Power Engineering Course Acceptance Criteria
AB-533

Edition 2, Revision 0 – Issued 2020-01-24

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FOREWORD

The Administrator in the pressure equipment discipline has issued Information Bulletin IB19-015-R1 to establish that this ABSA document AB-533 "*Power Engineering Course Acceptance Criteria"* specifies the assessment process and the features of power engineering courses that may be used to satisfy part of the requirements stated in Sections 16 to 22.2 of the Power Engineers Regulation.

This document will be reaffirmed on or before January 31, 2025.

1.0 DEFINITIONS AND ACRONYMS

AB-66 – ABSA examination application form

***ABSA Safety Codes Officer* (SCO)** – means an ABSA employee who is a safety codes officer, designated under the *Act*, in the pressure equipment discipline. *[PESR 1(1)(ee)]*

Acceptance Criteria – power engineering course acceptance criteria as established by the Administrator

ACI – Association of Chief Inspectors

APECC – Alberta Power Engineering Curriculum Committee

Controlled Practicum – a prescribed training period for practical experience within a suitable operating power plant as a compulsory part of a power engineering course

Distance Learning Program – any power engineering training course other than full-time day program (i.e., correspondence, computer-based learning, evening and weekend courses, etc.)

Full-Time Day Program – a power engineering training course that is delivered Monday through Friday during normal day-time working hours

HVAC – Heating Ventilation and Air Conditioning

IPECC – Inter-Provincial Power Engineer Curriculum Committee

Power Laboratory – a suitable operating power plant accepted as a course for practical experience credit at the 5^{th}, 4^{th}, and/or 3^{rd} class levels. These labs are designed for controlled learning (e.g., students and instructors) and have boilers and pressure equipment auxiliaries in accordance to Attachment (A).

SOPEEC – Standardization of Power Engineers Examinations Committee

Training Organization – an organization that delivers power engineering training courses acceptable to ABSA and that employs certified power engineers as instructors

2.0 INFORMATION

This document establishes the requirements for training organizations to develop and deliver a course in power engineering that is satisfactory to the Administrator and that allows a person to receive a credit to be granted and applied toward the experience or training requirements.

Training for power engineers that complies with this Acceptance Criteria being provided by a power engineering training organization that specializes in this kind of training will be accepted by the Administrator as a course that is satisfactory under the Power Engineers Regulation.

The Alberta **Safety Codes Act (SCA)** and regulations govern pressure equipment safety in Alberta. The Power Engineers Regulation and the SCA were put in force to prevent pressure equipment accidents and incidents as well as to establish the requirements that must be met by individual(s) who operate pressure equipment. Specifically, the Power Engineers Regulation prescribes the requirements for a person to obtain a power engineer certification. To obtain a power engineer certification, it is necessary that a person pass the required examinations, obtain practical experience within a power plant, and pass a course at the 5th and 4th class level. The practical experience may be obtained in a power plant located in industry (e.g., hospitals, generating stations, pulp mills, etc.), or it may be in a controlled environment, such as a laboratory (power plant) located within a college (power engineering training organization) specifically for the purpose of training persons to operate boilers and auxiliary equipment.

The Power Engineers Regulation also states that the Administrator may request that a mandatory course be successfully completed as a prerequisite before the issuance of a certificate of competency. If completed, this may reduce the practical experience requirements.

Training organizations in Alberta may offer the following power engineering courses:

1. course in power engineering from a 5th class up to a 1st class plant
2. two-year power engineering technology program
3. upgrading course that leads to a 5th or 4th class certificate of competency from an older 4th class power engineering certification issued before September 1, 1998
4. upgrading course that leads to a 4th class certificate of competency from a valid Building Operator A certificate of competency
5. upgrading course that leads to a 5th class certificate of competency from a valid Building Operator B certificate of competency
6. upgrading course that leads to a 5th class certificate of competency from a valid Fireman’s certificate of competency
7. course in boiler operation that leads to a Special Oilwell Operator’s certificate of competency
8. course in fired process heater operation that leads to a Fired Process Heater Operator’s certificate of competency

9. power laboratory course in power and heating plant operation

Note: Current lists of acceptable courses are maintained on the ABSA website.

