II	1	RW-121	Report Writing-I	EL-122		3	2	0	2	4
	2	PPM-221	Mechanical Pumps	BWP-111		8	5	9	0	14
	3	PPM-222	Mechanical Gearboxes	BWP-111		8	5	9	0	14
Total Number of Units						19	12	18	2	32

	No.	Course Code	Course Name	Prerequisite	Equivalent	No. of Units				
						CRH	L	P	T	CTH
Trimester III	1	RW-132	Report Writing-II	RW-121		3	2	0	2	4
	2	PPM-233	Mechanical Blowers and Compressors	PPM-221 PPM-222		8	5	9	0	14
	3	PPM-234	Mechanical Ancillary Systems	PPM-221 PPM-222		8	5	9	0	14
Total Number of Units						19	12	18	2	32

YEAR TWO

	No.	Course Code	Course Name	Prerequisite	Equivalent	No. of Units				
						CRH	L	P	T	CTH
Trimester I	1	PPMOJT-311S	Mechanical Power Plant Maintenance and Fault-finding	PPM-233 PPM-234		2	5	15	0	20
	2	PPMOJT-322S	Fabrication, Machining and Piping	PPMOJT-311S		2	5	15	0	20
Total Number of Units						4	10	30	0	40

Total Number of Trimester Credit Units						CRH	L	P	T	CTH
						64	48	72	19	139

TOTAL NUMBER OF PROGRAM CLH	13 X 139 = 1807 CLOCK HOURS
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POWER PLANT ELECTRICAL MAINTENANCE-II (PPE-II)

YEAR ONE

	No.	Course Code	Course Name	Prerequisite	Equivalent	No. of Units				
						CRH	L	P	T	CTH
Trimester I	1	EL-122	English ESL/ESP-II			16	10	0	12	22
	2	Math-122	Technical Math-II			1	1	0	1	2
	3	SCI-122	Technical Science-II			1	1	0	1	2
	4	HSE-122	Technical Health and Safety-II			1	1	0	1	2
	5	BWP-111	Basic Workshop Practice			3	1	6	0	7
Total Number of Units						22	14	6	15	35

	No.	Course Code	Course Name	Prerequisite	Equivalent	No. of Units				
						CRH	L	P	T	CTH
Trimester II	1	RW-121	Report Writing-I	EL-122		3	2	0	2	4
	2	PPE-221	Electrical Switchgear Inspection, Maintenance and Operation	BWP-111		8	5	9	0	14
	3	PPE-222	Transformer Inspection, Maintenance and Operation	BWP-111		8	5	9	0	14
Total Number of Units						19	12	18	2	32

	No.	Course Code	Course Name	Prerequisite	Equivalent	No. of Units				
						CRH	L	P	T	CTH
Trimester III	1	RW-132	Report Writing-II	RW-121		3	2	0	2	4
	2	PPE-233	DC Systems and Lighting Inspection, Maintenance, and Operation	PPE-222		8	5	9	0	14
	3	PPE-234	Power Plant Equipment Inspection and Maintenance	PPE-222		8	5	9	0	14
Total Number of Units						19	12	18	2	32

YEAR TWO

	No.	Course Code	Course Name	Prerequisite	Equivalent	No. of Units				
						CRH	L	P	T	CTH
Trimester I	1	PPEOJT-311S	Power Plant Safety, Systems and Electrical Equipment Familiarization	PPE-233 PPE-234		2	5	15	0	20
	2	PPEOJT-322S	Power Plant Preventive and Corrective Maintenance of Electrical Equipment	PPEOJT-311S		2	5	15	0	20
Total Number of Units						4	10	30	0	40

Total Number of Trimester Credit Units						CRH	L	P	T	CTH
						64	48	72	19	139

TOTAL NUMBER OF PROGRAM CLH	13 X 139 = 1807 CLOCK HOURS
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SUBSTATION ELECTRICAL MAINTENANCE-II (SSM-II)

YEAR ONE

	No.	Course Code	Course Name	Prerequisite	Equivalent	No. of Units				
						CRH	L	P	T	CTH
Trimester I	1	EL-122	English ESL/ESP-II			16	10	0	12	22
	2	Math-122	Technical Math-II			1	1	0	1	2
	3	SCI-122	Technical Science-II			1	1	0	1	2
	4	HSE-122	Technical Health and Safety- II			1	1	0	1	2
	5	BWP-111	Basic Workshop Practice			3	1	6	0	7
Total Number of Units						22	14	6	15	35

	No.	Course Code	Course Name	Prerequisite	Equivalent	No. of Units				
						CRH	L	P	T	CTH
Trimester II	1	RW-121	Report Writing-I	EL-122		3	2	0	2	4
	2	SSM-221	Electrical Switchgear Inspection, Maintenance and Operation	BWP-111		8	5	9	0	14
	3	SSM-222	Transformer Inspection, Maintenance and Operation	BWP-111		8	5	9	0	14
Total Number of Units						19	12	18	2	32

	No.	Course Code	Course Name	Prerequisite	Equivalent	No. of Units				
						CRH	L	P	T	CTH
Trimester III	1	RW-132	Report Writing-II	RW-121		3	2	0	2	4
	2	SSM-233	DC Systems and Lighting Inspection, Maintenance and Operation	SSM-221 SSM-222		8	5	9	0	14
	3	SSM-234	Substation Equipment Inspection and Maintenance	SSM-221 SSM-222		8	5	9	0	14
Total Number of Units						19	12	18	2	32

YEAR TWO

	No.	Course Code	Course Name	Prerequisite	Equivalent	No. of Units				
						CRH	L	P	T	CTH
Trimester I	1	SSMOJT-311S	Substation Safety, Equipment Identification and System Familiarization	SSM-233 SSM-234		2	5	15	0	20
	2	SSMOJT-322S	Substation Equipment Preventive and Corrective Maintenance	SSMOJT-311S		2	5	15	0	20
Total Number of Units						4	10	30	0	40

Total Number of Trimester Credit Units						CRH	L	P	T	CTH
						64	48	72	19	139

TOTAL NUMBER OF PROGRAM CLH		13 X 139 = 1807 CLOCK HOURS								
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ELECTRICAL NETWORK OPERATION-II (NWO-II)

YEAR ONE

	No.	Course Code	Course Name	Prerequisite	Equivalent	No. of Units				
						CRH	L	P	T	CTH
Trimester I	1	EL-122	English ESL/ESP-II			16	10	0	12	22
	2	Math-122	Technical Math-II			1	1	0	1	2
	3	SCI-122	Technical Science-II			1	1	0	1	2
	4	HSE-122	Technical Health and Safety- II			1	1	0	1	2
	5	BWP-111	Basic Workshop Practice			3	1	6	0	7
Total Number of Units						22	14	6	15	35

	No.	Course Code	Course Name	Prerequisite	Equivalent	No. of Units				
						CRH	L	P	T	CTH
Trimester II	1	RW-121	Report Writing-I	EL-122		3	2	0	2	4
	2	NWO-221	Electrical Switchgear Inspection, Maintenance and Operation	BWP-111		8	5	9	0	14
	3	NWO-222	Transformer Inspection, Maintenance and Operation	BWP-111		8	5	9	0	14
Total Number of Units						19	12	18	2	32

