



DOCUMENT 103

STANDARDS AND CRITERIA FOR THE ACCREDITATION OF CONSTRUCTION EDUCATION PROGRAMS

This Document is effective for all Self-Evaluation Studies submitted on or after August 1, 2023, and for all Site Visits after August 1, 2023.



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INTRODUCTION

INTENT

The purpose of this document is to define the standards and criteria by which those construction education programs seeking accreditation or re-accreditation by the American Council for Construction Education (ACCE) shall be assessed. Assessment shall be by peer educators from other construction education programs in concert with construction practitioners, representatives of the construction industry associations and organizations, and society at large. Assessment shall include an on-site visit by a designated team following the procedures specified in ACCE Document 101, *Accreditation Manual*.

DEFINITIONS

- **Assessment:** A process used to identify, collect, and prepare data to evaluate the achievement of Learning Outcomes and Degree Program Objectives.
 - **Direct Assessment:** Evidence of student learning in the form of a student product or performance that can be evaluated.
 - **Indirect Assessment:** Evidence of student learning in the perception, opinion, or attitude of students (or others).
- **Construction Documents:** The written and graphic documents prepared or assembled by the architect or engineer for communicating the project design for construction and the administration of the construction contract. Construction documents include two major types of documents: Procurement documents and contract documents.
- **Degree Program:** ACCE accredits post-secondary Degree Programs in construction. A Degree Program is an educational system with identified academic coursework, containing the body of knowledge necessary to obtain a college or university degree in that field of study. The Degree Program has objectives, learning outcomes, a curriculum, faculty, and facilities.
- **Degree Program Objectives:** Statements describing Degree Program desired accomplishments in support of its mission.
- **Educational Institution:** An Institution of higher learning authorized to grant advanced degrees while providing the facilities for instruction or research (e.g., a university or college).
- **Educational Unit:** ACCE recognizes there are units at Institutions of higher learning composed of faculty and staff capable of teaching or conducting research. These units typically offer Degree Programs with which they are affiliated. Operations may include budgets, faculty evaluations, promotion and tenure, scholarly activities, and determination of work assignments.
- **Evaluation:** A process of interpreting the meaning of the data accumulated through assessment practices. Evaluation determines the extent to which Learning Outcomes or Degree Program objectives are being achieved.



- **Learning Outcomes:** The set of knowledge, skills, and abilities to be attained by students upon completion of an event.
 - **Course Learning Outcomes (CLOs):** Learning Outcomes identified for a single course.
 - **Program Learning Outcomes (PLOs):** Learning Outcomes identified for graduation as defined by the Degree Program. PLOs may differ from Institution to Institution as they may represent the individual character of the program and may place emphasis on specialized topical areas.
 - **Student Learning Outcomes (SLOs):** Learning Outcomes identified for graduation from an accredited Degree Program as defined by ACCE, herein. The SLOs establish the minimum level of learning and the body of knowledge to be addressed by the Degree Program.
- **Performance Criteria:** Measurable achievements identifying required performance to meet the Learning Outcome such as an average score, a minimum rating, etc.
- **Shall:** Denotes a requirement that is mandatory.
- **Should:** Denotes a guideline or recommendation.
- **Standards:** Qualitative statements of minimum requirements upon which an accredited Degree Program shall be judged.

DEGREE PROGRAM NAME

It is preferred that the formal title of the Degree Program contains the word "construction".



SECTION ONE: PROGRAM ELIGIBILITY

STANDARD 1: Be located in a regionally accredited institution of higher learning.

1. REQUIREMENTS

1.1. INSTITUTION AND DEGREE PROGRAM ELIGIBILITY

To be considered for accreditation, a Degree Program in construction education shall:

- 1.1.1. Be located in an Educational Institution of higher learning that is legally authorized under applicable laws to provide a degree program beyond that of the secondary level. Furthermore, in the case of those institutions in the United States, be accredited by the appropriate regional accrediting agency, and in the case of other countries, be accredited by the accrediting agency appropriate for its locale, if such exists.
- 1.1.2. Have been in operation for sufficient time to have at least one (1) class of graduates receiving the degree for which accreditation is sought.
- 1.1.3. Offer a construction Degree Program with a major emphasis on professional construction education.
- 1.1.4. Have a designated administrator responsible for the leadership and management functions of the Degree Program under review.