3.0 MANAGEMENT RESPONSIBILITY

Provide a policy statement of purpose, commitment, responsibilities, and authorities.

Included with the training organization's course will be an organization chart that will show the relationship between the instructors, department head, and the senior manager responsible for the overall management of the course.

The course shall be acceptable to the Administrator for education credit and qualify the learner to write examinations as per the Power Engineers Regulation.

3.1 Course Training Manual

As a minimum, the training organization shall develop and maintain documentation that covers all elements described in this document. A copy of the training organization's document management system or the course training manual(s) will be provided to a SCO for review in order to determine if it meets the acceptance criteria.

4.0 PROGRAM CONTROL

The training organization shall ensure program changes are documented, reviewed, and provided to ABSA for acceptance.

5.0 NON-CONFORMITIES

- The training organization shall establish procedures to ensure effective corrective action after identifying non-conformities.
- The procedures shall describe the method used to document non-conformities and the corrective action taken.
- The non-conformities are subject to the Administrator's acceptance.

Note: A non-conformity is a condition within a training organization's course that does not conform to the Power Engineering Course Acceptance Criteria.

6.0 QUALIFICATIONS OF INSTRUCTORS IN THE CLASSROOM AND LABORATORY (POWER PLANT)

A minimum qualification for instructors shall be established by the training organization and must be acceptable to the Administrator (e.g., first class or, as a minimum, one class higher than the level of training delivered for power engineer core subjects).

7.0 ATTENDANCE POLICY

The training organization shall have an attendance policy.

7.1 Classroom Attendance

To receive an equivalent credit while attending an accepted full-time day program in lieu of the operation of a plant, a minimum attendance policy must be established by the training organization.

For distance-learning programs, all modules must be completed and final examinations passed. Records of this must be maintained and made available for review.

7.2 Power Engineering Laboratory (Lab) Attendance

To receive credit for power engineering lab time in lieu of the operation of a plant, an attendance policy must be established by the training organization. This attendance policy must clearly state that the person is required to obtain all of the laboratory hours that have been agreed to within the accepted course, along with a provision on how to make up lab time when a person is unable to obtain the hours during the normal time period.

7.3 Controlled Practicum Attendance

To receive credit for practicum time in lieu of the time required in the operation of a plant, the student must attend the specified number of hours at an acceptable, controlled practicum placement.

8.0 FACILITIES

8.1 Power Plant Laboratory Competency Guideline

For lab time to be used as qualifying experience, the lab facilities shall be accepted as a Power Engineering Power Laboratory that meets the Power Engineering Course Acceptance Criteria and the competency document. See Appendix A.

8.2 Examination Classroom Standards

ABSA has established a minimum standard for rooms that are to be used to conduct an ABSA examination. See Appendix B.

9.0 CURRICULUM

9.1 General – Core Curriculum

- The basic power engineering curriculum shall conform to the standardized examination syllabus approved by ACI.
- The courseware—developed in cooperation with and approved by IPECC, SOPEEC, and ACI—is acceptable for a power engineering course without further review.
- The trainee shall be required to successfully complete the course and pass the training organizations final examination(s).
- The pass mark shall be established by the training organization.
- Examinations re-write policy shall also be established.
- The training organization's examinations shall be available for review upon request.

9.2 Curriculum – Specific Courses

The course manual shall specify the course length, hours of instruction, assignments, as well as examinations for each course that is intended to lead toward certification as a power engineer.