	No.	Course Code	Course Name	Prerequisite	Equivalent	No. of Units				
						CRH	L	P	T	CTH
Trimester III	1	RW-132	Report Writing-II	RW-121		3	2	0	2	4
	2	NWO-233	Testing and Inspection of Network Equipment	NWO-221 NWO-222		8	5	9	0	14
	3	NWO-234	Developing and Implementing Operation Plans	NWO-221 NWO-222		8	5	9	0	14
Total Number of Units						19	12	18	2	32

YEAR TWO

	No.	Course Code	Course Name	Prerequisite	Equivalent	No. of Units				
						CRH	L	P	T	CTH
Trimester I	1	NWOOJT-311S	Power Network Safety, Equipment and System Familiarization	NWO-233 NWO-234		2	5	15	0	20
	2	NWOOJT-322S	Emergency and Fault Actions by Power Network Operator	NWOOJT-311S		2	5	15	0	20
Total Number of Units						4	10	30	0	40

Total Number of Trimester Credit Units						CRH	L	P	T	CTH
						64	48	72	19	139

TOTAL NUMBER OF PROGRAM CLH		13 X 139 = 1807 CLOCK HOURS								
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ELECTRICAL DISTRIBUTION NETWORK MAINTENANCE-II (EDM-II)

YEAR ONE

	No.	Course Code	Course Name	Prerequisite	Equivalent	No. of Units				
						CRH	L	P	T	CTH
Trimester I	1	EL-122	English ESL/ESP-II			16	10	0	12	22
	2	Math-122	Technical Math-II			1	1	0	1	2
	3	SCI-122	Technical Science-II			1	1	0	1	2
	4	HSE-122	Technical Health and Safety- II			1	1	0	1	2
	5	BWP-111	Basic Workshop Practice			3	1	6	0	7
Total Number of Units						22	14	6	15	35

	No.	Course Code	Course Name	Prerequisite	Equivalent	No. of Units				
						CRH	L	P	T	CTH
Trimester II	1	RW-121	Report Writing-I	EL-122		3	2	0	2	4
	2	EDM-221	Electrical Switchgear Inspection, Maintenance and Operation	BWP-111		8	5	9	0	14
	3	EDM-222	Transformer Inspection, Maintenance and Operation	BWP-111		8	5	9	0	14
Total Number of Units						19	12	18	2	32

	No.	Course Code	Course Name	Prerequisite	Equivalent	No. of Units				
						CRH	L	P	T	CTH
Trimester III	1	RW-132	Report Writing-II	RW-121		3	2	0	2	4
	2	EDM-233	Testing and Inspection of Network Equipment	EDM-221 EDM-222		8	5	9	0	14
	3	EDM-234	Maintenance of Residential Network Equipment	EDM-221 EDM-222		8	5	9	0	14
Total Number of Units						19	12	18	2	32

YEAR TWO

	No.	Course Code	Course Name	Prerequisite	Equivalent	No. of Units				
						CRH	L	P	T	CTH
Trimester I	1	EDMOJT-311S	Distribution Network Safety, Equipment Identification and System Familiarization	EDM-233 EDM-234		2	5	15	0	20
	2	EDMOJT-322S	Distribution Network Equipment Preventive and Corrective Maintenance	EDMOJT-311S		2	5	15	0	20
Total Number of Units						4	10	30	0	40

Total Number of Trimester Credit Units						CRH	L	P	T	CTH
						64	48	72	19	139

TOTAL NUMBER OF PROGRAM CLH		13 X 139 = 1807 CLOCK HOURS								
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SMART GRID-II (SG-II)

YEAR ONE

	No.	Course Code	Course Name	Prerequisite	Equivalent	No. of Units				
						CRH	L	P	T	CTH
Trimester I	1	EL-122	English ESL/ESP-II			16	10	0	12	22
	2	Math-122	Technical Math-II			1	1	0	1	2
	3	SCI-122	Technical Science-II			1	1	0	1	2
	4	HSE-122	Technical Health and Safety- II			1	1	0	1	2
	5	SG-211	Introduction to Smart Grid			3	1	6	0	7
Total Number of Units						22	14	6	15	35

	No.	Course Code	Course Name	Prerequisite	Equivalent	No. of Units				
						CRH	L	P	T	CTH
Trimester II	1	RW-121	Report Writing-I	EL-122		3	2	0	2	4
	2	SG-212	Electric Grid Modernization (Smart Grid)	SG-211		8	5	9	0	14
	3	SG-223	Smart Grid Technology Components	SG-211 SG-212		8	5	9	0	14
Total Number of Units						19	12	18	2	32

	No.	Course Code	Course Name	Prerequisite	Equivalent	No. of Units				
						CRH	L	P	T	CTH
Trimester III	1	RW-132	Report Writing-II	RW-121		3	2	0	2	4
	2	SG-224	Implementation, Standards and Interoperability	SG-211 SG-212		8	5	9	0	14
	3	SG-235	Smart Grid Deployment	SG-223		3	2	3	0	5
	4	SG-236	Smart Grid Operation and Maintenance	SG-224		5	3	6	0	9
Total Number of Units						19	12	18	2	32

YEAR TWO

	No.	Course Code	Course Name	Prerequisite	Equivalent	No. of Units				
						CRH	L	P	T	CTH
Trimester I	1	SGOJT-311S	Operation Considerations for the Smart Grid-I	SG-235 SG-236		2	5	15	0	20
	2	SGOJT-322S	Operation Considerations for the Smart Grid-II	SGOJT-311S		2	5	15	0	20
Total Number of Units						4	10	30	0	40

Total Number of Trimester Credit Units						CRH	L	P	T	CTH
						64	48	72	19	139

TOTAL NUMBER OF PROGRAM CLH		13 X 139 = 1807 CLOCK HOURS								
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POWER SYSTEM PROTECTION AND CONTROL-II (PSP-II)

YEAR ONE

	No.	Course Code	Course Name	Prerequisite	Equivalent	No. of Units				
						CRH	L	P	T	CTH
Trimester I	1	EL-122	English ESL/ESP-II			16	10	0	12	22
	2	Math-122	Technical Math-II			1	1	0	1	2
	3	SCI-122	Technical Science-II			1	1	0	1	2
	4	HSE-122	Technical Health and Safety-II			1	1	0	1	2
	5	BWP-111	Basic Workshop Practice			3	1	6	0	7
Total Number of Units						22	14	6	15	35

	No.	Course Code	Course Name	Prerequisite	Equivalent	No. of Units				
						CRH	L	P	T	CTH
Trimester II	1	RW-121	Report Writing-I	EL-122		3	2	0	2	4
	2	PSPS-211	Introduction to Power System Protection	BWP-111		5	3	6	0	9
	3	PSPS-212	Switchgear, Circuit Breaker and DC Control System	BWP-111		6	4	6	0	10
	4	PSPS-223	Protection Relays: Connection, Setting and Testing	BWP-111		5	3	6	0	9
Total Number of Units						19	12	18	2	32

	No.	Course Code	Course Name	Prerequisite	Equivalent	No. of Units				
						CRH	L	P	T	CTH
Trimester III	1	RW-132	Report Writing-II	RW-121		3	2	0	2	4
	2	PSPS-224	Feeder, Transformer, Motor, Generator and Bus Protection Relays	PSPS-212		5	3	6	0	9
	3	PSPS-235	Specialized Relay Testing Techniques	PSPS-223		6	4	6	0	10
	4	PSPS-236	Main Control and Protection Function Groups	PSPS-223		5	3	6	0	9
Total Number of Units						19	12	18	2	32