1.2. ANNUAL FEES

A Degree Program accredited by ACCE shall pay the annual sustaining and other fees as required.



SECTION TWO: GOVERNANCE AND ADMINISTRATION

STANDARD 2: Be administered as a distinct professional degree program that has sufficient institutional support, authority, and resources to enable the achievement of the degree program’s stated mission, goals, and objectives.

2. REQUIREMENTS

2.1. INSTITUTIONAL ORGANIZATIONAL STRUCTURE

2.1.1. The organizational structure of the Educational Institution shall provide a basis for establishing authority and responsibility, utilizing resources, and achieving the Degree Program’s mission, goals, and objectives.

2.1.2. The Degree Program and its relationship to the overall organizational structure of the Institution shall be documented, well-defined, and publicly accessible.

2.2. EDUCATIONAL UNIT AUTONOMY, STRUCTURE, AND LEADERSHIP

2.2.1. The Educational Unit shall be a distinct and identifiable entity within the Educational Institution.

2.2.2. The Degree Program or Educational Unit shall be headed by a qualified administrator who is knowledgeable in and committed to the construction discipline.

2.2.3. The organizational structure of the Educational Unit shall be designed to encourage communication, coordination, and interaction among administrative officers, faculty, and students involved with the Degree Program, other disciplines, and other Educational Institutions.

2.2.4. The Educational Unit and leadership structure shall be well-defined and publicly accessible.

2.3. FACULTY PARTICIPATION

2.3.1. The faculty shall participate in the Educational Unit’s governance and administration in accordance with the Educational Institution’s guidelines.

2.3.2. The faculty shall participate in Degree Program maintenance and administration in accordance with the Educational Institution’s guidelines.

2.4. CONTRIBUTION TO THE INSTITUTION

The Educational Unit and Degree Program shall contribute to the mission of the Institution.



SECTION THREE: CURRICULUM FOR THE BACHELOR'S DEGREE

For a Bachelor's Degree in Construction, refer below.

For an Associate Degree in Construction, refer to Appendix A.

For a Master's Degree in Construction, refer to Appendix M.

For an Associate Degree in HVACR, refer to Appendix H-A.

For a Bachelor's Degree in HVACR, refer to Appendix H-B.

STANDARD 3: The Degree Program shall contain a required curriculum that includes business and management courses as well as construction courses that address all prescribed student learning outcomes.

To meet this standard, the curriculum of the Degree Program shall:

- Account for the semester hours (or quarter hours) of the categories specified in Table 3.3.1 and
- Contain required Construction Courses that have learning outcomes that address all the Student Learning Outcomes listed in Section 3.4.

3. REQUIREMENTS

3.1. DEGREE PROGRAMS

It is the Degree Program's responsibility to develop its own goals, objectives, and particular emphasis, and prescribe the number of courses for graduation, sequencing of study, course numbers, and titles.

3.1.1. The Degree Program shall be consistent with the teaching philosophy and the purposes of both the Educational Unit and the Institution.

3.1.2. The Degree Program curriculum shall be related to the needs of society and the construction profession.

3.1.3. The Degree Program curriculum may require specific General Education courses for graduation to provide the desired educational experience for students. These courses shall be identified, and a description of how each course supports the construction curriculum shall be provided.

3.2. BUSINESS AND MANAGEMENT

3.2.1. Only general and fundamental business topics can be used for this requirement and are intended as foundational knowledge for construction business practices. These topics shall be taught outside of the Degree Program unless the courses are unavailable at the Institution.

3.2.2. They shall be separate and distinct and are not to be confused or intermingled with the construction business and management topics.



Graduates of Bachelor’s Degree Programs shall have an understanding of the fundamentals of:

- Accounting, and
- Economics, and
- Business law, and
- Principles of management.

A minimum of 12 semester hours (18 quarter hours) is required in the business and management core subject area.