9.3 Power Engineering Laboratories (Labs)

- Power engineering labs shall state the hours of training that are required.
- The maximum student-to-instructor ratio permitted shall be stated by the training organization. The recommended ratio is 10:1, and if the training organization wants to exceed the recommended ratio, then they are to provide their training plan to ABSA for consideration.
- Lab competencies and assignments shall be prepared for review by ABSA.
- The competencies for 4^{th} and 3^{rd} class level are to be obtained as prescribed in Appendix A.
- Documented records of student attendance, lab reports, and assessments shall be maintained and made available to ABSA for auditing purposes for a minimum of three years.

9.4 Controlled Practicum

A controlled practicum shall take place at a power plant of adequate kilowatt capacity to satisfy the minimum kilowatt capacity specified in the current Power Engineers Regulation for a specific class of certification. The duration of the controlled practicum shall be specified.

9.5 Controlled Practicum Objectives

- Practicum objectives and assignments shall be available for review by ABSA.
- The controlled practicum shall include a documented competency verification system. The competency verification system for a controlled practicum should include (but not be limited to) a written project report, line drawings of the plant, itemized task listings, projects/challenges, applicable at specific plant level, and attendance verification.
- A person with supervisory responsibility that is assigned by the chief power engineer of the practicum workplace shall verify that the trainee has satisfied each competency objective.
- The instructor with supervising responsibility shall monitor the trainee's progress while in the workplace.
- The chief power engineer of the plant and the supervisor shall provide final sign-off for the trainee upon completion of the practicum. The evidence of these sign-offs shall be on the ABSA AB-66 form.

10.0 COMPLETION OF COURSE

The training organization shall provide a description of the acceptance criteria that must be satisfied for a trainee to complete the program. The description shall include the means used to indicate the course has been successfully completed (e.g., diploma, certificate, statement of completion, etc.). Records shall be maintained to indicate the basis for awarding a certificate of completion. These records shall be made available to ABSA for review upon request.

11.0 COURSE ACCEPTANCE AND AUDIT PROCESS

11.1 Course Acceptance

Acceptance of a power engineering course may be granted to a training organization that complies with this standard and submits an acceptable program manual or a documented management system based on the ABSA Power Engineer Program Manual Guidelines. See Appendix C.

11.2 Audit Process

A power engineering course may be subject to a review by a SCO on the initial registration. Acceptance of a course may be granted for a period up to three years. ABSA will have a yearly audit strategy (Appendix D) and a self-assessment questionnaire that supports an ongoing auditing process. Courses may also be subject to random audits by a SCO, and acceptance may be withdrawn if the training organization is found not to be in compliance with this requirement document. Discontinued courses may be reinstated upon a

successful review and audit. Training organizations shall receive a course acceptance letter from the SCO.

12.0 POWER ENGINEERING LABORATORY REQUIREMENTS

APECC and ABSA have an agreement on laboratory competencies and equipment acceptable for laboratory courses. See Appendix A.

APPENDIX A – POWER PLANT LABORATORY COMPETENCY GUIDELINE

Introduction

Training organizations have built power plant laboratories and developed courses to train students in the operation and maintenance of power and heating plants. The Administrator accepts these courses as equivalent to practical plant operating experience and students may qualify for experience credits under the Power Engineer Regulation AR 85/2003.

Purpose

The purpose of this document is to provide guidance to training organizations that are interested in building a power plant laboratory and developing a training course acceptable to the Administrator. This acceptance criteria was developed in consultation with the Alberta Power Engineer Curriculum Committee and ABSA's Examination & Certification technical staff. It identifies the laboratory equipment and competency requirements for 5th, 4th, and 3rd class power engineering power plant laboratories.