YEAR TWO

	No.	Course Code	Course Name	Prerequisite	Equivalent	No. of Units				
						CRH	L	P	T	CTH
Trimester I	1	PSPOJT-311S	Plant Safety, Protective Relay Identification and System Familiarization	PSPS-235 PSPS-236		2	5	15	0	20
	2	PSPOJT-322S	Testing and Commissioning Techniques for Protection Relays	PSPOJT-311S		2	5	15	0	20
Total Number of Units						4	10	30	0	40

Total Number of Trimester Credit Units						CRH	L	P	T	CTH
						64	48	72	19	139

TOTAL NUMBER OF PROGRAM CLH	13 X 139 = 1807 CLOCK HOURS
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OVERHEAD LINE MAINTENANCE-II (OHL-II)

YEAR ONE

	No.	Course Code	Course Name	Prerequisite	Equivalent	No. of Units				
						CRH	L	P	T	CTH
Trimester I	1	EL-122	English ESL/ESP-II			16	10	0	12	22
	2	Math-122	Technical Math-II			1	1	0	1	2
	3	SCI-122	Technical Science-II			1	1	0	1	2
	4	HSE-122	Technical Health and Safety- II			1	1	0	1	2
	5	BWP-111	Basic Workshop Practice			3	1	6	0	7
Total Number of Units						22	14	6	15	35

	No.	Course Code	Course Name	Prerequisite	Equivalent	No. of Units				
						CRH	L	P	T	CTH
Trimester II	1	RW-121	Report Writing-I	EL-122		3	2	0	2	4
	2	OHL-221	Planning and Construction	BWP-111		8	5	9	0	14
	3	OHL-222	Specialized Tools	BWP-111		8	5	9	0	14
Total Number of Units						19	12	18	2	32

	No.	Course Code	Course Name	Prerequisite	Equivalent	No. of Units				
						CRH	L	P	T	CTH
Trimester III	1	RW-132	Report Writing-II	RW-121		3	2	0	2	4
	2	OHL-233	OHL Maintenance	OHL-221 OHL-222		8	5	9	0	14
	3	OHL-234	OHL Maintenance Activities on Distribution (or Transmission) Lines and Services	OHL-221 OHL-222		8	5	9	0	14
Total Number of Units						19	12	18	2	32

YEAR TWO

	No.	Course Code	Course Name	Prerequisite	Equivalent	No. of Units				
						CRH	L	P	T	CTH
Trimester I	1	OHLOJT-311S	Maintenance Activities on Distribution Systems	OHL-233 OHL-234		2	5	15	0	20
	2	OHLOJT-322S	Maintenance Activities on Transmission Structures	OHLOJT-311S		2	5	15	0	20
Total Number of Units						4	10	30	0	40

Total Number of Trimester Credit Units						CRH	L	P	T	CTH
						64	48	72	19	139

TOTAL NUMBER OF PROGRAM CLH	13 X 139 = 1807 CLOCK HOURS
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WELDING AND MACHINING-II (WMC-II)

YEAR ONE

	No.	Course Code	Course Name	Prerequisite	Equivalent	No. of Units				
						CRH	L	P	T	CTH
Trimester I	1	EL-122	English ESL/ESP-II			16	10	0	12	22
	2	Math-122	Technical Math-II			1	1	0	1	2
	3	SCI-122	Technical Science-II			1	1	0	1	2
	4	HSE-122	Technical Health and Safety- II			1	1	0	1	2
	5	BWP-111	Basic Workshop Practice			3	1	6	0	7
Total Number of Units						22	14	6	15	35

	No.	Course Code	Course Name	Prerequisite	Equivalent	No. of Units				
						CRH	L	P	T	CTH
Trimester II	1	RW-121	Report Writing-I	EL-122		3	2	0	2	4
	2	WMC-221	Fabrication and Welding I for the Power Industry	BWP-111		8	5	9	0	14
	3	WMC-222	Turning and Machining I for the Power Industry	BWP-111		8	5	9	0	14
Total Number of Units						19	12	18	2	32

	No.	Course Code	Course Name	Prerequisite	Equivalent	No. of Units				
						CRH	L	P	T	CTH
Trimester III	1	RW-132	Report Writing-II	RW-121		3	2	0	2	4
	2	WMC-233	Fabrication and Welding II for the Power Industry	WMC-221 WMC-222		8	5	9	0	14
	3	WMC-234	Turning and Machining II for the Power Industry	WMC-221 WMC-222		8	5	9	0	14
Total Number of Units						19	12	18	2	32

YEAR TWO

	No.	Course Code	Course Name	Prerequisite	Equivalent	No. of Units				
						CRH	L	P	T	CTH
Trimester I	1	WMCQJT-311S	Fabrication and Welding Activities in a Power Plant Environment	WMC-233 WMC-234		2	5	15	0	20
	2	WMCQJT-322S	Maintenance and Machining Activities in a Power Plant Environment	WMCQJT-311S		2	5	15	0	20
Total Number of Units						4	10	30	0	40

Total Number of Trimester Credit Units						CRH	L	P	T	CTH
						64	48	72	19	139

TOTAL NUMBER OF PROGRAM CLH	13 X 139 = 1807 CLOCK HOURS
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POWER SYSTEM DISPATCHING-II (PSD-II)

YEAR ONE

	No.	Course Code	Course Name	Prerequisite	Equivalent	No. of Units				
						CRH	L	P	T	CTH
Trimester I	1	EL-122	English ESL/ESP-II			16	10	0	12	22
	2	Math-122	Technical Math-II			1	1	0	1	2
	3	SCI-122	Technical Science-II			1	1	0	1	2
	4	HSE-122	Technical Health and Safety- II			1	1	0	1	2
	5	BWP-111	Basic Workshop Practice			3	1	6	0	7
Total Number of Units						22	14	6	15	35

	No.	Course Code	Course Name	Prerequisite	Equivalent	No. of Units				
						CRH	L	P	T	CTH
Trimester II	1	RW-121	Report Writing-I	EL-122		3	2	0	2	4
	2	PSD-221	Power Generation and Loading in a Power System	BWP-111		8	5	9	0	14
	3	PSD-222	Transformers, Switchgear and Protection in a Power System	BWP-111		8	5	9	0	14
Total Number of Units						19	12	18	2	32

	No.	Course Code	Course Name	Prerequisite	Equivalent	No. of Units				
						CRH	L	P	T	CTH
Trimester III	1	RW-132	Report Writing-II	RW-121		3	2	0	2	4
	2	PSD-233	Power System Dispatching Fundamentals	PSD-221 PSD-222		8	5	9	0	14
	3	PSD-234	Power Grid Operations and Restoration	PSD-221 PSD-222		8	5	9	0	14
Total Number of Units						19	12	18	2	32

YEAR TWO

	No.	Course Code	Course Name	Prerequisite	Equivalent	No. of Units				
						CRH	L	P	T	CTH
Trimester I	1	PSDOJT-311S	Power System Dispatching	PSD-233 PSD-234		2	5	15	0	20
	2	PSDOJT-322S	Power System Diagnosis and Restoration	PSDOJT-311S		2	5	15	0	20
Total Number of Units						4	10	30	0	40

Total Number of Trimester Credit Units						CRH	L	P	T	CTH
						64	48	72	19	139

TOTAL NUMBER OF PROGRAM CLH	13 X 139 = 1807 CLOCK HOURS
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AIR CONDITIONING AND REFRIGERATION-II (ACREF-II)

