



Saudi Electric Services Polytechnic PROSPECTUS 2026

المؤسسة العامة للتدريب التقني والمهني
Technical and Vocational Training Corporation



YOUR FUTURE CAREER STARTS HERE

SAUDI ELECTRIC SERVICES POLYTECHNIC

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VISION

To be the national leader in technical training for the energy and construction sectors; to anchor standards locally and amplify them regionally and globally; and to lead sustainability and digital transformation with a deeply rooted culture of safety and quality.



MISSION

We empower Saudi young men and women to lead the future of energy and construction through inspiring training, high-caliber hands-on learning, and close industry partnerships; and we build global bridges to transfer expertise and knowledge, catalyzing Saudi innovation that sets the benchmark.

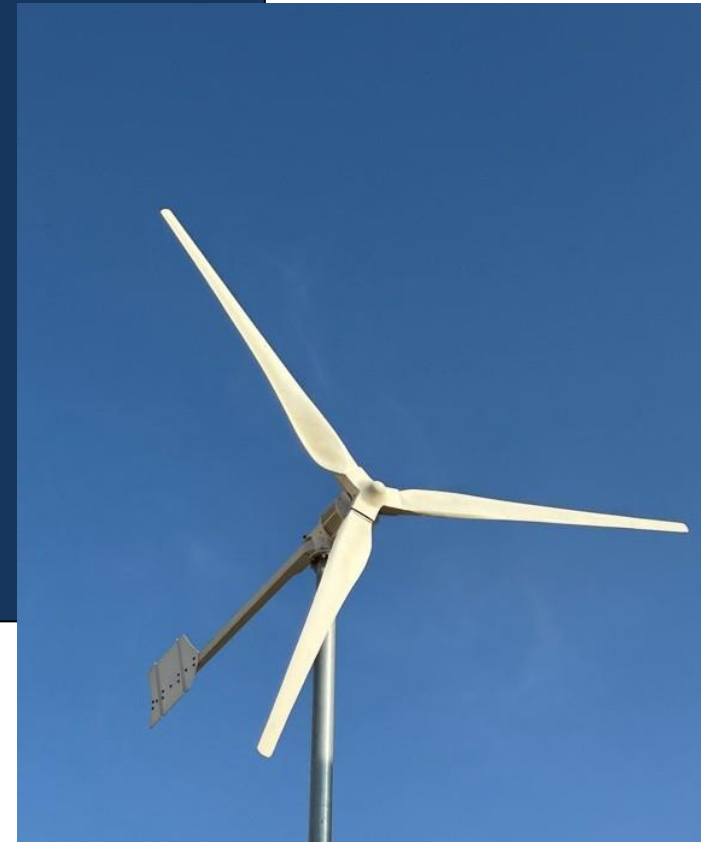
INSTITUTIONAL AIMS

- To provide opportunities for people to achieve their personal potential and goals.
- To be active in achieving the Human Resource requirements of the energy sector.
- To contribute to the use of new technologies and further national economic diversification.
- To contribute to the wellbeing of KSA society.
- To be a leader in the energy sector's training, teaching and learning.
- To help newly established institutes in developing their programs to meet market demands.
- To develop short programs for engineers and technologists related to work readiness.

SESP VALUES

SAFETY AND SECURITY

At SESP, safety always comes first. We provide a secure and safe environment across our institution, always insisting on the highest standards of safety. The importance of safe working practices cannot be underestimated in the electricity supply and construction industries. The same applies to the field of renewables and hydrogen technology. We instill a profound awareness of this in all our trainees.



SESP VALUES

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.

SESP VALUES

SUSTAINABILITY

We strive to foster a trusting and transparent educational environment in 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 our clients, We are dedicated to adding value to our partners by the use of unparalleled educational 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 Electric Company and the Technical and Vocational Training Corporation. Please find a current list of members of the Board of Trustees on page 204. SESP is charged with the training and development of young Saudi trainees for careers in the energy sector, including the construction trades and renewables.

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 centered around the "student hub." Classrooms are all equipped with high-end audiovisual equipment and boards and located as an integrated feature of the labs and workshops or in the purpose-built main building

NEW HORIZONS

Since its inception, SESP has focused its services on the power utility industry and will continue to do so. However, following a 2024 review of our vision and mission statements, we have updated them to reflect a broader focus on the energy sector as a whole. At the same time, we remain committed to the associated construction trades. These adjustments enable SESP to pivot towards renewables while also addressing the need for flexible training programs, particularly in the renewable energy sector.

Since 2020, SESP has aimed to offer a focused yet robust portfolio of training programs aligned with Saudi Arabia's Vision 2030. Our goal has always been to produce work-ready graduates who can contribute to the country's evolving industrial landscape and the strategic objectives set out by the Saudi Arabian government.

The programs we offer are designed to address the Kingdom's future industrial needs. As a result, we now provide both practical courses and comprehensive programs that train technicians in key disciplines. To ensure the continued relevance and quality of our offerings, SESP has actively sought collaborative partnerships with industry leaders and training providers.

One key development SESP is particularly proud of is our increased focus on the enrolment of both male and female trainees. As part of our commitment to gender inclusivity, we are working to expand resources and opportunities, enabling both young men and women in Saudi Arabia to pursue

careers in the industrial sector.

As we approach 2030, we are also strengthening our program delivery in high-growth sectors. Our focus is on equipping graduates for emerging industries with high impact, and we are partnering with organizations that share this vision.

Additionally, SESP is leveraging its extensive experience in vocational training to offer bespoke project management services to third-party training institutions. By providing turnkey solutions, we are not only meeting diverse training needs but also expanding our role as a service provider in the management of training centers. These opportunities are expected to continue well into the next decade.

LABORATORIES & 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

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

Recent needs are catered for with purpose-built safety yards, renewables labs and carpentry yards at all our centers. This allows maximization of facility resources to address interest in short, flexible program structures.

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.

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 Nulle 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.

RENEWABLE ENERGY TECHNOLOGY WORKSHOP (RIYADH)

The Renewable Energy workshop cover most of the practical content of the syllabus related to the Renewable Energy program courses that describes: the electrical equipment and machines, basic concepts of the characteristics of solar energy and the wind turbine, how to measure energy generated in both technologies, and the factors that affect the amount of energy generated. In addition to defining the solar cell made of silicon and its method of operation.

Trainees also calculate the conversion efficiency, the method of assembling solar cells, and identify the influence of the external environment on voltage and current.

This workshop also introduces the trainees to the applications of photovoltaic systems in both scenarios either stand alone or grid tied using all required equipment such as different type of inverter, charge controller, dump load.... etc.

Additionally, the trainees will be exposed to how the electrical energy is generated from wind by identifying wind speeds and how the mechanical energy is obtained from wind turbines. The trainees will also be exposed to the types and design of wind turbines, in addition to identifying the components of the wind energy system and how to generate electrical energy

ADMISSIONS



SESP is a post- secondary avocational 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.

SESP does not discriminate on the basis of sex, race, ethnic origin or religion.

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 sponsoring 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.

COMPANY TRAINEES SESP works with the sponsor companies to take students through a screening process that identifies those potential applicants who are deemed capable of successfully completing the training and only these trainees will be offered employment and a place in the training program.

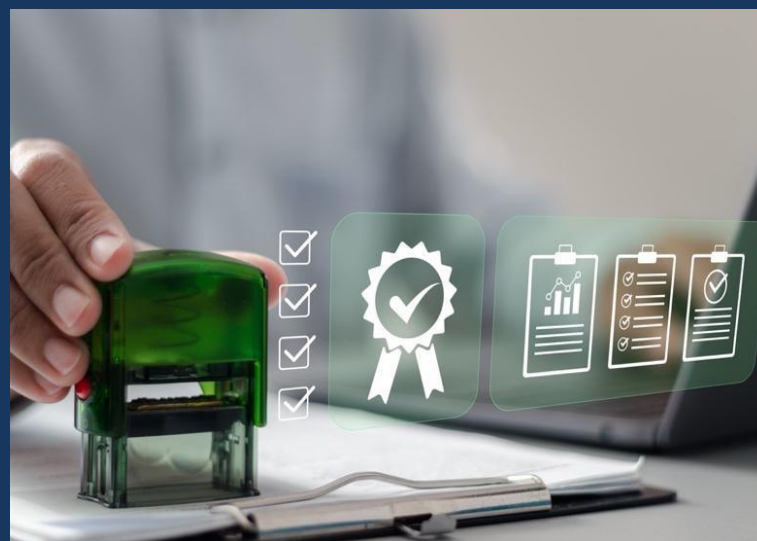
- ATB (Ability to Benefit) is not applicable to company placed trainees at SESP (no financial aid is available from either the company sponsor or SESP) and no ATB test is administered.

SESP admission requirements for non-SEC trainees include:

1. Inclusion in the sponsor company list of candidates for 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 an 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.

ACADEMIC PROGRESSION THROUGH THE PROGRAM



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 an Associate diploma program is 1690 clock hours (including OJT). This may vary according to the study plan (see study plans).

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. An appeals process is in place for trainees. Please see the corresponding section 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 has 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.

Official Transcript Notations

A	Exceptional/Excellent	CO	Carried Over
B	Superior/ Very Good	IC	Incomplete
C	Good, Above Average	EX	Exemption
TC	Transfer of Credit	W	Withdrawal
NC	Not Competent	WF	Withdrawn
CC	Continuing Course	F	Fail

Trainees with a Passing Grade: Trainees with a passing grade (A, B, C, TC, CC, or CO) will automatically progress 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;
- 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 Academic 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

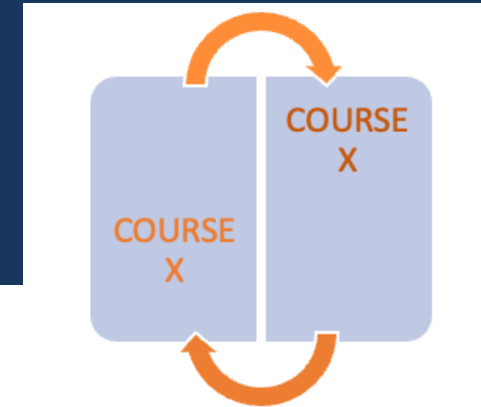
A trainee must complete all Trimester One to Trimester Three courses successfully to progress to Trimester Four:

On appeal to the Academic Committee one course may be carried over provided its skills and knowledge 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 4 to On- the- Job Training

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

TRANSFER OF CREDIT



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 that complies with 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 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/ she 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/ her 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 applicant must have obtained a GPA of over 2.0 out of 4 for such a course credit (transcript with evidence of course credit), with the syllabus of the course/ program outline also to be considered (evidence of comparability of program).
- b. Institutional catalog (evidence of meeting recognized industrial training standards)

*Please note: SESP has no legal articulation/ agreement with any entity in KSA regarding the

transfer of trainees into its programs. The training manager considers the accredited status of the original entity and compares the syllabi of all courses studied to those of the program and then decides the courses for exemption. Transfer credit evaluation by SESP is implemented on a fair basis. Trainees may appeal a first credit decision by providing new documents that may lead to the overturn of the decision made. The decision by SESP regarding the credit transfer 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 outline[s] 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 at Riyadh and Juaymah, and selected programs are 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. After an objective professional evaluation of our centers and programs, ACCET granted SESP accreditation in April, 2018, with subsequent re-accreditation in ongoing years, the latest being 2024. 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.