The primary purpose of a power engineering lab is to supply a quality teaching aid in order to provide students with a practical application of what they are being taught. This is done by

- exposure to equipment comparable to what they could be operating in plants
- simulating conditions that would be encountered in real life situations
- challenging the students to think and work through problems that are created for them
- using a power plant simulator

Power Engineering Lab Requirements for Providing Experience for Certification

If the power engineering lab is intended to satisfy the experience requirements for certification under the Power Engineers Regulation, the lab equipment, lab work, and experience must be satisfactory to the Administrator. Students must perform a minimum of 200 hours in each of the 4th and 3rd class labs and operate the equipment in the lab, or they must complete an agreed combination of lab hours and controlled practicum

Note: For a 3rd class power engineering course, a power plant simulator can be used to substitute up to a maximum of 10% of the lab training hours, providing the simulator can perform most of the skills required for hands-on operation in a power plant. Educational institutes are required to submit a copy of the power plant simulator specification for review.

Power Engineering Power Lab Management Responsibility:

The program must identify who has the responsibility for

- coordinating the activities in the power engineering lab
- controlling the equipment used in the power engineering lab
- acting as the Chief Power Engineer with the required certification
- ensuring that the program requirements have been fully met
- documenting and signing the examination applications for students
- verifying to ABSA that the student has successfully completed the full power engineering lab course

All non-conformities in the Power Engineering Lab course must be addressed as soon as possible for compliance. This may require the need for a temporary approval by ABSA to continue the program. A detailed plan to address the non-conformities is required.

The program submitted for the lab must include a basic floor plan of the power lab facilities available that shows the approximate location of all registered boiler and pressure vessels, along with the A-numbers and kW ratings. It is required that any modifications to the power lab, after receiving approval from the Administrator, must be reviewed with ABSA's Examination & Certification department prior to making the change. It is also recommended that any plans to change the power lab's equipment or process for the training of students be first discussed with ABSA's Examination & Certification department for prior approval in order to maintain the approved standing in the power lab accreditation with ABSA.

Power Lab Equipment:

The following is the minimum power lab equipment that is required:

- two interconnected power boilers, one of which must be a water-tube design
  4^{th} class plant minimum (>500kW capacity based on wetted heating surface)
  3^{rd} class plant minimum (>1,000kW capacity based on wetted heating surface)
- blowdown tank
- steam turbine driven electric generator complete with all auxiliary equipment
- twin boiler feed pumps, one of which is steam driven
- water treatment program
- deaerator
- feed-water heater/heat exchangers
- internal combustion engines and auxiliaries
- refrigeration HVAC lab (ammonia refrigeration system or other refrigerant)
- lube oil system
- air compression equipment and auxiliaries
- instrumentation and electrical equipment
- steam traps (baffle type, impulse trap, and disk trap)

- variety of pipe fittings
- variety of valves
- safety valve and pressure reducing valve
- hand and power tools used for the pressure equipment in the power lab
- electrical meters; voltmeter, ammeter and ohmmeter
- mechanical specialty tools as well as micrometer and Vernier calipers
- power plant simulator (optional)

Note: Additional power lab equipment that is over and above the minimum required is acceptable.

Boiler Power Lab Competencies:

Fourth Class Boiler Competencies:

Each student will be required to perform a minimum of 200 hours of lab time in which they will be required to learn the following tasks:

- explain the boiler operating and safety procedures
- demonstrate how to blow down the water column and gauge glass as well as test the gauge glass and water column levels
- demonstrate how to prepare and install a gauge glass
- demonstrate or explain the operation of try-cocks
- demonstrate how to start up a boiler
- demonstrate how to regulate the boiler pressure
- demonstrate how to take boiler water samples and conduct water tests
- demonstrate how to recognize the correct burner flame fuel/air mixture through flue-gas analysis
- demonstrate and explain the importance of purging a furnace
- demonstrate how to test a safety valve by the try lever or pop test
- explain how to perform an emergency boiler and auxiliaries shutdown in a controlled manner
- demonstrate the correct procedure for warming up a high-pressure steam line and charging the line to operating pressure
- explain how to take corrective action for a low water level, high water level, burner flame failure, high boiler pressure, and a high furnace pressure as well as demonstrate how to safely test these safety devices
- demonstrate how to
  - start, stop, and monitor a boiler and auxiliary equipment
  - identify the starting and stopping controls along with the protection trips
  - perform daily/weekly and monthly checks
  - perform preventative maintenance to the pressure equipment
- demonstrate how to change over oil heaters, oil coolers, heat exchangers, etc., while the boilers and auxiliaries are in operation
- demonstrate safe lock-out procedures to the boiler and auxiliaries