YEAR ONE

Trimester I	No.	Course Code	Course Name	Prerequisite	Equivalent	No. of Units				
						CRH	L	P	T	CTH
	1	EL-122	English ESL/ESP-II			16	10	0	12	22
	2	Math-122	Technical Math-II			1	1	0	1	2
	3	SCI-122	Technical Science-II			1	1	0	1	2
	4	HSE-122	Technical Health and Safety- II			1	1	0	1	2
	5	RAC-132	Refrigeration and HVAC Workshop			3	1	6	0	7
Total Number of Units						22	14	6	15	35

Trimester II	No.	Course Code	Course Name	Prerequisite	Equivalent	No. of Units				
						CRH	L	P	T	CTH
	1	RW-121	Report Writing-I	EL-122		3	2	0	2	4
	2	HVAC-211	Principles of HVAC	HSE-122		4	2	6	0	8
	3	REF-211	Principles of Refrigeration	HSE-122		5	3	6	0	9
	4	CONT-211	Principles of Control			6	3	6	2	11
Total Number of Units						18	10	18	4	32

Trimester III	No.	Course Code	Course Name	Prerequisite	Equivalent	No. of Units				
						CRH	L	P	T	CTH
	1	RW-132	Report Writing-II	RW-121		3	2	0	2	4
	2	RAC-232	Refrigeration and HVAC Systems and Equipment	REF-211		5	4	3	0	7
	3	HVAC-233	Central Air Conditioning	CONT-211		4	2	5	0	7
	4	CONT-222	Refrigeration and air conditioning Control Systems	REF-211 CONT-211		5	4	3	0	7
	5	RACM-233	Refrigeration and Air Conditioning Maintenance			3	1	6	0	7
Total Number of Units						20	13	17	2	32

YEAR TWO

Trimester I	No.	Course Code	Course Name	Prerequisite	Equivalent	No. of Units				
						CRH	L	P	T	CTH
	1	ACREFOJT-311	Maintenance of HVAC and Refrigeration Systems	HVAC-233 CONT-222 RACM-233		4	5	35	0	40
Total Number of Units						4	5	35	0	40

Total Number of Trimester Credit Units						CRH	L	P	T	CTH
						63	42	76	21	139

TOTAL NUMBER OF PROGRAM CLH	13 X 139 = 1807 CLOCK HOURS
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WELDING TECHNICIAN (WLDT)

YEAR ONE

Trimester I	No.	Course Code	Course Name	Prerequisite	Equivalent	No. of Units				
						CRH	L	P	T	CTH
	1	AVAET-211	Technical English-I			7	4	0	6	10
	2	G.Math-111	General Math-I			3	1	0	4	5
	3	G.HSE-111	Generic Health and Safety			3	1	0	4	5
	4	WVoc-111	Manual Metal Arc Welding Process (Theory & Practical I)			7	2	9	4	15
Total Number of Units						20	8	9	18	35

Trimester II	No.	Course Code	Course Name	Prerequisite	Equivalent	No. of Units				
						CRH	L	P	T	CTH
	1	AVAET-221	Technical English-II	AVAET-211		7	4	0	6	10
	2	WVoc-122	Manual Metal Arc Welding (MMA) Process (Theory & Practical II)	WVoc-111		5	1	9	2	12
	3	WVoc-123	MIG Welding Process			6	2	9	2	13
Total Number of Units						18	7	18	10	35

Trimester III	No.	Course Code	Course Name	Prerequisite	Equivalent	No. of Units				
						CRH	L	P	T	CTH
	1	WVoc-134	TIG Welding Process			8	3	12	2	17
	2	WVoc-135	Thermal Cutting Techniques			9	4	12	2	18
Total Number of Units						17	7	24	4	35

YEAR TWO

Trimester I	No.	Course Code	Course Name	Prerequisite	Equivalent	No. of Units				
						CRH	L	P	T	CTH
	1	WOJT-211	Welding - OJT	WVoc-134 WVoc-135		4	5	35	0	40
Total Number of Units						4	5	35	0	40

Total Number of Trimester Credit Units						CRH	L	P	T	CTH
						59	27	86	32	145

TOTAL NUMBER OF PROGRAM CLH	13 X 145 = 1885 CLOCK HOURS
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ELECTRICAL TECHNICIAN (ELCT)

YEAR ONE

Trimester I	No.	Course Code	Course Name	Prerequisite	Equivalent	No. of Units				
						CRH	L	P	T	CTH
	1	AVAET-211	Technical English I			7	4	0	6	10
	2	G.Math-111	General Math-I			3	1	0	4	5
	3	G.HSE-111	Generic Health and Safety			3	1	0	4	5
	4	EVoc-111	Basic Electricity, Measurements & Calculations (Theory)			4	2	3	2	7
	5	EVoc-112	Basic Electrical Engineering (Theory)			5	3	3	2	8
Total Number of Units						22	11	6	18	35

Trimester II	No.	Course Code	Course Name	Prerequisite	Equivalent	No. of Units				
						CRH	L	P	T	CTH
	1	AVAET-221	Technical English II	AVAET-211		7	4	0	6	10
	2	EVoc-123	Electrical Wiring and Termination (Theory and Practical)	EVoc-111 EVoc-112		6	2	9	2	13
	3	EVoc-124	Electrical Panels (Theory & Practical)	EVoc-111 EVoc-112		7	4	6	2	12
Total Number of Units						20	10	15	10	35

Trimester III	No.	Course Code	Course Name	Prerequisite	Equivalent	No. of Units				
						CRH	L	P	T	CTH
	1	EVoc-135	Basics of Electrical Engineering in Construction (Theory and Practical)	EVoc-123 EVoc-124		8	2	12	4	18
	2	EVoc-136	Electrical Control Systems (Theory & Practical)	EVoc-123 EVoc-124		7	2	15	0	17
Total Number of Units						15	4	27	4	35

YEAR TWO

Trimester I	No.	Course Code	Course Name	Prerequisite	Equivalent	No. of Units				
						CRH	L	P	T	CTH
	1	EOJT-211	Electrical practice	EVoc-135 EVoc-136		4	5	35	0	40
Total Number of Units						4	5	35	0	40

Total Number of Trimester Credit Units						CRH	L	P	T	CTH
						61	30	83	32	145

TOTAL NUMBER OF PROGRAM CLH	13 X 145 = 1885 CLOCK HOURS
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INSTRUMENTATION TECHNICIAN (INST)

YEAR ONE

	No.	Course Code	Course Name	Prerequisite	Equivalent	No. of Units				
						CRH	L	P	T	CTH
Trimester I	1	AVAET-211	Technical English-I			7	4	0	6	10
	2	G.Math-111	General Math-I			3	1	0	4	5
	3	G.HSE-111	Generic Health and Safety			3	1	0	4	5
	4	IVoc-111	Basic Electricity			7	2	9	4	15
Total Number of Units						20	8	9	18	35

	No.	Course Code	Course Name	Prerequisite	Equivalent	No. of Units				
						CRH	L	P	T	CTH
Trimester II	1	AVAET-221	Technical English-II	AVAET-211		7	4	0	6	10
	2	IVoc-122	Fundamentals of Instrumentation Parameters	IVoc-111		7	4	6	2	12
	3	IVoc-123	Analogue & Digital Electronics	IVoc-111		6	2	9	2	13
Total Number of Units						20	10	15	10	35

	No.	Course Code	Course Name	Prerequisite	Equivalent	No. of Units				
						CRH	L	P	T	CTH
Trimester III	1	IVoc-134	Control System Components and Wiring			7	2	9	4	15
	2	IVoc-135	Fault Diagnosis & Repair			9	3	15	2	20
Total Number of Units						16	5	24	6	35