Other international accrediting bodies such as **City and Guilds** have been involved in SESP's processes for curriculum design and development.

Centre Accreditation was granted by City & Guilds, recognizing the resources and infrastructure in place, together with the expertise to deliver its programs, following City & Guilds' guidelines for delivering and assessing qualifications.

Benefits: Accredited centers receive access to City & Guilds' qualification resources, assessment tools, and support. They can also issue internationally recognized City & Guilds certificates to students who complete their courses.



SESP has also been granted institutional accreditation by national accreditation agencies such as Masar.

Key Features of Masar Accreditation are:

1. **Quality Assurance:** Masar focuses on ensuring that educational programs, faculty, facilities, and administrative processes meet international quality standards, enhancing the credibility of higher education institutions.

2. **Continuous Improvement:** The accreditation encourages institutions to engage in a continuous cycle of self-assessment, improvement, and periodic evaluation. This fosters a culture of accountability and continuous academic enhancement.
3. **Global Recognition:** The goal of the Masar system is to make Saudi higher education more competitive globally. Institutions with Masar accreditation demonstrate that they meet high standards, making their graduates more competitive in the international job market.
4. **Comprehensive Evaluation:** The process evaluates multiple aspects of an institution, including governance, teaching and learning, research, student services, and community engagement.
5. **Alignment with National Goals:** The accreditation system is aligned with Saudi Arabia's Vision 2030, which emphasizes the importance of enhancing the quality of education, boosting the skills of Saudi youth, and fostering a knowledge-based economy.
6. **Levels of Accreditation:** There are various levels of accreditation under the Masar system, such as institutional accreditation and program-specific accreditation. Institutions must undergo periodic evaluations to maintain their accredited status. SESP was first accredited by MASAR in 2018.



SESP is also partnered by NOCN an international endorsement agency that works with SESP, endorsing the quality of its programs.

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Technical and Vocational Training Corporation



The curricular design of our programs is also guaranteed by Colleges of Excellence, the national regulator of training institutions in Saudi Arabia. SESP works tirelessly with Colleges of Excellence, launched by the Saudi Ministry of Education in partnership with the Saudi Arabian General Authority for Technical Education and Vocational Training (TVTC) to ensure our programs meet the stringent standards of the Saudi National Standards Framework, and so ensure the quality and consistency of qualifications and competencies that we offer our trainees.

SESP also gauges its program design against Colleges of Excellence criteria when working as a training provider for other institutions, working with the latter to ensure that the polytechnic faculty are provided with consistent benchmarks regarding third party study plans, outcome mapping and assessment models.

GRADUATE CREDENTIALS



Minimum Graduation Requirements

- All graduates must obtain a minimum GPA of 2.
- Satisfy minimum attendance requirements (30 counted absences per trimester).

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

- Associate Diploma in Operation and Maintenance Engineering – ADOME
- Associate Diploma in Operation and Maintenance Management – ADOMM
- Associate Diploma in Health, Safety and Environment – ADHSE

- Diploma in Operation and Maintenance Engineering – DOME
- Diploma in Operation and Maintenance Management – DOMM
- Diploma in Health, Safety and Environment – DHSE

SN	CURRENT SESP PROGRAMS		Certificate /Program Length/Contact Hours (Including OJT)			
			DOME		ADOME	
1	Power Plant Operation	PPO	24 month	3120	12 month	1560
2	Power Plant Mechanical Maintenance	PPM	24 month	3120	12 month	1560
3	Power Plant Electrical Maintenance	PPE	24 month	3120	12 month	1560
4	Instrumentation and Control	INC	24 month	3120	-	-
5	Substation Electrical Maintenance	SSM	24 month	3120	12 month	1560
6	Electrical Network Operation	NWO	24 month	3120	12 month	1560
7	Power System Protection and Control	PSP	24 month	3120	12 month	1560
8	Electric Power Cables	EPC	24 month	3120	12 month	1560
9	Overhead Line Maintenance	OHL	24 month	3120	12 month	1560
10	Electrical Distribution Network Maintenance	EDM	24 month	3120	12 month	1560
11	Welding and Machining	WMC	24 month	3120	12 month	1560
12	Power System Dispatching	PSD	24 month	3120	12 month	1560
13	Air Conditioning and Refrigeration	ACREF	24 month	2640	12 month	1560
14	Non Destructive Testing	NDT	24 month	2640	-	-
15	Renewable Energy Technology	RET	24 month	3120	12 month	1560
16	Solar Energy	SE	24 month	3120	12 month	1560
17	Smart Grid	SG	24 month	3120	12 month	1560
18	Facility Maintenance	FM	24 month	2640	12 month	1260
19	System Control and Data Acquisition Systems	SCADA	-	-	12 month	1560
20	Electrical Metering Inspection	EMI	-	-	12 month	1560

21	Electrical Technology	ELCT	-	-	12 month	1560
22	Pipefitting Technology	PPFT	-	-	12 month	1560
23	Instrumentation Technology	INST	-	-	12 month	1560
24	Welding Technology	WLDT	-	-	12 month	1560
25	Scaffolding	SCFT	-	-	12 month	1560
26	Rebar fixing	RBFT	-	-	12 month	1560
27	Shuttering Carpentry	CRPT	-	-	12 month	1560
28	Mechanical Maintenance	MCM	-	-	12 month	1260
29	Elevator Installation and Maintenance	EIM	-	-	12 month	1260
30	Hydrogen Energy Technology	HYDT	-	-	12 month	1260
			DOMM		ADOMM	
31	Foreman	FRMN	24 month	2640	12 month	1560
			DHSE		ADHSE	
32	Health Safety and Environment	HSE	24 month	3120	12 month	1560

Orientation Course (SC) (6 months)

- Electric Power Cables
- Electrical Technology
- Foreman
- Health, Safety and Environment Officer
- Instrumentation and Control
- Pipefitting Technology
- Power system Protection and Control
- Renewable energy technology
- Solar Energy Technology
- Welding Technology

Three- month Programs

- Electrical Metering Inspection
- Accommodation Supervisor

One- month Programs

- LV Distribution NWO and Maintenance
- Safety Specialist
- Android Mobile Application Development (Flutter)
- Data Science and Artificial Intelligence
- Game Development and Modeling

SESP also provides upskilling opportunities via “practice and test” scenarios for a number of trades in order for skill badges to be earned.

Delivery of SESP programs is based on a trimester clock hour system, with three trimesters per year, each trimester comprising 12 weeks, five days a week.

SESP represents its training in both credit hours (CRH) and in Clock Hours/ contact hours (CLH/CTH). The above table reflects contact hours. SESP defines a clock/contact hour as a 60 min span of time, with no less than 50 minutes of class instruction. Trainees will be given a break as per educational practice.

Total clock hours refer to all hours of instruction representing the length of the full time program, including lecture, lab, and externship/ internship where part of the program

Conversions from clock hours to credit hours are made, which all comply with accreditation and endorsement bodies’ study requirements for Trimester credit-hour programs

For detailed study plans for all SESP Programs, please contact:
Academic Support Department
email: r_jassim@sesp.edu.sa

GRADUATE EMPLOYMENT

SESP states that the graduating trainee's rights to placement in employment rest with the sponsoring company and in accordance with the agreement/ contract between the sponsoring company and the trainee. SESP does not guarantee the employment of the trainee at any third- Party sponsoring company/ entity.

COURSE STRUCTURE



TRIMESTER One of the program focuses on English language acquisition, Technical Bridging subjects and specialized courses from the chosen program

[Example – Trimester Associate Diploma Program]

- English Language (Technical)
- 2 specialized courses from the main syllabus of the diploma program
- Applied Math
- Report Writing I
- Workshop Practice

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

Our TRIMESTER Two focuses on the workshop environment with trainees carrying out real-world practical activities, together with Report Writing II, Health and Safety in the chosen discipline, and two specialized courses. Trimester Three is dedicated to specialized courses of the chosen discipline. In Trimester Four, trainees are exposed to on-the-job training (OJT) relevant to their technical programs at the assigned company facilities, supervised by visiting on-the-job training (OJT) instructors

Other formats are used for the different program lengths where agreed with the hiring company.

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 25-30 hours of taught study per week for Year One and Year Two courses. On the Job Training consists of 40 hours per week.

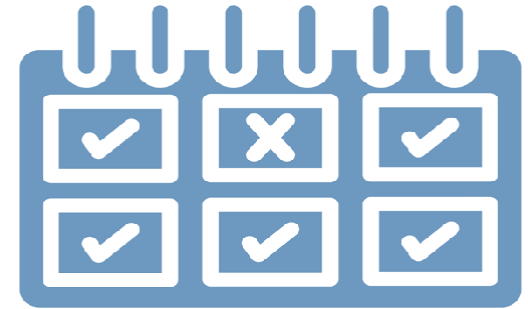
Associate Diploma programs consist of 25-30 hours of taught study per week for Year One courses. On the Job Training consists of 40 hours per week. Please consult the study plans for individual program hours per week and total hours per program. Trainees are advised that there is an expected minimum of 10 hours of after-class study per week

MAXIMUM NUMBER OF TRAINEES

Theory classes have a maximum of 20 trainees per class.

Workshop/ Laboratory classes have a maximum of 12 trainees per class.

TRAINEE ATTENDANCE



ATTENDANCE REQUIREMENTS

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

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
- 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	AM
+30 absences		Dismissal	ATC	MD	SPONSOR

Abbreviations

Trainee Affairs Counsellor	TAC	Attendance Committee	ATC
Managing Director	MD	Academic Manager	AM

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.

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.

A trainee's progress through his SESP program is constantly monitored and evaluated.

Formative Assessment: is the evaluation of a trainee's progress to date identifying strength and weaknesses for trainee improvement. Formative evaluation takes place during the process. Usually this is an ongoing process designed to motivate both instructor and the trainees. It informs the trainees of their progress and the instructor of his success.



Summative assessment: is an ongoing process for the trainees. SESP uses a continuous assessment model where every practical activity is linked to the learning outcomes of the qualification. Exam 1 and Exam 2 are aligned with the knowledge required for the learning outcomes. Therefore, not only is the system more accurate but fairer, many assessments go to make up the decision of a trainee's competence.