- identify various valves, showing their application, purpose, and the meaning of the markings and data that are on the valves
- identify boiler and auxiliary equipment components
- demonstrate how to properly blow-down a boiler

Third Class Boiler Competencies:

Each student will be required to perform a minimum of 200 hours of lab time in which they will be required to learn the following tasks, in addition to the tasks for the 4th class boiler competencies:

- demonstrate when applicable and explain how to switch over fuel in a multi-fuel boiler system
- demonstrate or explain how to clean a burner assembly
- demonstrate how to test boiler interlocks
- demonstrate how to operate a boiler and the auxiliary equipment through the use of electronic controls (e.g., plant master, set points, on off/adjustable controls for; water level (high and low), steam pressure setting, blowdown bottom and top (if electronically controlled), combustion controls, etc.)
- demonstrate the operation of an operational protection system with their components and perform routine checks and maintenance on this equipment
- demonstrate where applicable and explain the requirements for a “confined space procedure” that affects the pressure equipment within the power lab
- demonstrate where applicable and explain how to inspect and repair refractory materials
- demonstrate how to perform the mechanical cleaning of a boiler
- demonstrate or explain how to operate soot blowers
- demonstrate how to prepare a boiler for internal inspection
- demonstrate (if possible) and explain how to prepare a boiler for a wet and dry lay up
- as a part of a team/crew/shift/class, demonstrate how to prepare a boiler for operation immediately after an internal inspection
- as a part of a team/crew/shift/class, demonstrate the proper cold startup procedure for a boiler

Third Class Plant Simulator:

- demonstrate how to start, stop, and synchronize a generator as well as monitor a boiler and its auxiliaries
- demonstrate how to take corrective actions for low water level, low-low water level, high water level, flame failure, low furnace pressure, high furnace pressure, and high boiler pressure
- demonstrate how to safely shut down a boiler and auxiliary equipment as a result of an emergency situation (e.g., loss/reduction of combustion air, boiler feed pump, boiler tube failure, loss of generator load, etc.)

- demonstrate the operation of control valves, transmitters, and recorders and explain their operation
- demonstrate the operation of alarms, show corrective procedures in attending to the alarms, and explain the purpose of these alarms and how they work
- explain the difference between local and remote controllers
- explain the purpose of the motor breaker stop button and the consequences of racking out a motor breaker for a feedwater pump that is in the run/remote mode
- simulate communications and actions to be performed by the panel operator (simulator operator) and the floor operator (the person carrying out the action required)

Common Power Lab Competencies:

Steam Turbine Driven-Electric Generator

- demonstrate a pre-start check prior to starting a steam turbine/generator set
- demonstrate the correct procedure for warming up a steam line leading to the steam turbine and have the line charged at the required operating pressure
- demonstrate and explain (if applicable) how to safely start up a steam turbine following the required steps (e.g., preparing condenser, cooling water to oil coolers, drains that are required to be opened or closed, steam glands, oil level, auxiliary oil pump, jacking oil pump, barring gear, condenser vacuum, throttle valve operation, warming up the turbine, testing the overspeed trip, etc.)

Note: Some steam turbines will not have all these auxiliaries. If this is the case, the student must be able to explain what they would do if the turbine was equipped with these devices.