YEAR TWO

	No.	Course Code	Course Name	Prerequisite	Equivalent	No. of Units				
						CRH	L	P	T	CTH
Trimester I	1	IOJT-211	Instrumentation - Preventive and Corrective Maintenance			4	5	35	0	40
Total Number of Units						4	5	35	0	40

Total Number of Trimester Credit Units						CRH	L	P	T	CTH
						60	28	83	34	145

TOTAL NUMBER OF PROGRAM CLH	13 X 145 = 1885 CLOCK HOURS
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PIPEFITTING TECHNICIAN (PPFT)

YEAR ONE

	No.	Course Code	Course Name	Prerequisite	Equivalent	No. of Units				
						CRH	L	P	T	CTH
Trimester I	1	AVAET-211	Technical English-I			7	4	0	6	10
	2	G.Math-111	General Math-I			3	1	0	4	5
	3	G.HSE-111	Generic Health and Safety			3	1	0	4	5
	4	PVoc-111	Basic Preparation, Fabrication and Joining of Pipework Assemblies (Theory and Practical)			4	2	3	2	7
	5	PVoc-112	Installation Preparation & Fabrication Of Pipework Assemblies (Theory and Practical)			5	3	3	2	8
Total Number of Units						22	11	6	18	35

	No.	Course Code	Course Name	Prerequisite	Equivalent	No. of Units				
						CRH	L	P	T	CTH
Trimester II	1	AVAET-221	Technical English-II	AVAET-211		7	4	0	6	10
	2	PVoc-123	Safe Working Practices & Methods of Work for Pipefitting Equipment (Theory and Practical)	PVoc-111 PVoc-112		5	2	6	2	10
	3	PVoc-124	Fabrication, Assembly & Installation of Pipework Systems (Theory and Practical)	PVoc-111 PVoc-112		7	3	12	0	15
Total Number of Units						19	9	18	8	35

	No.	Course Code	Course Name	Prerequisite	Equivalent	No. of Units				
						CRH	L	P	T	CTH
Trimester III	1	PVoc-135	Layouts, Interpretation of Information and Dismantling of Pipework Systems (Theory and Practical)	PVoc-123 PVoc-124		7	2	9	4	15
	2	PVoc-136	Inspection, Testing & Examination & Pipework Systems (Theory and Practical)	PVoc-123 PVoc-124		9	3	15	2	20
Total Number of Units						16	5	24	6	35

YEAR TWO

	No.	Course Code	Course Name	Prerequisite	Equivalent	No. of Units				
						CRH	L	P	T	CTH
Trimester I	1	POJT-211	Pipefitting-OJT	PVoc-135 PVoc-136		4	5	35	0	40
Total Number of Units						4	5	35	0	40

Total Number of Trimester Credit Units						CRH	L	P	T	CTH
						61	30	83	32	145

TOTAL NUMBER OF PROGRAM CLH	13 X 145 = 1885 CLOCK HOURS
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FOREMAN-II (FRMN-II)

YEAR ONE

	No.	Course Code	Course Name	Prerequisite	Equivalent	No. of Units				
						CRH	L	P	T	CTH
Trimester I	1	AVAET-211	Technical English-I			7	4	0	6	10
	2	G.Math-111	General Math-I			3	1	0	4	5
	3	G.HSE-111	Generic Health and Safety			3	1	0	4	5
	4	FVoc-111	Read and Interpret Plans and Specifications			4	2	3	2	7
	5	FVoc-112	Follow Occupational Health and Safety Policies and Procedures			5	3	3	2	8
Total Number of Units						22	11	6	18	35

	No.	Course Code	Course Name	Prerequisite	Equivalent	No. of Units				
						CRH	L	P	T	CTH
Trimester II	1	AVAET-221	Technical English-II	AVAET-211		7	4	0	6	10
	2	FVoc-123	Plan, Organize Work and Record Keeping	FVoc-111		6	3	9	0	12
	3	FVoc-124	Conduct Workplace Communication	FVoc-112		6	2	9	2	13
Total Number of Units						19	9	18	8	35

	No.	Course Code	Course Name	Prerequisite	Equivalent	No. of Units				
						CRH	L	P	T	CTH
Trimester III	1	FVoc-135	Lead the Work Team	FVoc-123 FVoc-124		9	3	15	2	20
	2	COMP-131	Computer Skills			7	2	9	4	15
Total Number of Units						16	5	24	6	35

YEAR TWO

	No.	Course Code	Course Name	Prerequisite	Equivalent	No. of Units				
						CRH	L	P	T	CTH
Trimester I	1	FOJT-211	Foreman-II OJT	PVoc-135 COMP-131		4	5	35	0	40
	Total Number of Units					4	5	35	0	40

Total Number of Trimester Credit Units						CRH	L	P	T	CTH
						61	30	83	32	145

TOTAL NUMBER OF PROGRAM CLH	13 X 145 = 1885 CLOCK HOURS
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REBAR FIXING TECHNICIAN (RBFT)

YEAR ONE

	No.	Course Code	Course Name	Prerequisite	Equivalent	No. of Units				
						CRH	L	P	T	CTH
Trimester I	1	AVAET-211	Technical English-I			7	4	0	6	10
	2	G.Math-111	General Math-I			3	1	0	4	5
	3	G.HSE-111	Generic Health and Safety			3	1	0	4	5
	4	RVoc-111	Forming Metal Structures Inside a Concrete Shape			5	1	6	4	11
	5	Comp-111	Basic Computer skills			3	2	0	2	4
Total Number of Units						21	9	6	20	35

	No.	Course Code	Course Name	Prerequisite	Equivalent	No. of Units				
						CRH	L	P	T	CTH
Trimester II	1	AVAET-221	Technical English-II	AVAET-211		7	4	0	6	10
	2	RVoc-122	Formwork and Reporting (Theory & Practical)			5	2	6	2	10
	3	CAD-121	AutoCAD-I			8	4	9	2	15
Total Number of Units						20	10	15	10	35

	No.	Course Code	Course Name	Prerequisite	Equivalent	No. of Units				
						CRH	L	P	T	CTH
Trimester III	1	RVoc-133	Mixing and Using Concrete			9	3	15	2	20
	2	CAD-132	AutoCAD-II	CAD-121		8	4	9	2	15
Total Number of Units						17	7	24	4	35

YEAR TWO

	No.	Course Code	Course Name	Prerequisite	Equivalent	No. of Units				
						CRH	L	P	T	CTH
Trimester I	1	ROJT-211	Rebar Fixing Practice	RVoc-133 CAD-132		4	5	35	0	40
	Total Number of Units					4	5	35	0	40

Total Number of Trimester Credit Units						CRH	L	P	T	CTH
						62	31	80	34	145

TOTAL NUMBER OF PROGRAM CLH	13 X 145 = 1885 CLOCK HOURS
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SCAFFOLDING TECHNICIAN (SCFT)

YEAR ONE

	No.	Course Code	Course Name	Prerequisite	Equivalent	No. of Units				
						CRH	L	P	T	CTH
Trimester I	1	AVAET-211	Technical English-I			7	4	0	6	10
	2	G.Math-111	General Math-I			3	1	0	4	5
	3	G.HSE-111	Generic Health and Safety			3	1	0	4	5
	4	SVoc-111	Introduction to Scaffolding and the Basic Preparations			7	2	9	4	15
Total Number of Units						20	8	9	18	35