Summative evaluation helps instructors in making adjustments and improvements in curricula where needed. However, summative evaluation reflects the efficiency of teaching only at the end and not during the process of teaching. The assessment is carried out only after the instruction and hence any curriculum or methodological improvements can be implemented only in the future.

All results are moderated by the Exam Committee and all final results are presented to the Polytechnic Academic Committee for ratification.

GRADING

The grading system used for trainee achievement in the major courses is illustrated in the table below:

GPA & Grading Scale			
Exceptional	4	A+	95-100
Excellent	3,75	A	90-94
Superior	3,5	B+	85-89
Very Good	3	B	80-84
Good	2,5	C+	75-79
Above Average	2	C	70-74
Average	1,5	D+	65-69
	0	F	60-64

The grading system details such cases as withdrawals, repetition/carryover of courses. The passing mark that indicates a GPA score of 2 is 70%

Prerequisites Compliance

All pre-requisite courses should be satisfied and met by trainees during the registration process for the following trimester. In rare circumstances when a trainee requires an exemption of a prerequisite, he has to obtain permission from the Training Manager. Such a trainee has to complete a Prerequisite Exemption Form (SESP-02-09-01) and get recommendation from his Training Affairs Counsellor and approval from the Head of Department.

Contact Hours and Credit Hour Calculation

Contact Hour

A clock hour is defined as a 60-minute span of time, with no less than 50 minutes of actual class instruction. Trainees must be given breaks which represent sound educational practices. No more than 1.0 contact hour can be assigned to any discrete 60-minute period.

Total Contact Hours

All hours of instruction representing the length of the full program which include lecture, laboratory, workshops and On the Job Training.

Credit Hour

Conversions from contact hours to credit hours are only permitted for programs of study that meet at least ten weeks for quarter credit-hour programs, at least thirteen weeks for trimester credit-hour programs and at least fifteen weeks for semester credit-hour programs.

SESP is using a trimester system to deliver all its programs and the contact-to-credit hour conversions for lecture, laboratory, workshops and On- the Job-Training are as follows:

Lecture Hours:

Instructional hours consisting of theory or new principles.

Lecture Credit Hours:

Trimester Credits – Must teach a minimum of 13 lecture hours to award 1 trimester credit hour.

Tutorial Hours:

Instructional hours consisting of calculation or problem solving of theory or new principles.

Tutorial Credit Hours:

Trimester Credits – Must teach a minimum of 26 tutorial hours to award 1 trimester credit hour.

Laboratory/Workshop Hours:

Instructional hours consisting of supervised trainees practice of a previously introduced theory/principle during which practical skills and knowledge are developed and reinforced.

Laboratory/Workshop Credit Hours:

Trimester Credits - Must teach a minimum of 39 laboratory hours to award 1 trimester credit.

On-the-Job Training Hours: Instructional hours consisting of supervised work experience activities related to skills, knowledge and attitude acquired during the On-the-Job Training program.

On the Job Training Credit Hours: Trimester Credits - Must teach a minimum of 520 OJT hours to award 4 trimester credits.

Ranks of academic excellence

GPA	GRADE
4.00	EXCEPTIONAL
3.75-3.99	EXCELLENT
3.50-3.74	SUPERIOR
3.00-3.49	VERY GOOD
2.50-2.99	GOOD
2.00-2.49	ABOVE AVERAGE

Graduate Transcript

Transcripts of most recent graduates from SESP will be stamped by TVTC and provided for the sponsor company. The transcript shows the names, credit hours and awarded grades of all courses taken by the trainee in each trimester. The trimester GPA and the cumulative GPA (CGPA) are also provided.

GPA Calculation: Trimester 1:

Course	Total	Grade	Credit Hours		Grade Points		Quality Points
EL-111	79	C+	22	×	2.50	=	55.00
A. Math-111	95	A+	2	×	4.00	=	8.00
SCI-111	70	C	2	×	2.00	=	4.00
HSE-111	78	C+	2	×	2.50	=	5.00
Draw-111	88	B+	2	×	3.50	=	7.00
Total Credit Hours			30		Total Quality Points		79.00
Trimester 1 GPA =			Total Quality Points		=	79.0	=
			Total Credit Hours			30	
							2.63

GPA Calculation: Trimester 2:

Course	Total	Grade	Credit Hours		Grade Points		Quality Points	
EL-122	76	C+	22	×	2.50	=	55.00	
Math-122	73	C	2	×	2.00	=	4.00	
SCI-122	66	D+	2	×	1.50	=	3.00	
HSE-122	80	B	2	×	3.00	=	6.00	
Draw-122	93	A	2	×	3.75	=	7.50	
Total Credit Hours			30		Total Quality Points		75.50	
Trimester 2 GPA =			Total Quality Points		=	75.5	=	2.52
			Total Credit Hours			30		

Cumulative GPA Calculation:

CGPA =	T1 Total Quality Points +T2 Total Quality Points	79.0+75.50	=	2.57
	T1 Total Credit Hours + T2 Total Credit Hours	30 + 30		

Graduation Requirements

To graduate from SESP, the trainee must fulfil the following graduation requirements:

- Successful completion of graduation requirements as per the study plan.
- Achieve an overall cumulative GPA of not less than 2 (C-Above Average).
- Obtain a GPA of not less than 2.00 (Competent) in the practical field of specialization.
- Successfully complete all the course requirements in accordance with his specialization program.

Job Placement

On graduation, subsequent job placement 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.

ENGLISH AND TECHNICAL BRIDGING ASSESSMENT PROCEDURES

All SESP assessment components of year 1 that shown in Table 1.1 provide accurate 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 70%; Workshop Practice is 70%.

SESP Course Assessment Criteria

Course Category	Assessment Components	Assessed by			Weighting %
		Faculty	Peer/Self	Industry	
English Math Science Health and Safety	Assignments	✓			10
	Quizzes	✓			30
	Exam 1	✓			25
	Exam 2	✓			25
	Work Ethic	✓			10
	Total				100

Course Category	Assessment Components	Assessed by			Weighting %
		Faculty	Peer/Self	Industry	
Technical Drawing	Assignments	✓			10
	Drawing Assessment 1	✓			20
	Drawing Assessment 2	✓			30
	Drawing Assessment 3	✓			30
	Work Ethic	✓			10
	Total				100

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. Instructors can then adjust their lessons accordingly.

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 Program Manager 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 within three weeks of the announcement of the assessment results if he has failed but the maximum score he can receive is 70%.

Work Ethic (*English and Technical Bridging*)

Trainees are awarded Work Ethic points in the English and TB classes. Their scores are aligned with the criteria in the Trainee Disciplinary Report [TDR] (SESP-02-03-01). English and TB 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, ...)
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.

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 70% and Theory is 70%.

SESP Technical Course Assessment Criteria

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

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.

Practical

The purpose of the 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 re-do the practical at any point thereafter (up to a period of 2 weeks) until he is considered competent but the maximum score he can receive is 70%.

Theory Exam

The 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 about a trainee's achievement of competency. The results help inform and support additional evidence as to whether the trainee has achieved mastery of the learning outcomes to continue into the next course.

The trainee is entitled to re-sit the exam if he has failed; however, the maximum score he can receive is 70%

Work Ethic - Technical courses

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, 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 or he uses his cell phone in class
5. Uncooperative
6. Having a phone in class
7. Incomplete coursework

Note: A trainee will earn 0 points for the day if he is absent for any class period. 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



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 70%.

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. However, the maximum score he can receive is 70%

EXTENUATING CIRCUMSTANCES

In such circumstances (i.e., serious illness, accident/ serious family problems, a trainee misses a scheduled assessment), these factors may be taken into consideration in granting a resit. SESP will honour extended leave of absence as approved and made known by the sponsoring company.

EXAM COMMITTEE - Training Supervisors, Head of Department

(HOD) and Assessment Developer.

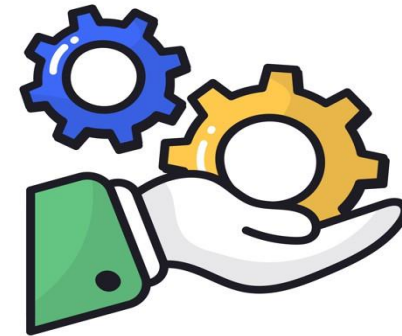
- Exam Committee is responsible for creating a schedule for the exam dates and times and creating the exam and answer key.
- Exam Committee reviews all exam infractions and discrepancies.
- SESP Management approves the results.
- SESP will send the results to the sponsor.
- Trainees who fail an exam will retake that exam based on approval of the Managing Director.

- Trainees who fail the re-sit 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

STUDENT SERVICES



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 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.
- Subsidized 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 textbooks, 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)

- TDRs = Verbal Warning
- TDRs = Written Warning
- TDRs = Final Written Warning + Probation
- TDRs = Dismissal (Disciplinary Committee)

DISCIPLINARY PROCESS

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

Type of violation	1st	2nd	3rd	4th
Fighting, threatening behavior, bullying or harming others	FW	Dismiss		
Stealing, using the instructor's computer without permission	Dismiss			

Type of Violation	1st	2nd	3rd	4th
Misusing SESP’s materials and property	Dismiss			
Damaging school property or property of others	Dismiss			
Taking books without permission	FW	Dismiss		
Failure to comply with instructions: i.e., haircut, uniform, or safety	W W	FW	Dismiss	
Smoking on SESP campus	FW	Dismiss		
Not wearing ID badges and/or PPE	V W	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
- Review of results
- Suspension

APPEALS PROCESS

All decisions are final

Appeals must be logged in writing

Appeals must be handed to Trainee Affairs

Appeals must be made within 2 weeks of event

COMPLAINTS PROCESS - ACCET

If you are not happy with the appeal result or have another kind of complaint, please remember that ACCET is one of SESP's accrediting agencies and may be contacted by the trainee or former trainee to seek conflict resolution. Note that ACCET will process complaints that involve ACCET standards and policies and, therefore, are within the scope of the accrediting agency. If the trainee or former trainee wishes to proceed the contact address is:

ACCET CHAIR, COMPLAINT REVIEW COMMITTEE

1722 N Street, NW

Washington DC 20036

Telephone: (202) 955-1113 Email: complaints@accet.org Website: www.accet.org

Should help be required in terms of what the content must include, please contact the trainee affairs registrar or consult the *Notice to Students: ACCET Complaints Procedure*.