- demonstrate the correct procedure to synchronize and operate an electrical generator
- demonstrate the safe shut down procedures for a steam turbine/generator set and (if applicable) set the turbine on barring speed
- demonstrate the correct procedure to stop a turbine engine under both routine and emergency situations
- demonstrate and explain, if applicable, how to carry out routine steam turbine/generator maintenance, for example, changing over oil coolers, cleaning oil coolers, removing water from lubrication oil tank, filling lubrication oil tank, checking for overheated bearings, checking for lubrication oil contaminates, etc.
- demonstrate how to operate a steam turbine/generator by performing routine inspections during steam turbine/generator operation
- demonstrate the ability to properly isolate the mechanical and electrical equipment
- identify and explain all of the steam turbine/generator components and their auxiliary equipment

Internal Combustion Engines and Auxiliaries

- demonstrate a pre-start and a full startup of an internal combustion engine
- demonstrate a safe shutdown following the shut-down procedure
- demonstrate the routine checks required for an internal combustion engine that is running at normal load
- demonstrate preventative maintenance for an internal combustion engine while the engine is locked out and operating
- demonstrate the inspection and testing of the internal combustion engine safety devices

Electric Motors

- interpret readings from the motor circuit breaker (e.g., overload, ground fault, under voltage, current surge, etc.)
- demonstrate proper isolation and lock-out of electric circuit breakers for motors
- demonstrate how to start up and shut down electric motors
- determine if motor amp draw is normal
- explain the term "percent loading" and how it is determined
- identify the correct motor rotation
- identify common causes of trips (e.g., overheating, vibration, overload, etc.)
- explain (if applicable) how to change motor filters and clean brushes, contacts, etc.
- demonstrate (if applicable) and explain an "electrical rack out" procedure

Refrigeration HVAC Lab (Ammonia Refrigeration system or other refrigerant)

- demonstrate the starting up of a refrigeration system
- demonstrate the operational checks of an operating refrigeration system
- demonstrate the safe shutdown of a refrigeration system
- activate the emergency response procedure that is required during a refrigerant release
- perform inspection for leaks (e.g., soap test, halide torch test, litmus paper detector, etc.)
- explain how to charge the refrigeration system
- explain how to purge the system of non-condensable gases
- demonstrate or explain how to add oil to the crankcase
- demonstrate how to test the safety devices on the refrigeration system (e.g., low oil pressure, high oil pressure, high gas temperature, etc.)

Note: Depending on the type of refrigeration system, the skills required below may or may not apply.

Deaerator, Feed-Water Pumps and Heat Exchangers

- trace water lines from the water supply to the boilers

- demonstrate pre-start checks and startup operation of boiler feed pumps, including recirculation valve operation
- demonstrate the startup and shutdown of a deaerator
- demonstrate how to put a heat exchanger in and out of service
- explain how to prepare a heat exchanger for an internal inspection
- demonstrate how to test a heat exchanger for leaks
- explain how to change a tube in a heat exchanger
- demonstrate or explain how to back flush a heat exchanger
- demonstrate how to change pump and/or valve packing
- demonstrate how to align a pump shaft

Water Treatment Equipment

- explain the requirements of handling and storing hazardous materials
- demonstrate the use of the appropriate personal protective equipment
- explain the purpose of the water-treatment equipment
- trace chemical lines associated with the water treatment equipment
- demonstrate pre-start checks, startup, and monitoring of the feedwater system
- demonstrate the operation and maintenance requirements for feedwater treatment systems (e.g. filters, softeners)
- demonstrate the backwashing requirements of a feedwater treatment system
- perform feedwater testing
- demonstrate a regeneration of a feedwater pre-treatment system, including backwashing

Water Treatment Testing

- explain Workplace Hazardous Material Information System (WHMIS) as it relates to water treatment
- explain/demonstrate methods of internal treatment
- demonstrate the storage and disposal of wastes in accordance with appropriate legislation
- perform water treatment

Air Compression Equipment and Auxiliaries

- identify the components of the air compression system, including instrument air and station (general) air systems
- explain the purpose of the various pieces of equipment on an air compression system
- trace the air and cooling water paths
- demonstrate pre-start checks and startup of an air compressor and auxiliary equipment, as applicable (air dryers, intercoolers, aftercoolers, etc.)
- demonstrate and explain the loading and unloading of the compressor
- demonstrate a safe shutdown procedure