	No.	Course Code	Course Name	Prerequisite	Equivalent	No. of Units				
						CRH	L	P	T	CTH
Trimester II	1	AVAET-221	Technical English-II	AVAET-211		7	4	0	6	10
	2	SVoc-122	System Scaffolding: Parts, Erection, Inspection and Dismantling	SVoc-111		13	6	15	4	25
Total Number of Units						20	10	15	10	35

	No.	Course Code	Course Name	Prerequisite	Equivalent	No. of Units				
						CRH	L	P	T	CTH
Trimester III	1	SVoc-133	Tube & Coupler Scaffolding: Parts, Erection, Inspection and Dismantling	SVoc-122		15	4	27	4	35
Total Number of Units						15	4	27	4	35

YEAR TWO

	No.	Course Code	Course Name	Prerequisite	Equivalent	No. of Units				
						CRH	L	P	T	CTH
Trimester I	1	SOJT-211	Scaffolding Practice	SVoc-133		4	5	35	0	40
Total Number of Units						4	5	35	0	40

Total Number of Trimester Credit Units						CRH	L	P	T	CTH
						59	27	86	32	145

TOTAL NUMBER OF PROGRAM CLH	13 X 145 = 1885 CLOCK HOURS
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CARPENTRY TECHNICIAN (CRPT)

YEAR ONE

	No.	Course Code	Course Name	Prerequisite	Equivalent	No. of Units				
						CRH	L	P	T	CTH
Trimester I	1	AVAET-211	Technical English-I			7	4	0	6	10
	2	G.Math-111	General Math-I			3	1	0	4	5
	3	G.HSE-111	Generic Health and Safety			3	1	0	4	5
	4	CVoc-111	Plans and Specifications			4	2	3	2	7
	5	CVoc-112	Carpentry Tools, Equipment & Materials			4	2	6	0	8
Total Number of Units						21	10	9	16	35

	No.	Course Code	Course Name	Prerequisite	Equivalent	No. of Units				
						CRH	L	P	T	CTH
Trimester II	1	AVAET-221	Technical English-II	AVAET-211		7	4	0	6	10
	2	CVoc-123	Carpentry Measurements and Calculations	CVoc-112		5	1	9	2	12
	3	CVoc-124	Roof Trusses Formwork	CVoc-111		6	2	9	2	13
Total Number of Units						18	7	18	10	35

	No.	Course Code	Course Name	Prerequisite	Equivalent	No. of Units				
						CRH	L	P	T	CTH
Trimester III	1	CVoc-135	Levelling Procedures	CVoc-124		8	3	12	2	17
	2	CVoc-136	Construction Projects	CVoc-123		9	4	12	2	18
Total Number of Units						17	7	24	4	35

YEAR TWO

	No.	Course Code	Course Name	Prerequisite	Equivalent	No. of Units				
						CRH	L	P	T	CTH
Trimester I	1	COJT-211	Carpentry Practice	CVoc-135 CVoc-136		4	5	35	0	40
Total Number of Units						4	5	35	0	40

Total Number of Trimester Credit Units						CRH	L	P	T	CTH
						60	29	86	30	145

TOTAL NUMBER OF PROGRAM CLH	13 X 145 = 1885 CLOCK HOURS
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ELECTRICAL AND INSTRUMENTATION MAINTENANCE -ARAMCO

	No.	Course Code	Course Name	Prerequisite	Equivalent	No. of Units				
						CRH	L	P	T	CTH
Trimester I	1	EIM-111	Low and High Voltage Jointing/Terminating			3	1	6	0	7
	2	EIM-112	Commissioning & Maintenance PSP and SSM			7	3	9	1	13
	3	EIM-113	Electrical Maintenance			3	1	6	0	7
	4	EIM-114	Instrumentation and Control Systems			7	3	9	1	13
Total Number of Units						20	8	30	2	40

TOTAL NUMBER OF PROGRAM CLH	13 X 40 = 520 CLOCK HOURS
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POWER PLANT OPERATION -ARAMCO

	No.	Course Code	Course Name	Prerequisite	Equivalent	No. of Units				
						CRH	L	P	T	CTH
Trimester I	1	PPO-111	Core Fundamentals			2	1	3	0	4
	2	PPO-112	Operation Fundamentals of Steam Power Plants			7	4	6	2	12
	3	PPO-113	Operation Fundamentals of Gas Power Plants			6	3	6	2	11
	4	PPO-114	Electrical Generation and Control			6	2	9	2	13
Total Number of Units						21	10	24	6	40

TOTAL NUMBER OF PROGRAM CLH	13 X 40 = 520 CLOCK HOURS
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ELECTRICAL METERING INSPECTION II (EMI-II)

	No.	Course Code	Course Name	Prerequisite	Equivalent	No. of Units				
						CRH	L	P	T	CTH
Trimester I	1	RW-121	Report Writing-I			3	2	0	2	4
	2	EMI-121	Energy and Tariff Meter-I			8	4	6	4	14
	3	EMI-122	Energy and Tariff Meter-II			8	4	6	4	14
Total Number of Units						19	10	12	10	32

TOTAL NUMBER OF PROGRAM CLH	13 X 32 = 416 CLOCK HOURS
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BUSINESS ENGLISH-I AND -II

YEAR ONE

Trimester I	No.	Course Code	Course Name	Prerequisite	Equivalent	No. of Units				
						CRH	L	P	T	CTH
	1	AVEL-111	English-I			15	10	0	10	20
	2	AVBUS-111	Introduction to Business English			2	2	0	0	2
	3	AVEL-112	Building English Fluency – CALL-I			4	2	0	4	6
Total Number of Units						21	14	0	14	28

Trimester II	No.	Course Code	Course Name	Prerequisite	Equivalent	No. of Units				
						CRH	L	P	T	CTH
	1	AVEL-121	English-II	AVEL-111		15	10	0	10	20
	2	AVEL-122	Building English Fluency - CALL-II	AVEL-112		3	2	0	2	4
	3	AVSS-121	English Study Skills			2	1	0	1	2
	4	AVBUS-121	Building Business Vocabulary	AVBUS-111		2	1	0	1	2
Total Number of Units						22	14	0	14	28

Trimester III	No.	Course Code	Course Name	Prerequisite	Equivalent	No. of Units				
						CRH	L	P	T	CTH
	1	AVEL-131	English-III	AVEL-121		15	10	0	10	20
	2	AVEL-132	Listening and Speaking Skills	AVEL-122		2	2	0	0	2
	3	AVWP-131	Word Processing-I			2	1	0	1	2
	4	AVPP-131	Power Point Skills			2	1	0	1	2
	5	AVEL-133	Reading & Writing Skills			1	0	0	2	2
Total Number of Units						22	14	0	14	28

YEAR TWO

Trimester I	No.	Course Code	Course Name	Prerequisite	Equivalent	No. of Units				
						CRH	L	P	T	CTH
	1	AVBUS-211	Business English-I			7	4	0	6	10
	2	AVEL-212	English Communication-I			7	4	0	6	10
	2	AVBUS-212	Business Meetings			3	2	0	2	4
	4	AVBUS-213	Business Correspondence-I			3	2	0	2	4
Total Number of Units						20	12	0	16	28

Trimester II	No.	Course Code	Course Name	Prerequisite	Equivalent	No. of Units				
						CRH	L	P	T	CTH
	1	AVBUS-221	Business English-II	AVBUS-211		7	4	0	6	10
	2	AVEL-221	English Communication-II	AVEL-212		7	4	0	6	10
	3	AVBUS-222	Telephoning & Video Conferencing	AVBUS-212		2	1	0	1	2
	4	AVBUS-223	Business Correspondence-II	AVBUS-213		2	1	0	1	2
	5	AVEP-221	Exam Preparation- BEC-I			3	2	0	2	4
Total Number of Units						21	12	0	16	28