APPENDIX 1

Appendix 1: Induction Week
<p>Prepping for Opening Day</p> <ul style="list-style-type: none">• Induction Timetable• Opening Day Ceremony• Classroom Location• SESP Instruction + Regulations + Academic Calendar• Distribution: Safety Shoes + Uniforms
<p>Forms</p> <ul style="list-style-type: none">• Insurance Form• ID Form• Signature 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	SEATING		PHOTO ID, LOBBY 1. 11:20-11:50 2. 11:50 – 12:20		
MONDAY	IN HUB		UNIFORM ³⁺⁴ SAFETY/TOUR		

APPENDIX 2 SAMPLE TIMETABLE

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

MATH = M. HEALTH AND SAFETY= H SCIENCE= S QUIZ OR EXAM= Q 1 Mr. Thomas Smith Room No. 1210

ASSOCIATE DIPLOMA PROGRAMS

– ADOME

Associate Diploma in Operation and Maintenance Engineering
(12 months)

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.

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 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 craftsman, 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.

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.

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.

The expected SSM 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.
- 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 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

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.

The expected NWO 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.
- 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 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

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

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 locations and the nature of faults to supervisors for subsequent repair.

The expected EPC 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 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.

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

The expected OHL 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 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 plays a critical role in ensuring safe and reliable power delivery. The technician conducts commissioning tests and functional checks on protection, control, and distribution equipment, verifying compliance with operational standards. Skilled in testing, calibration, and troubleshooting, he adapts to modern systems that increasingly rely on digital monitoring and smart-grid technologies. Proficiency in reading manuals and diagnostic data enables accurate fault identification and timely intervention. The technician also performs essential LV cable joining and termination tasks, supporting network expansion and upgrades. As utilities shift toward predictive maintenance and automated substations, the technician's expertise becomes even more vital. Through these responsibilities, he contributes directly to the efficiency, resilience, and modernization of today's electrical distribution networks.

The expected EDM 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 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.

WELDING AND MACHINING (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.

The expected WMC program outcomes 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 measurement procedures; use the correct procedures to take accurate measurements.
- Identify the basic tools 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 (PSD II) plays a central role in maintaining the stability and efficiency of modern power systems. As a direct power plant operator, the dispatcher coordinates complex electrical switching operations that support safe and continuous energy flow. The role involves investigating system disturbances, isolating outages, and identifying damaged equipment using real-time grid data and advanced monitoring tools. A PSD ensures the safety of field crews by authorizing switching, issuing clearances, and maintaining strict adherence to operational procedures. Accurate and timely dispatch records are essential, especially as utilities adopt digital logging and automated grid management systems. The position demands readiness to respond to emergencies, with dispatchers subject to 24-hour callouts during critical events. In today's increasingly dynamic and interconnected grids, the PSD's expertise is vital for maintaining reliability, minimizing downtime, and supporting effective system restoration.

The expected EDM 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 (HVAC) 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.

The expected ACREF II program outcomes 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.

- 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 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.

RENEWABLE ENERGY TECHNOLOGY II (RET II)

DESCRIPTION

This program prepares **Renewable Energy Technicians** for careers in the wind and solar sectors, beginning with a general introduction that enables trainees to explain the core principles of hydro and biomass energy. The wind energy component builds skills in turbine construction, safety awareness, working at heights, confined-space operations, cable work, and understanding turbine systems and maintenance procedures. All wind modules follow **Global Wind Organization (GWO)** standards, and trainees earn **nine certificates**: four safety certificates—**Working at Heights, First Aid, Manual Handling, and Fire Awareness**—and five technical certificates—**Hydraulic, Mechanical, Bolt Tightening, Electrical, and Installation**. The solar portion develops competence in **solar PV system design, installation, inspection, and maintenance**, ensuring graduates are fully equipped for diverse roles in the renewable energy industry.

The expected RET 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 efficiently 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 benefit 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 environmental impact and safety of each source of renewable energy.
- Explain economic issues around renewable energy sources.
- Evaluate, compare, and select energy systems based on economic and environmental considerations.
- Apply the fundamentals of solar system installation, operation, and inspection
- Apply the fundamentals of wind turbine 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

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.

SMART GRID-SG-II

DESCRIPTION

The Smart Grid program prepares technicians to work with modern, automated electrical networks by developing essential knowledge of grid architecture, transmission and distribution systems, and substation operation. Trainees gain practical experience with Smart Grid technologies such as SCADA, IEC-61850 communication, smart meters, automation systems, and energy storage. The curriculum integrates cybersecurity, system protection, real-time monitoring, and remote control techniques to ensure safe and reliable operation of digital power systems. Through hands-on training in installation, configuration, diagnostics, and field procedures, learners develop the technical judgment and safety awareness required for utility, industrial, and customer-side Smart Grid environments. The program ultimately equips graduates to support grid modernization and advanced energy management initiatives..

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

- Communicate professionally and work effectively in multidisciplinary utility and industrial teams.
- Explain Smart Grid concepts and architecture, including modern transmission, distribution, and substation operations.

- Identify and describe Smart Grid technologies, such as SCADA, IEC-61850, smart meters, automation, and energy storage.
- Apply communication protocols (SCADA, IEC-61850, TCP/IP) to support monitoring, data exchange, and remote operation.
- Install, configure, and maintain Smart Grid equipment and field-level communication interfaces.
- Monitor, control, and troubleshoot Smart Grid systems using diagnostic tools and real-time data.
- Explain the integration of renewable energy and its impact on grid stability, protection, and operation.
- Identify Smart Grid applications in smart homes and smart cities, including demand response and energy management.
- Apply cybersecurity and protection principles to secure Smart Grid networks and assets.
- Follow safety standards and operational procedures when working with Smart Grid systems, equipment, and digital platforms.

SYSTEM CONTROL AND DATA ACQUISITION SYSTEMS (SCADA)

DESCRIPTION

System Control and Data Acquisition Systems (SCADA) technicians perform installation and configuration of device driver and troubleshoot network connectivity. They also identify SCADA auxiliary equipment, power source and interface and understand the relation between SCADA and Smart Grid, performing loopback tests, IP address settings, ping device from remote location and explain the function of SCADA communication software and hardware.

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 mathematics, applied science, and number systems (binary, hexadecimal, octal) to perform technical calculations, problem-solving, and digital system operations.
- Communicate effectively and collaborate within multi-disciplinary industrial teams, including diverse technical and non-technical personnel.
- Explain key electronic and communication principles, including amplifiers, modulation/demodulation, microwave, satellite, and radio communication.
- Install, configure, and troubleshoot computer hardware and software, including device drivers, application software, and basic system performance monitoring.

- Connect and configure computer input/output devices, network equipment, and perform fundamental hardware/software diagnostics.
- Demonstrate networking fundamentals, including LAN/WAN differences, PSTN vs. TCP/IP networks, network topologies, and major communication protocols.
- Explain and apply OSI and TCP/IP models, configure IP addressing, subnetting, gateways, and perform basic connectivity tests such as ping and loopback.
- Demonstrate data link layer concepts, including error detection, correction, and flow control techniques used in modern communication systems.
- Install, configure, and operate SCADA systems, including field-level equipment, auxiliary devices, communication hardware/software, OPC servers, and Smart Grid integration.
- Calibrate and test SCADA-related components, such as voltage/current signals, power supplies, I/O modules, and perform remote diagnostics and data collection.

ELECTRICAL METERING INSPECTION (EMI)

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.

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

- Apply mathematics and applied science principles to perform technical calculations, solve operational problems, and analyze electrical circuits using voltage, current, power, and resistance relationships.
- Communicate effectively and work collaboratively within multi-disciplinary industrial teams, including diverse workers and stakeholders.

- Understand the SEC electrical grid, including generation, transmission, distribution, and reticulation systems, as well as electricity generation concepts and SI units.
- Demonstrate strong electrical safety practices, including emergency procedures for shock and explosions, safe work during meter installation and maintenance, and adherence to all relevant safety standards.
- Apply construction and installation standards for single-phase and three-phase metering, including the ability to install, remove, and maintain meters at customer premises.
- Explain the construction, operation, and internal principles of Watt-hour (kWh) meters, including electromagnetism, meter components, and differences between single-phase and three-phase metering.
- Conduct testing and measurement tasks, such as using multimeters, performing SEC-standard metering tests, completing accuracy test reports, and maintaining proper test records.
- Understand electrical loads and power quality, including resistive and capacitive load effects, power factor correction, and impacts on metering accuracy.
- Identify and prevent meter tampering, recognizing common methods and applying appropriate control measures and preventive techniques.
- Perform routine inspection and maintenance tasks, explaining the importance of periodic metering system checks and ensuring reliable operation and customer service documentation.

ELECTRICAL TECHNOLOGY-ELCT

DESCRIPTION

The Electrical Technology (ELCT) program equips trainees with the essential knowledge and hands-on skills required to install, maintain, and troubleshoot electrical systems across industrial and construction environments. Trainees begin by mastering basic electricity, measurements, and applied mathematics, forming a strong foundation for analyzing electrical circuits and solving operational problems. The program develops proficiency in wiring, termination, and panel construction in accordance with national electrical codes and engineering standards. Learners also gain experience in building and testing control circuits using relays, sensors, and automated components. Emphasis is placed on interpreting electrical drawings and applying safe work practices, including permit-to-work procedures and hazard-control protocols. Through structured laboratory training and real-world OJT practice, trainees learn to inspect, test, and evaluate electrical systems to ensure compliance and reliability. Effective communication and technical reporting skills are integrated throughout, preparing graduates to function confidently in multi-disciplinary teams and professional work settings.

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

- Apply the principles of basic electricity, measurements, and applied mathematics to analyze and solve common electrical problems.

- Install and terminate electrical wiring, fixtures, and panels in accordance with national electrical codes, construction requirements, and engineering standards.
- Construct and test control circuits and systems using relays, contactors, and sensors for automated and building-related electrical applications.
- Demonstrate safe work practices and comply with health, safety, and permit-to-work protocols in various electrical and construction environments.
- Interpret and utilize electrical diagrams, technical drawings, and construction documentation to guide installation and maintenance tasks.
- Troubleshoot and repair electrical systems, including power distribution components, using appropriate diagnostic tools and fault isolation methods.
- Communicate effectively in technical contexts by producing written reports and documentation related to project planning and fault analysis.
- Integrate on-the-job experience with classroom learning to perform supervised electrical work and adapt to real-world technical environments.
- Evaluate the performance and compliance of electrical systems through inspection and testing procedures, ensuring adherence to quality standards and regulatory codes.
- Integrate and operate electrical systems in construction projects by coordinating site requirements and applying project-specific electrical engineering

PIPEFITTING TECHNOLOGY-PPFT

DESCRIPTION

The Pipefitting Technology (PPFT) program prepares trainees to work confidently in industrial environments by developing the technical skills required to fabricate, assemble, install, and maintain complex pipework systems. Throughout the program, trainees learn to interpret engineering drawings, select appropriate materials, and perform precise measurements to ensure accurate pipe preparation and joining. They gain hands-on experience using manual and power-driven tools to cut, bend, thread, and weld piping components while adhering to strict safety and quality standards. The curriculum also builds strong competencies in system inspection, testing, and troubleshooting, enabling trainees to evaluate system integrity and carry out corrective actions when needed. Emphasis is placed on safe working practices and environmental awareness across all phases of pipefitting operations. Trainees also develop effective communication skills through technical reporting and documentation tasks. Integrated workplace training further bridges classroom learning with real industrial applications, ensuring graduates are job-ready for roles in power utility, energy, and process industries.