- demonstrate the operation and perform routine checks on compressed air systems
- demonstrate and explain the required maintenance of compressed air systems and components

Boiler House Maintenance

- verify proper steam-trap operation (mechanical, thermodynamic, thermostatic)
- identify the various pipe fittings (coupling, cap, reducer, reducer tee, tee, 90 degree elbow, plug, close nipple, union, etc.)
- explain various valves (gate, globe, needle, boiler non-return, pressure-reducing, etc.)
- demonstrate the inspection and testing of all pressure relief devices within the power lab
- prepare a boiler for a pressure test at operating pressure
- demonstrate the use of hand and power tools as needed, micrometer, and Vernier calipers
- identify the parts of a control valve and explain the purpose of each
- demonstrate the inspection and adjusting of pressure reducing valves
- explain the plant electrical supply and distribution system
- demonstrate an inspection of all pressure equipment in the power lab

General

- demonstrate the ability to trace applicable process lines
- explain lab feedwater control systems (e.g., on/off, single, double, triple element as fitted)
- identify various instrumentation components (e.g., transducers, transmitters, sensors, etc.).

APPENDIX B – EXAMINATION CLASSROOM REQUIREMENTS

The following was prepared by ABSA at the request of and for the benefit of clients who wish to request special examination sittings at their location:

- Exam rooms must be large enough to accommodate the number of candidates.
- The exam room shall be set up in rows of tables and chairs with at least three feet between rows and with reasonable chair access.
- Each candidate shall have at least eight square feet of smooth writing surface.
- The exam room must be controlled at a comfortable temperature and have good lighting adequate for reading and writing.
- The exam room shall be located in a normally quiet area with washrooms in the same building, on the same floor, and in close proximity to the exam room.
- The room should have a working clock large enough to be read from all desks.
- Emergency evacuation procedure should be posted in the exam room.

APPENDIX C – POWER ENGINEERING COURSE MANUAL GUIDELINES

Preamble: These Guidelines were developed by ABSA and reviewed and approved by APECC in 2003.

Purpose: To provide training organizations with guidance in preparing Power Engineering Course Manuals in order to promote consistency.

1.0 Introduction

Include any relevant information about the training organization in general, program history, key industries in the immediate geographic area, etc.

2.0 Course List

Summarize the information usually contained in a training organization calendar, listing courses by semester, to produce a list with course numbers, course names, and hours per semester.

Courses must include instruction in power theory, thermodynamics, and applied mechanics (i.e., “core courses”). List the total program hours not including summer work experience.

3.0 Accreditation

Indicate the status of any plans to obtain Canadian Technology Accreditation Board (CTAB) or The Association of Science and Engineering Technology (ASET) accreditation at the technologist level.

4.0 Student Information

Briefly describe typical admission statistics, graduation rates, attendance policies, entrance requirements, and typical pass marks.

5.0 Instructor Information

Include a list of all instructors teaching core courses in the power engineering courses along with their key qualifications.

All instructors teaching core courses must have a valid Alberta Power Engineering Certificate, and lab instructors must have a certificate appropriate for taking charge of the power lab facilities, according to the Power Engineers Regulation under the Safety Codes Act. Instructor/student ratios for classroom theory and for power lab must be listed in this section. For power lab classes, the maximum number of students per instructor is 10.

6.0 Power Lab Facilities (if applicable)

A basic floor plan diagram is required that shows the approximate location of all registered pressure vessels and boilers, along with the pressure equipment “A” number and kW ratings.

Major modification or major renovation plans for power lab facilities should be forwarded to ABSA’s Examination & Certification department prior to construction.

7.0 Audits

ABSA audits will be conducted at each training organization site as per schedule.