Trimester III	No.	Course Code	Course Name	Prerequisite	Equivalent	No. of Units				
						CRH	L	P	T	CTH
	1	AVBUS-231	Business Report Writing	AVEL-221		7	4	0	6	10
	2	AVPR-221	Presentations-I			3	2	0	2	4
	3	AVEP-231	Exam Preparation – BEC II	AVEP-221		7	4	0	6	10
	4	AVBUS-232	Data and its Representation			3	2	0	2	4
Total Number of Units						20	12	0	16	28

APPLIED ENGLISH LANGUAGE FOR TECHNICAL FIELDS-I AND -II

YEAR ONE

Trimester I	No.	Course Code	Course Name	Prerequisite	Equivalent	No. of Units				
						CRH	L	P	T	CTH
	1	AVEL-111	English-I			15	10	0	10	20
	2	HSE-111	Technical Health and Safety-I			2	2	0	0	2
	3	AVEL-112	Building English Fluency – CALL-I			4	2	0	4	6
Total Number of Units						21	14	0	14	28

Trimester II	No.	Course Code	Course Name	Prerequisite	Equivalent	No. of Units				
						CRH	L	P	T	CTH
	1	AVEL-121	English-II	AVEL-111		15	10	0	10	20
	2	AVEL-122	Building English Fluency – CALL-II			3	2	0	2	4
	3	HSE-122	Technical Health and Safety-II	HSE-111		2	2	0	0	2
	4	AVSS-122	English Study Skills	AVEL-112		2	2	0	0	2
Total Number of Units						22	16	0	12	28

Trimester III	No.	Course Code	Course Name	Prerequisite	Equivalent	No. of Units				
						CRH	L	P	T	CTH
	1	AVEL-131	English-III	AVEL-121		15	10	0	10	20
	2	AVAET-131	Building a Target Technical Vocabulary	AVEL-122		2	2	0	0	2
	3	AVEL-132	Listening and Speaking Skills			2	1	0	1	2
	4	AVEL-133	Reading and Writing Skills			2	1	0	1	2
	5	HSE-133	Technical Health and Safety III			1	0	0	2	2
Total Number of Units						22	14	0	14	28

YEAR TWO

Trimester I	No.	Course Code	Course Name	Prerequisite	Equivalent	No. of Units				
						CRH	L	P	T	CTH
	1	AVAET-211	Technical English-I			7	4	0	6	10
	2	AVAET-212	English Communication-I			7	4	0	6	10
	3	AVMP-121	Mini Projects-I			3	2	0	2	4
	4	AVAET-214	Applied Technical Vocabulary			3	2	0	2	4
Total Number of Units						20	12	0	16	28

BUSINESS ENGLISH-I AND -II (CONTINUED)

YEAR THREE

Trimester I	No.	Course Code	Course Name	Prerequisite	Equivalent	No. of Units				
						CRH	L	P	T	CTH
	1	AVL-311	Foundations of Leadership			9	6	0	6	12
	2	AVPR-231	Presentations-II	AVPR-221		4	2	0	4	6
	3	AVEP-311	Exam Preparation – BEC-III	AVEP-231		7	4	0	6	10
Total Number of Units						20	12	0	16	28

Trimester II	No.	Course Code	Course Name	Prerequisite	Equivalent	No. of Units				
						CRH	L	P	T	CTH
	1	AVBEL-321	Business Portfolio			9	6	0	6	12
	2	AVL-321	Leading People and Teams	AVL-311		4	2	0	4	6
	3	AVEP-321	Exam Preparation – BEC-IV	AVEP-311		7	4	0	6	10
Total Number of Units						20	12	0	16	28

Total Number of Trimester Credit Units						CRH	L	P	T	CTH
						165	102	0	122	224

TOTAL NUMBER OF PROGRAM CLH	13 X 224 = 2912 CLOCK HOURS
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YEAR TWO (Continued)

Trimester II	No.	Course Code	Course Name	Prerequisite	Equivalent	No. of Units				
						CRH	L	P	T	CTH
	1	AVAET-221	Technical English-II	AVBUS-211		7	4	0	6	10
	2	AVWP-131	Word Processing-I	AVEL-212		2	1	0	1	2
	3	AVMP-221	Mini Projects-II	AVBUS-121		4	2	0	4	6
	4	AVEP-221	Exam Preparation- PET-I	AVBUS-213		7	4	0	6	10
Total Number of Units						20	11	0	17	28

Trimester III	No.	Course Code	Course Name	Prerequisite	Equivalent	No. of Units				
						CRH	L	P	T	CTH
	1	AVAET-231	Technical Report Writing	AVEL-221		7	4	0	6	10
	2	AVAET-222	Technical Communication-II			4	2	0	4	6
	3	GCSP-131	Generic Core			3	1	6	0	7
	4	AVEP-231	Exam Preparation- PET-II	AVEP-221		6	4	0	4	8
Total Number of Units						18	10	6	14	30

Total Number of Trimester Credit Unit						CRH	L	P	T	CTH
						124	77	6	87	170

TOTAL NUMBER OF PROGRAM CLH	13 X 170 = 2210 CLOCK HOURS
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GENERAL ENGLISH-I AND -II

YEAR ONE

Trimester I	No.	Course Code	Course Name	Prerequisite	Equivalent	No. of Units				
						CRH	L	P	T	CTH
	1	AVEL-111	English I			15	10	0	10	20
	2	AVSS-121	English Study Skills			4	2	0	3	5
	3	AVEL-112	Building English Fluency – CALL I			4	2	0	3	5
Total Number of Units						23	14	0	16	30

Trimester II	No.	Course Code	Course Name	Prerequisite	Equivalent	No. of Units				
						CRH	L	P	T	CTH
	1	AVEL-121	English II	AVEL-111		15	10	0	10	20
	2	AVEL-122	Building English Fluency – CALL II	AVEL-112		4	2	0	3	5
	3	AVMP-121	Mini Projects I			4	2	0	3	5
Total Number of Units						23	14	0	16	30

Trimester III	No.	Course Code	Course Name	Prerequisite	Equivalent	No. of Units				
						CRH	L	P	T	CTH
	1	AVEL-131	English-III	AVEL-121		15	10	0	10	20
	2	AVAEG-131	Building a Target Vocabulary	AVEL-122		2	2	0	0	2
	3	AVEL-132	Listening and Speaking Skills			2	1	0	2	3
	4	AVEL-133	Reading and Writing Skills			2	1	0	2	3
	5	AVPP-131	Power Point Skills			1	0	0	2	2
Total Number of Units						22	14	0	16	30

YEAR TWO

Trimester I	No.	Course Code	Course Name	Prerequisite	Equivalent	No. of Units				
						CRH	L	P	T	CTH
	1	AVEL-211	English-IV	AVEL-131		15	10	0	10	20
	2	AVEL-212	English Communication-I			4	2	0	3	5
	2	AVEL-213	English Usage-I			2	1	0	2	3
	4	AVWP-131	Word Processing-I			1	0	0	2	2
Total Number of Units						22	13	0	17	30