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

- Lay out, assemble, and install pipe systems and supports for hydraulic, pneumatic, and process applications in accordance with technical specifications and safety regulations.
- Interpret technical drawings, specifications, and system diagrams to plan and execute the fabrication and installation of complete pipework systems.
- Measure and mark pipes accurately for cutting, threading, or joining using industry-standard tools and methods.
- Select and prepare appropriate pipe sizes, materials, fittings, and support components based on job specifications and system requirements.
- Operate manual and power-driven tools and equipment to cut, bend, thread, and weld pipe components while maintaining safety and quality standards.
- Inspect and test installed systems using pressure gauges, hydrostatic testing, and visual observation to identify faults and ensure compliance with performance standards.
- Evaluate pipe system functionality and integrity, and perform corrective actions including repair, replacement, or dismantling as needed.
- Demonstrate safe working practices and apply health, safety, and environmental protocols throughout all phases of pipefitting work.
- Communicate technical information effectively through verbal reporting and written documentation, including installation logs and inspection reports.
- Integrate theoretical knowledge with hands-on experience during workplace-based training to perform supervised pipefitting tasks in industrial environments.

INSTRUMENTATION TECHNOLOGY-INST

DESCRIPTION

The Instrumentation and Control Technology (INCT) program prepares trainees to install, calibrate, maintain, and troubleshoot modern instrumentation and control systems used across industrial environments. The program develops a strong foundation in basic electricity, instrumentation parameters, and analogue and digital electronics, enabling trainees to work confidently with sensors, transformers, controllers, and field instruments. Learners gain hands-on experience wiring control circuits, testing system functionality with diagnostic tools, and interpreting technical drawings, schematics, and process documents. Advanced training introduces digital control concepts, including PLC integration, SCADA communication, HMI interfaces, and automated reporting essential to modern industrial operations. Emphasis is placed on systematic fault diagnosis, safe work practices, and permit-to-work procedures to ensure compliance with industry standards. Through structured labs and real-world OJT placement, trainees refine their ability to document maintenance activities and perform field tasks with accuracy and professionalism. Ultimately, the program equips graduates with the technical competence and workplace readiness required for careers in industrial instrumentation, control, and automation.

The expected Instrumentation program 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. 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.

WELDING TECHNOLOGY-WLDT

DESCRIPTION

The Welding Technology (WLDT) program equips trainees with the practical skills and technical knowledge required to perform high-quality welding operations across industrial environments. Beginning with strong foundations in safety, measurement, and fabrication principles, trainees learn to lay out, prepare, and align metal components using industry-standard tools. The program provides extensive hands-on training in MMA/SMAW welding, followed by progressive instruction in GMAW (MIG), GTAW (TIG), and thermal cutting methods. Trainees develop proficiency in setting up welding machines, selecting appropriate electrodes, filler materials, and shielding gases, and adjusting equipment to match welding specifications and metal characteristics. Through inspection and testing activities, they learn to evaluate weld quality and ensure compliance with engineering standards. Emphasis is placed on safe work practices, equipment handling, and adherence to permit-to-work procedures. By integrating technical coursework with real-world OJT experience, the program prepares trainees to achieve welding certification and perform professional welding and fabrication tasks with accuracy and confidence.

The expected Welding program outcomes 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.

SCAFFOLDING-SCFT

DESCRIPTION

The Scaffolding Technician (SCFT) program equips trainees with the skills and knowledge required to safely erect, inspect, and dismantle scaffolding structures used in construction and industrial environments. Trainees learn to fit steel pipes, support braces, and clamps to build strong and stable scaffold bases, as well as lift, position, and bolt scaffold sections securely. The program develops practical abilities in placing planks to form safe working platforms, checking structural levels, and ensuring compliance with safety and engineering standards. Through system scaffolding and tube-and-coupler training modules, learners gain hands-on experience in identifying components, assembling full scaffolding systems, and performing detailed inspections throughout construction and dismantling. Emphasis is placed on hazard awareness, correct use of PPE, and strict adherence to safety procedures. Trainees also develop skills in reporting, documentation, and communicating technical information. The program concludes with supervised on-the-job training, allowing trainees to apply classroom learning in real worksites and build full workplace readiness.

Upon completing the program, the trainee will be able to:

- Fit together steel pipes, support braces, and clamps to form stable bases for scaffolding structures.
- Lift, position, and securely bolt scaffolding sections to build complete scaffold assemblies.
- Place planks over horizontal bars to create safe, level working platforms.
- Check scaffold levels and alignment to ensure structural accuracy and compliance.
- Dismantle scaffolding safely and efficiently at the completion of a project.
- Identify scaffolding components and apply correct techniques for system and tube-and-coupler erection.
- Perform detailed inspections during scaffold erection, use, and dismantling to maintain safety and quality standards.
- Apply hazard-control measures, PPE requirements, and safe work practices in all scaffolding operations.
- Communicate technical information effectively through reports, documentation, and worksite coordination.
- Demonstrate workplace readiness by performing supervised scaffolding tasks during on-the-job training in real construction environments.

REBAR FIXING- RBFT

DESCRIPTION

The Rebar Fixing Technician (RBFT) program provides trainees with the technical skills and practical experience needed to work safely and effectively in concrete construction environments. Learners develop the ability to set, align, and inspect formwork structures to precise dimensions, ensuring correct pitch, depth, and structural integrity before concrete placement. The program emphasizes hands-on training in spreading, leveling, and finishing concrete using industry-standard tools such as rakes, shovels, trowels, screeds, and floats. Trainees also learn to direct and supervise concrete casting operations, coordinate with labor teams, and produce rough surface finishes when required. Coursework includes formwork design, AutoCAD drafting, mixing and using concrete, and proper material handling to reinforce both technical and communication skills. A strong focus on safety practices, environmental awareness, and adherence to construction protocols is integrated throughout the training. The program concludes with structured on-the-job training, enabling trainees to apply classroom learning to real construction settings and develop full workplace readiness.

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

- Set, align, and prepare formwork structures to the required pitch, depth, and dimensions prior to concrete placement.
- Inspect and verify the integrity of constructed formwork, ensuring it meets safety and engineering requirements.
- Spread, level, and smooth concrete surfaces using appropriate manual and power tools including rakes, shovels, trowels, screeds, and floats.
- Direct and supervise concrete casting operations, coordinating effectively with laborers and ensuring proper concrete placement.
- Produce rough or textured concrete finishes using brooms or other designated finishing tools.
- Mix and handle concrete materials correctly, applying safe and efficient methods for preparation and application.
- Interpret and apply formwork drawings and basic AutoCAD plans to support the layout and construction of concrete structures.
- Demonstrate proper use of construction tools and equipment, maintaining safe work habits and adhering to site safety protocols.
- Communicate technical information clearly through basic reporting, documentation, and coordination with site teams.
- Apply learned skills during on-the-job training, performing supervised construction tasks and demonstrating workplace readiness in real project environments.

MECHANICAL MAINTENANCE-MCM

DESCRIPTION

The Mechanical Maintenance (MCM) program develops highly skilled technicians capable of supporting the power and industrial sectors through expert diagnostics, repair, and preventive maintenance of mechanical systems. Through a combination of theoretical instruction and extensive hands-on training, trainees gain practical experience working with mechanical components, piping systems, hydraulics, pneumatics, machining, welding, and plant equipment. The program focuses on equipment reliability, plant efficiency, and the safe execution of maintenance tasks aligned with international industry standards. Trainees also learn troubleshooting techniques, field testing methods, and maintenance strategies essential for sustaining continuous operations. By cultivating strong technical abilities and professional communication skills, the program contributes to Saudi Vision 2030 by preparing a highly competent national workforce that can effectively support and enhance industrial and energy-sector operations.

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

- Communicate effectively and work collaboratively within multidisciplinary industrial teams.
- Disassemble mechanical equipment and replace defective components such as bearings, gaskets, and seals.
- Reassemble mechanical systems according to technical specifications and maintenance procedures.
- Perform preventive maintenance tasks, including lubrication, adjustments, and minor repairs to maintain equipment reliability.
- Conduct field testing and fault-finding, using diagnostic tools like vibration monitoring, temperature measurements, and condition-based analyses.
- Carry out machining operations on lathes and milling machines under appropriate supervision.
- Install and connect piping systems for pumps, turbines, exchangers, furnaces, and other plant equipment through cutting, threading, fitting, and anchoring techniques.
- Perform plumbing-related tasks, including assembling, installing, and repairing heating, water, and drainage systems.
- Execute basic welding and fabrication activities required for maintenance tasks using appropriate tools and materials.
- Apply safe working practices, maintenance strategies, and equipment-reliability principles that support efficient plant operation and align with industry standards.

FACILITY MAINTENANCE FM-II

DESCRIPTION

The Facility Maintenance program provides trainees with the comprehensive technical skills required to ensure that buildings, their systems, and their supporting infrastructure operate safely, efficiently, and as originally designed. Trainees gain exposure to a wide range of mechanical, electrical, and structural maintenance activities that support the daily functioning of the built environment. The program introduces participants—whether new or experienced—to the principles of preventive maintenance, fault diagnosis, repair techniques, and safe system operation. Through hands-on training, learners develop the ability to maintain plant equipment, conduct inspections, and troubleshoot systems essential to facility performance. They also learn to interpret technical drawings, perform basic construction-related tasks, and support the installation and maintenance of control equipment and cable systems. Emphasis is placed on safety, communication, teamwork, and adherence to permit-to-work procedures. By the end of the program, trainees are equipped to maintain facility assets such as HVAC, structural components, fire systems, electrical systems, and mechanical equipment, ensuring operational continuity in diverse work environments.

Program Learning outcomes focus on but are not limited to:

- Communicate effectively and work collaboratively within multi-disciplinary teams in industrial and facility environments.
- Apply basic mathematics and applied science principles to solve technical problems commonly encountered in facility maintenance.
- Perform scheduled preventive maintenance on mechanical and electrical systems, identifying faults through tests, measurements, and diagnostic analyses.
- Inspect and install control system equipment, ensuring proper operation and compliance with facility standards.
- Support the testing, installation, repair, and maintenance of cables, including those in power distribution and transmission systems.
- Interpret blueprints, specifications, and work plans to determine maintenance requirements and verify that construction or repair tasks meet established standards.
- Maintain facility safety and security systems, including housekeeping, fire systems, perimeter structures, gates, and general site upkeep.
- Apply and interpret permit-to-work procedures as part of safe system-of-work practices for maintenance activities.
- Perform structural and carpentry repairs—such as on walls, doors, windows, and floors—using scaffolding, ladders, and appropriate hand tools.