8.0 Transfer Courses/Distance Learning

Explain the process for advance credits, if any, toward power engineering program courses for all distance-learning options, including night classes, computer management learning (CML) instruction, or traditional correspondence.

9.0 Controlled Practicum

Include details of the controlled practicum. All controlled practicums must be documented on an ABSA AB-66 Application for Engineers’ Examination form and must be signed by the Chief Engineer of the power plant as well as the college program coordinator. Work experience must be at the appropriate power engineer level.

10.0 Power Lab Hours

List power lab hours, which must be a minimum of 200 hours or an agreed combination of lab hours and controlled practicum.

11.0 Management Responsibility

Include details of who is currently the program coordinator, who signs the examination applications for students, and who the program coordinator reports to.

12.0 Non-Conformities

Include details of all non-conformities for possible temporary approval by ABSA. Also include a detailed plan of how non-conformities will be addressed.

13.0 Course Completion

Indicate the mechanism that will be used to verify that ABSA will be notified when a student has successfully completed the entire power engineering course.

14.0 Lab Requirements (if applicable)

The primary purpose of a Power Engineering Lab is to supply a quality teaching aid in order so that the students can see some practical application of what they are being taught.

This is done by

a. exposure to equipment comparable to what they could be operating in plants
b. simulating conditions that would be encountered in real-life situations
c. challenging the students to think and work through problems that are created for them

15.0 Advisory Committee

The training organization/industry advisory committee member list must be provided for the power engineering programs and updated annually.

16.0 Course Manual

The Power Engineering Course Manual shall be updated on a regular basis. In the event of changes in a program that are not addressed in the manual, this will be viewed as a non-conformance.

APPENDIX D – TRAINING ORGANIZATIONS AUDIT PROGRAM

The purpose of the audit program is to establish a formal process in conducting an audit on a training organization's power engineering course. The outcome of the audit is to determine if the course either meets or continues to meet the Power Engineering Course Acceptance Criteria that has been established by the Administrator.

AUDIT STRATEGY AND PROCESS

In performing the audit to the training organization's power engineering course, the auditor will confirm

a) that the training organization's management team continues to support their program and that resources are available to implement the activities effectively
b) that the management team and their instructors continue to maintain and implement their power engineering course in accordance with the Power Engineering Course Acceptance Criteria
c) if any changes to the accepted course program have occurred
d) if the action items from the previous audit have been completed

A. Communication

ABSA auditors will provide the training organization a report on the findings during the audit.

Once the initial audit has been completed and there are no deficiencies, the auditor will prepare a course recommendation letter to the Administrator for acceptance of the training organization's course. For renewal audits that have no deficiencies, the auditor will prepare a course recommendation letter to the Examination & Certification Manager for acceptance.

If the audit shows that there are deficiencies in the course program, this will be described in an audit report that will be given to the training organization. This could lead to the cancelation of the course as being acceptable to the Administrator as a course defined in the power engineering regulation.

B. Multiple Locations

For training organizations that have multiple locations identified in a single-course training manual, an auditor may decide to conduct the audit at one or more locations. If the auditor selects only some of the locations to audit and the results of the audits confirm satisfactory implementation of the program, it is not necessary to audit each location every year.

C. Audit Reports

Prior to the audit, the training organization will be requested to fill out and return a completed “Self-Assessment Questionnaire” that will assist the organization in preparing for the audit.

REVISION LOG

Edition #	Revision #	Date	Description
1st Edition issued 2016-11-08			
1	1	2017-07-24	Added APECC to Definitions & Acronyms, correction in Section 12 'IPECC' updated to 'APECC'.
1	2	2018-06-13	Replaced 'Education & Certification' with 'Examination & Certification' throughout and document reaffirmed and IB number updated.
1	3	2019-12-13	Replaced "recommendation" with "acceptance" in Section 11.2. Two instances of "shall" were replaced with "should" in Appendix B. Document reaffirmed.
2	0	2020-01-24	Added document reaffirmation date.