Trimester II	No.	Course Code	Course Name	Prerequisite	Equivalent	No. of Units				
						CRH	L	P	T	CTH
	1	AVEL-221	English-V	AVBUS-211		10	5	0	10	15
	2	AVEL-222	English Usage-II	AVEL-212		2	1	0	2	3
	3	AVPR-221	Presentations-I			1	0	0	2	2
	4	AVEP-221	Exam Preparation- PET-I	AVBUS-213		7	4	0	6	10
Total Number of Units						20	10	0	20	30

Trimester III	No.	Course Code	Course Name	Prerequisite	Equivalent	No. of Units				
						CRH	L	P	T	CTH
	1	AVEL-231	English-VI	AVEL-221		10	5	0	10	15
	2	AVEL-232	English Communication-II			4	2	0	3	5
	3	AVPR-231	Presentations-II			4	2	0	3	5
	4	AVEP-231	Exam Preparation- PET-II	AVEP-221		4	2	0	3	5
Total Number of Units						22	11	0	19	30

Total Number of Trimester Credit Units						CRH	L	P	T	CTH
						132	76	0	104	180

TOTAL NUMBER OF PROGRAM CLH	13 X 180 = 2340 CLOCK HOURS
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SESP STAFF

JUAYMAH

SESP Main Office and Administration

Managing Director:	Dr. Khalid Al Somaili
Executive Secretary:	Mr. Aliasgar Pangsayan
Academic Audit and Accreditation Manager:	Mr. Laurie Hopper
Human Resources Manager:	Mr. Mustafa Al Asharawi
HR and Recruitment:	Mr. Bader Al Dossary
Personnel and Payroll:	Mr. Luay Al Mosajen
Public and Gov. Relations:	Mr. Bader Al Khalfan
Finance Manager:	Mr. Ali Al Ali
Accounts:	Mr Ali Al Tahifah Syed Naveed
IT and Educational Technology Manager:	(vacant)
IT Specialist:	Mr. Mousa Al Bharna, Mr. Murtadha Al Tarouti
Educational Technology:	Mr. Barry Lawrence
Inventory and Materials Control:	Mr. Abdulaziz Al Mrbati
Networking:	Nasser AlNasser
Trainee Services:	Mr. Nawwaf Aljohem, Mr. Yousef Al Helal Mr. Ahmed Al Qassab,
Library:	Mr. Khalid Al-Saif
Training Counselling:	Mr. Chris Cox
Logistics:	Mr. Abdulaziz Al Mrbati

Academic Leader:	Dr. Rahim Jassim
Curriculum and Assessment:	Dr. Rhyme Setshedi
Corporate Training & OJT:	Engr. Margani Abdulkader
Testing and Measuring:	Mr. Scott Poteet

Training Center

STC - Technical Training:	Mr. Nassem Alyousef
STC - English and Technical Bridging:	Mr. Quentin Hering
Inventory and Materials Control:	Mr. Abdulaziz Al Mrbati
IT Specialist:	Mr. Mousa Al Bharna
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BAISH

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Training Affairs and Registration:	Mr. Sameer Juraiby Mr. Alhussein Kawaji
Public and Gov. Relations:	Mr. Hani Al Adawi
First Aid and Nursing:	Mr. Jabreel Abdullah
Inventory and Materials Control:	Mr. Salman Al-Shabi

Training Center

Training Manager:	Dr. Rahim Jassim
HOD - Technical Training:	Mr. Pieter Erasmus
STC - English and Technical Bridging:	Mr. Giancarlo Aspasini
STC - SQA and Curriculum Development	Mr. Jan Buys

English and Technical Bridging Staff:	Mr. Bernard Wallace Mr. Tristan Turner
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Technical Staff:	Dr. Salman Hylayle Mr. Johan van Dyk Mr. Dustin Wilken Mr. Danie Swarts Mr. Albertus Jacobs Mr. Pieter Pieterse Mr. Allan Montile Mr. Leonard David Mr. Raji Khan, Mr. Ian Therion Mr. Leonard Blignaut Mr. Donovan Lewis Mr. Sarel Klaassen Mr. Johann Von Below, Mr. Benjamin Louw Mr. Johannes Badenhorst
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Baish Community College

HOD English:	Mr. Jeffrey Gibbons
Quality Auditor:	Mr. Laurie Hopper
English and Technical Bridging Staff:	Mr. Chris Fitzpatrick, Mr. Richard Jones Mr. Ian Patterson, Mr. Daniel Gibby

RIYADH

Administration

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Training Affairs and Registration:	Mr. Mohammed Djama,
Public and Gov. Relations:	Mr. Saeed Al Azzam
Inventory and Materials Control:	Mr. Hani Al Harbi
First Aid and Nursing:	Mr. Jesus Apostle

Training Center

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STC - Technical Training:	Mr. Adrei Velthuizen
STC - English and Technical Bridging:	Dr. Rhyme Setshedi
English and Technical Bridging Staff:	Dr. James Seasholtz Mr. Vindok Singh, Mr. Anwar Petersen Mr. David Grant
Technical Staff:	Mr. Karam Baloch Mr. Wilhelm Vermeulen Mr. Albertus Fourie, Mr. David Power Mr. Willem Van Loggerenberg Mr. Mohammad Abbasi Mr. Tienie Van Rensburg, Mr. Dawid Jansen Mr. Ben Van Venter Mr. Zachary Fredel, Mr. Llewellyn Potgieter

BOARD OF TRUSTEES

Saudi Electric Services Polytechnic (SESP) is a non-profit organization and partnership between Saudi Electricity Company and Technical and Vocational Training Corporation (TVTC).

SESP is governed by a Board of Trustees. Current members of the Board are:

NAME	SESP BOARD POSITION	PERMANENT POSITION/ EMPLOYMENT	YEARS ON BOARD
Engr. Laith Al Bassam	Chairman	CEO – National Grid - SEC	1 year
Dr. Mohammed Al Oa'ed	Vice Chairman	Vice Contract Chairman College of Excellence	3 months
Engr. Khalid Al Tuaimi	Member	Generation Executive Director	3 years
Engr. Nasser Al Shareef	Member	SOA Executive Director SEC	1 year
Mr. Abdulrahman Al Obaied	Member	HR Senior Vice President SEC	3 years
Dr. Khaled Al Somaili	Secretary	Managing Director, SESP	3 years



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CANCELLATION AND REFUND POLICY FOR SESP SHORT AVOCATIONAL COURSES

This policy shall apply to the cancellation of all courses within the course type identified below:
Short avocational courses offered by SESP to companies with employed trainees

Purpose

The purpose of this policy is to provide a safeguard for both SESP and potential company clients regarding the cancellation of short programs/ courses on the part of the company client or of SESP, thereby seeking to promote good will through the use of explicitly stated fair and equitable cancellation and refund practices:

The Policy

SESP recognizes the following three circumstances that may lead to the refund of monies paid by company sponsors in regard to their employees and services contracted through SESP.

1. Should a company sponsor amend the number of employees (leading to the cancellation of an enrollment place) that are listed to start a program or course prior to commencement, and communicate the amendment at that time to SESP (prior to the start of the course/ program), any fees paid in advance up to that point will be refunded in their entirety to the sponsor company.
2. Should no communication be received from a company sponsor before the commencement date in relation to the company's wish to withdraw an employee or employees from a contracted short avocational course offered by SESP, any fees paid prior to the start of the course/ program by the sponsor will be forfeited to the amount of 50% of the amount received.
3. Should a program or course be cancelled by SESP, any fees paid prior to the cancellation date will be refunded to the sponsor company.





PROSPECTUS

2018 - 2019