- Carry out mechanical, electrical, and multi-trade repair tasks, including welding, machining, pipefitting, plumbing, HVAC support, and inspection of protective electrical equipment such as RMUs, distribution boards, and relays

SHUTTERING CARPENTRY (SHCRPT)

DESCRIPTION

The 12-month Carpentry Training Program is specifically designed for individuals seeking to acquire practical, hands-on skills in the carpentry trade. Tailored for beginners and aspiring tradespeople, the course offers a structured pathway into the construction industry, equipping participants with the essential knowledge and technical abilities required for a successful career in carpentry. Throughout the duration of the program, trainees will be introduced to a wide range of core carpentry competencies. These include the interpretation of construction drawings, accurate measurement techniques, and the ability to perform calculations necessary for planning and execution. Emphasis is also placed on the proficient use of both hand and power tools—essential for building, shaping, and assembling various wooden structures. In addition, students will learn about fabrication methods, formwork construction, truss assembly, and proper leveling techniques, all of which are fundamental in modern building projects.

The expected shuttering carpentry program 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. Set the forms that hold concrete to the desired pitch and depth, and alignment.
- Check the forms are properly constructed to hold the concrete.



HYDROGEN ENERGY TECHNOLOGY (HYDT)

DESCRIPTION

The Hydrogen Technology Program prepares trainees to participate effectively in the emerging clean-energy sector by developing strong technical, analytical, and practical skills aligned with hydrogen industry requirements. The curriculum integrates core scientific and engineering principles with hands-on experience, enabling learners to apply mathematics, thermodynamics, kinetics, and electrochemical concepts to real hydrogen production challenges. Trainees gain competency in major production pathways—including PEM, AEM, and high-temperature electrolysis—as well as in the design, optimization, and integration of hydrogen systems with renewable energy to support storage and grid stability.

Safety and environmental responsibility are embedded throughout the program, with emphasis on hazard identification, safe system operation, and risk management. Learners also develop a comprehensive understanding of hydrogen properties, production methods, storage systems, distribution networks, and combustion applications in industrial and transport settings.

Economic and market considerations are incorporated to support industry readiness.

Upon completion, graduates possess the knowledge, practical capability, and problem-solving skills required to contribute to the development, operation, and advancement of clean hydrogen technologies within multidisciplinary teams.

The expected HYDT program 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 effectively with members of multi-disciplinary teams, including those from different backgrounds.
- Understand how clean hydrogen is made, its uses, and its role in clean energy.
- Design and check renewable energy systems, including how to use clean hydrogen, and use tools to improve these systems.
- Explain the dangers of hydrogen and how to maintain safety.
- Combine clean hydrogen with other renewable energy sources like solar and wind, and how it helps with energy storage and grid stability.
- Apply the knowledge and understanding of the characteristics of hydrogen, including sources, abundance, and the comparisons between hydrogen and natural gas as a fuel.
- Demonstrate the knowledge and understanding on the different sources and methods of production of hydrogen.
- Use the knowledge and understanding on a range of storage types for hydrogen, and the reasons for their use.
- Combine the knowledge and understanding on the distribution of hydrogen gas, including use of the current national grid, tankers and small scale gas distribution in manifolded systems.

- Describe the combustion principles of hydrogen over a range of different systems such as engines for vehicles, and fuelling aircraft.
- Explain the features and functions of a hydrogen fuel cell.

ELEVATOR INSTALLATION AND MAINTENANCE (EIM)

DESCRIPTION

Elevator installation and maintenance technicians are highly skilled professionals who play a vital role in ensuring the smooth, safe, and efficient operation of vertical transportation systems such as elevators and escalators. Their work combines advanced mechanical, electrical, and diagnostic expertise to guarantee the reliability and safety of these essential systems that support mobility and accessibility in modern buildings. These technicians must possess strong customer service and communication skills to collaborate effectively with clients, engineers, and inspectors, as well as provide accurate technical documentation and updates. A deep understanding of electrical circuits, control systems, and mechanical components like motors, pulleys, and counterweights is fundamental to their craft. In addition, proficiency in hydraulic and pneumatic systems is required for servicing specialized elevators. Adherence to safety codes and regulations such as ANSI and ASME A17.1 is paramount to protect both users and workers. Technicians must also be adept at reading blueprints and technical diagrams to execute installations and repairs with precision. Through skilled troubleshooting, preventive maintenance, and the use of advanced diagnostic tools, they identify and resolve mechanical or electrical faults efficiently. Ultimately, elevator technicians exemplify technical proficiency, problem-solving ability, and a commitment to safety that keeps vertical transportation systems dependable and secure.

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

- **Communication Skills:** Demonstrate an ability to communicate effectively and function efficiently with members of multi-disciplinary teams and other workers in an industrial setting, including those from different backgrounds.
- **Electrical Systems:** Technicians must understand electrical wiring, control systems, and circuit boards that power and regulate the elevators' operation.
- **Mechanical Systems:** Knowledge of mechanical components like motors, gears, pulleys, cables, and counterweights is essential for ensuring the elevator's proper functioning and diagnosing mechanical failures.
- **Hydraulic and Pneumatic Systems:** Some elevators use hydraulic or pneumatic technology. Technicians must understand these systems to install, maintain, and troubleshoot them.
- **Safety Standards and Codes:** Technicians need to have a thorough understanding of local and international safety codes (such as ANSI, ASME A17.1, and local building codes). Technicians must adhere to these standards to ensure safety for passengers and technicians alike.
- **Blueprints and Technical Diagrams:** Technicians must be able to read and interpret blueprints, wiring diagrams, and technical manuals to install and repair systems according to specifications.
- **Troubleshooting and Diagnostics:** The ability to efficiently diagnose problems, whether

they are electrical, mechanical, or software-related, is crucial. Technicians must utilize tools, such as multimeters, diagnostic software, and mechanical tools to identify and resolve issues.

- **Customer Service and Communication:** Technicians need strong communication skills to be able to interact with building managers, architects, and safety inspectors, as well as provide service instructions and updates to customers.
- **Installation and Setup:** Technicians must be skilled in assembling and installing elevator systems, including setting up mechanical parts, wiring, and configuring control systems to ensure proper operation.
- **Preventive Maintenance:** Regular inspections and servicing of elevators to prevent breakdowns. This includes lubricating parts, replacing worn-out components, checking wiring and electrical systems, and conducting safety tests.
- **Repairs and Troubleshooting:** When an elevator malfunctions, technicians must be able to quickly identify the root cause, whether it is an issue with the drive system, electrical fault, or software glitch, and perform necessary repairs.
- **Problem Solving:** Using critical thinking and problem-solving skills to diagnose complex issues in the elevator's systems and determine the most efficient and cost-effective solution.

ASSOCIATE DIPLOMA PROGRAM – ADOMM

Associate Diploma in Operation and Maintenance Management
(12 months)

FOREMAN II (FRMN II)

DESCRIPTION

The Foreman II (FRMN-II) program equips trainees with the technical, supervisory, and communication skills needed to manage construction and industrial work activities. Trainees learn to read and interpret plans, drawings, and specifications to organize procedures and allocate manpower, materials, and equipment effectively. The program strengthens the ability to oversee daily operations, conduct safety inspections, verify work quality, and ensure compliance with standards. Practical training develops skills in measuring, marking, and coordinating site layouts while maintaining accurate documentation. Emphasis is placed on leadership, workplace communication, and collaboration with both crews and supervisors. Supporting courses in technical English, mathematics, safety, communication, and team leadership enhance professional readiness. The program concludes with on-the-job training, enabling trainees to apply these supervisory skills in real industrial environments.

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

- Communicate effectively and function within multi-disciplinary industrial teams, **interacting confidently with workers and supervisors from diverse backgrounds.**
- Supervise, schedule, and coordinate construction or plant work activities, **ensuring efficient use of manpower, materials, and equipment.**
- Read and interpret blueprints, plans, drawings, and specifications **to determine construction and operational requirements.**
- Inspect work progress, equipment, and job sites **to verify safety compliance and ensure work meets established specifications.**
- Locate, measure, and mark site locations **for structures, equipment, or plant installations using proper measuring and marking tools.**
- Apply workplace health, safety, and environmental procedures, **recognizing hazards and enforcing safe systems of work.**
- Plan, organize, and document work activities, **maintaining accurate records, reports, and site documentation.**
- Lead and communicate with work teams, **providing instructions, feedback, and coordination to achieve work goals.**
- Use computer applications and technical English skills **to support reporting, communication, and documentation tasks.**

- Apply supervisory skills during on-the-job training, **demonstrating leadership, quality oversight, and practical decision-making in real work environments.**

ASSOCIATE DIPLOMA PROGRAM

in Health Safety and Environment

(12 months)

HEALTH SAFETY AND ENVIRONMENT (HSE-II)

DESCRIPTION

This 12-month HSE program equips trainees with the essential skills needed to work safely and effectively in industrial process environments. Participants learn to perform the duties of an HSE advisor, including managing HSE systems, reviewing risks, and supporting workplace compliance. Training covers incident investigations, risk management, and providing clear HSE guidance to senior managers. Trainees also develop competence in conducting ISO-aligned internal audits and contributing to environmental management. In addition, the program prepares learners to function as qualified work permit receivers within industrial operations. By completion, graduates are fully prepared to uphold and promote strong HSE standards across the process sector.

After completing the program, trainees will be able to:

- Apply mathematical and scientific principles to solve technical problems commonly encountered in industrial HSE work.
- Communicate effectively and collaborate within multidisciplinary teams, demonstrating professionalism in diverse industrial settings.
- Perform the full duties of an HSE advisor, supporting safe operations and regulatory compliance in the process sector.
- Act as a qualified work-permit receiver, understanding permit-to-work systems and safe-work procedures.
- Conduct ISO-aligned internal audits and contribute to the improvement of organizational HSE performance.
- Design, implement, and monitor HSE management systems, ensuring continuous improvement and operational safety.
- Review and analyze workplace risk assessments, applying practical risk-management and hazard-control techniques.
- Provide clear, accurate HSE advice to senior managers to support informed and safe decision-making.
- Perform systematic accident and incident investigations, identifying root causes and recommending corrective actions.
- Contribute to environmental and sustainability initiatives, supporting environmental compliance and plant environmental management.

DIPLOMA PROGRAMS – DOME

Diploma in Operation and Maintenance Engineering
(24 months)

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.

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.
- Trouble shoot 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 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 craftsman, 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.

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 and repair.
- Carry out field testing and fault finding of power plant mechanical equipment. Locate equipment faults and operating irregularities by various diagnostic tests, such as vibration monitoring and temperature probes and measurements and analyses.
- Perform machining operations on lathe or milling machine, generally under guidance of 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 pipe, making up pipe systems with necessary fittings, anchoring pipe to existing supports, installing and removing blinds and valves
- Perform plumbing jobs including assembly, installation and repair of pipes, fittings and fixtures of heating, water and drainage.
- Perform basic welding jobs requiring performance of high-quality alloy welding and fabrication.

POWER PLANT ELECTRICAL MAINTENANCE (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.

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 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.
- Carrying out repairs and maintenance on various types of electrical equipment, the installation and alignment of newly- installed equipment to verify proper operation
- Carry out modifications to existing equipment, or installation of new 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.

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.

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

- Calculate 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, 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

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 Power Control Center.

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 operational status of Company Transmission System substations by performing commissioning, testing, fault diagnosis, maintenance planning, and major and minor preventive maintenance on various equipment installed.
- Troubleshoot defective high- and low-voltage substation equipment, including transformers, regulators, load tap changers, PTs and CTs, line tuners and traps, HV circuit breakers, switchgear, disconnect switches, capacitor controls, SCADA and telemetering systems, DC supply and battery charger systems, emergency generators, air-conditioning auxiliaries, safety and fire protection systems, and yard or street lighting controls..
- Perform major and minor preventive maintenance on all types of I 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 Power Control Center.



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.

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 preparation, receiving, and releasing outage schedule for submission to the Power Control Center scheduler.
- Coordinate with Power Control Center on all outages.
- Perform shutdowns for scheduled project executions.
- Make temporary and permanent changes to system dispatching drawings.
- Perform inspection 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 SYSTEM PROTECTION AND CONTROL (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.

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 recalibrate equipment.
- Run operating tests to verify satisfactory repair.
- Make use of specification sheets, 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.

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 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 fault location and nature to supervisor for subsequent repair.
- Perform splicing and terminating of various types of cables to repair faults on power system.
- Conduct various tests including High Pot tests on spliced or terminated cables in order to make sure that they are operating excellently and could 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.
- Learn and 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.

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.

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 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 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 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 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

ELECTRICAL DISTRIBUTION NETWORK MAINTENANCE (EDM)

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.

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

- Apply mathematical and applied science principles to perform technical calculations, interpret electrical data, and diagnose operational issues commonly encountered in electrical distribution maintenance and related industrial settings.
- Communicate effectively and work collaboratively within multidisciplinary teams, demonstrating professionalism, safety awareness, and the ability to coordinate with workers and supervisors from diverse technical and cultural backgrounds.

- Perform functional checks on electrical safety equipment, ensuring proper use, compliance with safety standards, and readiness for operation in various work environments.
- Read, interpret, and follow technical manuals, including testing procedures, inspection guidelines, and maintenance instructions for electrical distribution systems and equipment.
- Test, calibrate, troubleshoot, and perform critical adjustments on electrical distribution components using appropriate diagnostic tools, instruments, and industry-standard methodologies.
- Conduct commissioning tests on different types of electrical distribution equipment, verifying performance, system integrity, and operational safety prior to energization or service.
- Perform low-voltage (LV) cable joining and termination using proper techniques, tools, and safety practices to ensure reliable electrical connections and long-term system performance.

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.

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, and tape measures; you will also be able to explain the correct procedures for taking accurate measurements.
- Identify basic tools required and hand work methods used to manufacture replacement or repair parts used in various types of equipment.
- Identify the basic control systems and machining methods used on vertical and horizontal milling machines and explain the basic operations necessary to manufacture parts used in various types of equipment.
- Identify the basic lathe control systems and machining methods, and explain the basic methods to manufacture 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 safety procedures to mitigate these hazards.
- Identify classifications of various metals and explain factors influencing their weldability.
- Describe shielded metal arc welding (SMAW) and identify equipment, procedures, and methods used.
- Describe gas metal arc welding (GMAW) methods and design and function of components

used in the GMAW process.

- Describe tungsten inert gas (TIG) welding methods and design and function of components used in the process.
- Describe oxyacetylene welding (OAW) techniques and function of components and apparatus used in the OAW process.

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.

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.

- Keeping the power flowing from a plant to its consumers and making sure there is enough energy to meet the demands of your customers, but not so much that the delicate systems in your plant are damaged.
- Adjusting the power production according to weather reports, that's because extreme heat and extreme cold can mean greater energy consumption. Additionally, big storms can cause big surges in the amount of energy your plant can make, and it is required to make allowances to get rid of the excess before your transformers and power lines blow.
- Determining how much power the power plant has available. Then supply that power to the consumers. If the consumers demand can't be met, the required power should be provided from other plants.
- Routing power to the affected area without disturbing your customers in case of transmission line goes down and needs repairs.

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 program 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 program will also discuss different HVAC system components, including the water distribution system, duct design and air distribution method as well as cooling load calculation.

The expected Air Conditioning and Refrigeration 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 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, and connections 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.

NON-DESTRUCTIVE TESTING (NDT)

DESCRIPTION

The Non-Destructive Testing (NDT) program prepares trainees to apply mathematical and scientific principles to analyze materials, detect flaws, and solve technical problems encountered in industrial inspection. Through coursework in metallurgy, corrosion fundamentals, welding inspection, physics, chemistry, and technical drawing, students develop a strong understanding of material properties, construction processes, and quality control. The program equips trainees to explain the purpose, applications, and codes governing NDT while selecting appropriate inspection methods for various industrial needs. Learners gain theoretical and hands-on experience in major NDT techniques, including liquid penetrant, magnetic particle, ultrasonic, eddy current, radiographic, acoustic emission, thermography, and visual testing. Strong communication skills and the ability to work effectively within multidisciplinary teams are reinforced throughout the curriculum. During the third-year On-the-Job Training, trainees apply classroom knowledge in real industrial environments, performing inspections, interpreting results, and following industry standards. By completion, graduates are fully prepared to evaluate materials, estimate corrosion rates and remaining life, and perform professional NDT inspections to ensure safety and integrity in industrial systems.

The expected Non Destructive testing NDT program educational/vocational objectives are that, upon completing all training courses, the trainee will be able to::

- Apply mathematical and scientific principles to perform technical calculations and solve inspection-related problems in non-destructive testing.
- Communicate effectively and work collaboratively with multidisciplinary teams in industrial environments.
- Explain the purpose, scope, and applications of NDT within scientific, industrial, and manufacturing processes.
- Demonstrate understanding of metallurgy, material properties, construction processes, and quality-control principles relevant to inspection.
- Explain corrosion fundamentals, mechanisms, and mitigation methods, and calculate corrosion rates and remaining equipment life.
- Identify material defects, flaws, discontinuities, and other structural anomalies using appropriate inspection techniques.
- Select the most suitable NDT method for a given application based on material, defect type, and inspection requirements.
- Understand the fundamentals of inspection methods and non-destructive evaluation technologies.
- Explain welding processes, common welding discontinuities, and appropriate inspection methods for welded components.
- Apply relevant NDT codes, standards, and industry regulations during inspection activities.

- Demonstrate theoretical knowledge and practical competency in performing major NDT methods, including:
 - Liquid Penetrant Testing (PT)
 - Magnetic Particle Testing (MT)
 - Ultrasonic Testing (UT)
 - Visual Testing (VT)
 - Radiographic Testing (RT)
 - Eddy Current Testing (ET)
 - Advanced methods such as Acoustic Emission, Thermography, PAUT, and TOFD

RENEWABLE ENERGY TECHNOLOGY I (RET I)

DESCRIPTION

The Renewable Energy Technician program is a comprehensive two-year course designed to prepare skilled professionals for the growing renewable energy sector, with a primary focus on wind and solar technologies. Students gain a solid foundation in renewable energy principles, including an understanding of hydro and biomass systems that complement modern sustainable practices. The wind energy component, approved by the Global Wind Organization (GWO), equips learners with practical and theoretical knowledge of wind turbine construction, safety protocols, and hazard awareness. Emphasis is placed on essential technical skills such as working at heights, operating in confined spaces, performing cable work, and maintaining internal wind turbine systems. In the solar energy section, students acquire expertise in solar photovoltaic (PV) design, installation, inspection, and maintenance—key skills for ensuring efficient and sustainable energy production. Throughout the program, learners develop both technical proficiency and a deep understanding of environmental responsibility. Graduates emerge ready to contribute to the renewable energy industry by designing, installing, maintaining, and inspecting energy systems that power a cleaner and more sustainable future.

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

- Apply fundamental principles of mathematics and applied science to perform technical calculations, interpret system data, and effectively troubleshoot common problems encountered in renewable energy technologies.
- Communicate clearly and work efficiently within multidisciplinary industrial teams, demonstrating teamwork, professionalism, and the ability to coordinate with engineers, technicians, and other stakeholders.
- Demonstrate a solid understanding of major renewable energy sources, including solar, wind, hydro, and biomass, and articulate their advantages in terms of sustainability and long-term energy security.
- Explain the environmental impacts, safety considerations, and regulatory guidelines associated with each renewable energy source, highlighting both benefits and potential constraints.
- Identify and describe the layout and key components of photovoltaic (PV) systems, including modules, mounting structures, wiring arrangements, and balance-of-system elements.
- Apply technical knowledge of PV modules, charge controllers, inverters, cabling, and battery systems to ensure correct installation, proper configuration, and safe operation of solar energy systems.
- Perform system sizing for PV installations, calculating energy needs, solar resource availability, component ratings, and storage requirements to design efficient and reliable systems.

- Determine the technical requirements of other renewable energy systems, such as estimating energy output, calculating resource potential, and selecting appropriate technologies for biomass, wind, and hydro applications.
- Explain key economic and financial aspects of renewable energy, including system cost, payback period, life-cycle cost, incentives, and return on investment.
- Evaluate, compare, and select suitable renewable energy solutions based on environmental impact, performance criteria, economic feasibility, and sustainability 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.

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

- Apply mathematical and applied science principles to perform technical calculations, interpret system data, and solve operational or maintenance problems commonly encountered in solar energy technology environments.

- Communicate effectively and collaborate with multidisciplinary teams, demonstrating professionalism, cultural awareness, and the ability to work productively alongside engineers, technicians, and industrial personnel.
- Identify and describe the components and operating principles of flat-plate solar collectors, including absorber plates, glazing, insulation, manifolds, and mounting structures.
- Recognize and explain the impact of dust, shading, and incidence angle on the performance of flat-plate collectors, and propose corrective actions to maintain system efficiency.
- Identify and explain the components and functions of concentrating solar collectors, including reflectors, receivers, tracking systems, and thermal transfer mechanisms.
- Describe various solar thermal power generation systems, explaining their configurations, working principles, energy conversion processes, and environmental considerations.
- Design and install small-scale photovoltaic (PV) systems, applying correct engineering practices, safety standards, and manufacturer specifications to ensure reliable and efficient operation.
- Read and interpret technical manuals, testing procedures, maintenance instructions, and inspection guides, ensuring adherence to industry standards and equipment requirements.
- Test, calibrate, troubleshoot, and perform critical adjustments on solar energy equipment using appropriate tools, measurement devices, and diagnostic techniques.

- Conduct commissioning tests on different types of solar PV plants, verifying system integrity, performance outputs, and compliance with operational and safety standards.

SMART GRID-SG-I

DESCRIPTION

The Smart Grid program provides technicians with a comprehensive understanding of how modern electrical networks are designed, operated, and maintained, beginning with core concepts introduced in *Introduction to Smart Grid*. Trainees explore Smart Grid transmission, distribution, and substation systems, gaining insight into how electricity flows through advanced, automated networks. The program covers essential operational technologies, including SCADA systems, IEC-61850 communication protocols, smart energy meters, and the cybersecurity measures required to protect digital infrastructure. Learners study energy storage solutions and system protection principles that support grid stability and reliability. Through hands-on training in networking, monitoring, control, and diagnostics, technicians learn to install, configure, and maintain smart grid equipment. The program emphasizes operational considerations from both utility and customer perspectives, ensuring well-rounded technical judgment. Safety procedures, remote operation techniques, and real-time data analysis are integrated throughout to prepare trainees for field deployment. Ultimately, the program equips future Smart Grid technicians with the skills, knowledge, and confidence needed to support modern grid modernization initiatives.

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

- Communicate effectively and collaborate within multi-disciplinary technical teams, demonstrating professionalism in industrial and utility-based environments..
- Explain foundational Smart Grid concepts, architecture, and implementation, including how modern distribution, transmission, and substation systems operate.
- Identify and describe key Smart Grid technologies and their benefits, including smart meters, SCADA, IEC-61850, automation systems, and energy storage solutions.
- Demonstrate how communication technologies and protocols (e.g., SCADA communication, IEC-61850, TCP/IP) enable Smart Grid monitoring, data exchange, and remote operation.
- Install, configure, and maintain Smart Grid equipment and devices, including smart meters, field-level hardware, and communication interfaces.
- Monitor, control, and troubleshoot Smart Grid systems using diagnostic tools, real-time data, and remote access techniques.
- Explain how renewable energy sources integrate with the Smart Grid, including their impact on stability, protection, and system operation.
- Understand Smart Grid applications in the smart home and smart city, including customer-side technologies, demand response, and energy management systems.
- Apply cybersecurity principles and system protection strategies to safeguard Smart Grid communication networks and operational assets.
- Implement and follow safety standards and operational procedures required when working with Smart Grid installations, field equipment, and digital communication systems.

FACILITY MAINTENANCE -FM-I

DESCRIPTION

The Facility Maintenance Program is the first multi-skill training initiative of its kind in the Kingdom, designed to support Vision 2030 through essential workplace competencies. It equips trainees with broad technical knowledge required to ensure buildings and their systems function as intended. The program covers day-to-day operational skills for maintaining structures, equipment, and building services. It accommodates learners with no prior experience while also enhancing the abilities of those with some background. Trainees are prepared to supervise plant operations, perform repairs, and manage preventive maintenance activities. The curriculum builds a foundation in basic maintenance planning and hands-on technical practice. Graduates are readied for entry-level roles in facility maintenance fields. Exposure to HVAC, electrical and mechanical systems, welding, machining, and other core disciplines forms a major part of the training. Supporting skills such as Technical English, Math, Health and Safety, and computer literacy are also developed to ensure workplace readiness.

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

- Communicate effectively and work collaboratively within multi-disciplinary teams, including colleagues from diverse industrial backgrounds.
- Use mathematics and applied science principles to solve common technical problems in facility maintenance settings.
- Perform scheduled preventive maintenance and troubleshoot mechanical and electrical issues through proper testing, measurement, and fault analysis.
- Inspect existing control systems or assist in the installation of new control equipment.
- Support testing, installation, fault detection, repair, and maintenance of cables within the organization's power transmission network.
- Interpret blueprints and specifications to plan work procedures and verify that construction activities meet safety and quality standards.
- Uphold facility safety and security by applying site safety practices, including housekeeping, janitorial work, landscaping, and maintenance of fire systems, fences, and gates.
- Understand and follow permit-to-work systems as part of safe maintenance operations.
- Perform preventive maintenance and carpentry repairs on building structures such as doors, floors, walls, and windows using scaffolding and ladders when required.
- Conduct mechanical preventive maintenance and repairs involving welding, metal cutting, machining, pipe fitting, plumbing, and hydraulic or pneumatic systems.

- Carry out preventive maintenance and electrical inspections on meters, power cables, low-voltage wiring, and substation equipment including transformers and switchgear.
- Inspect and maintain protection and control devices such as distribution boards, RMUs, fuses, and relays.
- Execute preventive maintenance and general repair tasks on HVAC systems.

DIPLOMA PROGRAMS –

DOMM

Diploma in Operation and Maintenance Management

(24 months)

FOREMAN I (FRMN -I)

DESCRIPTION

Upon completing the course, the trainee will possess the technical competence to interpret plans, schematics, and specifications while applying mathematical and scientific principles to routine field problems. He will be capable of supervising and coordinating work crews, organizing schedules, and determining manpower and material requirements for various site tasks. The program prepares him to communicate effectively with both workers and supervisors and to function confidently within multidisciplinary teams. He will demonstrate strong safety awareness, ensuring that all plant and site activities comply with established standards. The trainee will be able to inspect work progress, verify quality, and make sound decisions in response to job-site challenges. He will perform precise layout and measurement tasks using appropriate tools and equipment. Finally, he will gain practical, hands-on skills across related trades, enabling effective supervision and contributing to successful construction and maintenance operations.

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

- Apply Core Technical Knowledge
Use principles of mathematics, applied science, and basic engineering to perform technical

calculations, interpret field data, and solve common operational and maintenance problems encountered in industrial and construction environments.

- **Interpret Technical Documents and Plans**
Read, analyze, and accurately interpret construction drawings, blueprints, technical specifications, method statements, and work instructions in order to plan work procedures and ensure compliance with project requirements.
- **Supervise and Lead Work Crews Effectively**
Directly oversee, schedule, assign, and coordinate the daily activities of construction, maintenance, or extraction crews, demonstrating effective leadership, delegation, and workforce utilization.
- **Communicate Clearly Across Disciplines and Cultures**
Demonstrate strong verbal and written communication skills and work effectively with multidisciplinary teams, contractors, supervisors, and workers from diverse cultural and professional backgrounds.
- **Ensure Safety and Compliance in the Workplace**
Inspect work areas, equipment, and job sites to verify that all safety rules, regulations, and protective measures are followed; proactively identify hazards and enforce corrective actions to maintain a safe working environment.
- **Monitor and Evaluate Work Progress**
Conduct systematic inspections of ongoing work to confirm adherence to project

specifications, quality standards, and schedules; document progress and recommend adjustments as needed.

- **Perform Precise Measurement and Layout Tasks**
Locate, measure, mark, and verify site layout points and reference lines using appropriate measuring, leveling, and marking equipment to ensure accurate placement of structures, utilities, and equipment.
- **Apply Problem-Solving and Decision-Making Skills**
Analyze operational challenges, propose practical solutions, make timely decisions, and respond effectively to unforeseen job-site conditions while maintaining project priorities.
- **Demonstrate Professional Work Ethics and Attitudes**
Exhibit responsibility, discipline, initiative, punctuality, respect, teamwork, and a strong commitment to quality workmanship, while fostering a positive and productive work environment.
- **Utilize Tools, Equipment, and Technology Competently**
Operate and oversee the use of common construction tools, surveying instruments, measurement devices, and job-site technologies; ensure proper maintenance and safe operation of equipment by assigned personnel.

DIPLOMA PROGRAM

Diploma in Health Safety and Environment

HEALTH, SAFETY AND ENVIRONMENT I (HSE- I)

DESCRIPTION

This 24-month Health, Safety, and Environment (HSE) program equips trainees with the essential knowledge and practical skills required to operate effectively in industrial process environments. The program prepares participants to perform the full duties of an HSE advisor, ensuring they can support safe and compliant workplace operations. Trainees learn to design, manage, and monitor HSE management systems while gaining competence in reviewing workplace risk assessments. They also develop the ability to conduct systematic incident investigations to identify root causes and provide accurate, informed HSE advice to senior managers. In addition, participants become proficient in conducting internal audits aligned with ISO standards and contributing to effective environmental plant management. By completion, graduates are fully prepared to uphold and promote strong HSE performance within the process sector.

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

- Apply principles of mathematics and applied science to solve technical problems commonly encountered in operational and maintenance environments, using accurate calculations and analytical reasoning to support safe and efficient workplace practices.
- Communicate effectively and work collaboratively within multidisciplinary teams, demonstrating the interpersonal skills needed to coordinate with colleagues from diverse backgrounds and contribute constructively to industrial workplace operations.
- Perform the full duties of an HSE Advisor within the processing sector, including supporting day-to-day safety oversight, ensuring compliance with regulatory requirements, and promoting best practices across operational areas.
- Carry out internal audits aligned with ISO standards, applying recognized auditing methodologies to assess compliance, identify gaps, and recommend appropriate corrective and preventive actions.
- Design, manage, and monitor HSE management systems effectively, ensuring robust implementation, continuous improvement, and integration with overall organizational processes.
- Review workplace risk assessments to evaluate hazards, determine levels of risk, and recommend suitable control measures that maintain safe operating conditions.
- Provide specific and informed HSE advice to senior managers, supporting decision-making with clear, evidence-based guidance that enhances organizational safety performance.

- Conduct systematic incident investigations to identify root causes, using structured methodologies to analyze contributing factors and support the development of effective corrective actions.
- Contribute to environmental plant management, ensuring operations are aligned with environmental standards and supporting initiatives **that** minimize environmental impact.

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CANCELLATION AND REFUND POLICY

This policy shall apply to the cancellation of all program courses within the course type identified below:

Courses offered as part of programs offered by SESP to companies with employed trainees. Individual students are outside the scope of this policy.

Purpose

The purpose of this policy is to provide a safeguard for both SESP and potential company clients regarding the cancellation of programs 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.

Should a company sponsor amend the number of employees (leading to the cancellation of an enrollment place) that are listed to start a program prior to commencement, and communicate the amendment at that time to SESP (prior to the start of the program), any fees paid in advance up to that point will be refunded in their entirety to the sponsor company.

If no communication is 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 program offered by SESP, any fees paid prior to the start of the program will be forfeited to the amount of 50% of the amount received.

Should a program or course be cancelled by SESP, any fees paid prior to the cancellation date will be refunded to the sponsor company.

Organizations, vendors and accrediting agencies partnering with SESP