3.3. CONSTRUCTION

Required courses counted in the core subject area of construction shall address all the Student Learning Outcomes listed in Section 3.4.

A minimum of 50 semester hours (75 quarter hours) is required in the construction core subject area.

Table 3.3.1 Summary of Category Semester (Quarter) Hour Requirements

Curriculum Categories	Bachelor’s Degree	
	SH*	QH**
3.2 Business & Management	12	18
3.3 Construction	50	75

* Semester Hour

** Quarter Hour

3.4. STUDENT LEARNING OUTCOMES

Note: In defining the Learning Outcomes for Bachelor’s Degree Programs, the following verbs consistent with Bloom’s taxonomy are used:

- Create:** At the highest level, students are producing new ideas or products that integrate the knowledge they have gained. When students are involved in creating new artifacts, they are actively engaged in the subject matter.
- Analyze:** Students begin to develop higher order thinking. They may be asked to compare and contrast or take a concept and break it into parts to explore the relationships present.
- Apply:** At this level, students begin to put the information they are learning into context. Here they are able to integrate ideas across multiple situations or utilize the content in a new way.
- Understand:** At this level, students demonstrate that they understand the content by explaining, summarizing, classifying, or translating the given information.

Upon graduation from an accredited Bachelor's Degree Program, ACCE requires that all graduates shall be able to:

1. *Create written communications appropriate to the construction discipline.*
2. *Create oral presentations appropriate to the construction discipline.*
3. *Create a construction project safety plan.*
4. *Create construction project cost estimates.*
5. *Create construction project schedules.*
6. *Analyze professional decisions based on ethical principles.*
7. *Analyze methods, materials, and equipment used to construct projects.*
8. *Apply electronic-based technology to manage the construction process.*
9. *Apply basic surveying techniques for construction layout and control.*
10. *Understand different methods of project delivery and the roles and responsibilities of all constituencies involved in the design and construction process.*
11. *Understand construction accounting and cost control.*
12. *Understand construction quality assurance and control.*
13. *Understand construction project control processes.*
14. *Understand the legal implications of contract, common, and regulatory law to manage a construction project.*
15. *Understand the basic principles of sustainable construction.*
16. *Understand the basic principles of structural behavior.*
17. *Understand the basic principles of HVAC, electrical and plumbing systems.*

3.4.1. Provide an index, crosstab, curriculum map, or other form of summary relating courses used to meet the 50 semester hours (75 quarter hours) construction core requirements to the SLOs. The Educational Program must demonstrate that required construction courses adequately prepare graduates to be able to achieve all required SLOs.

3.4.2. Provide a syllabus for each course used in fulfillment of the required 50 semester hours (75 quarter hours) in Construction (reference Table 3.3.1). Syllabi for the courses taught by the program shall include the following:

- CLOs in relation to the SLOs,
- Instructional methods,
- Topical outline,
- Method(s) of assessment, and
- Grade performance criteria.

3.5. COURSES DELIVERED BY ALTERNATIVE FORMS OF DELIVERY

Courses delivered by alternative forms of delivery to the traditional face-to-face classroom (e.g., distance learning or online courses via synchronous or asynchronous delivery) may be incorporated in an accredited Degree Program's curriculum under the following conditions:

- 3.5.1. The alternative delivery courses will be accepted for transfer credit as reviewed and accepted by the accredited Educational Institution programs.
- 3.5.2. The Degree Program shall display the same kind of course material for evaluation of alternative delivery courses as set forth in this document for a traditionally offered classroom lecture or laboratory course. Online course materials, including examples of student work, may be presented for review in online format as long as they are readily accessible to the Visiting Team and are accurately identified with course number and semester (or quarter).
- 3.5.3. Programs that offer the same course via two or more forms of delivery (e.g., live classroom and online) shall demonstrate that courses with the same course number have consistent content and Course Learning Outcomes.

3.6. MULTIPLE CAMPUS DEGREE PROGRAM DELIVERY

It is possible for split or dual institutional campuses to be accredited as a single Degree Program as long as the following conditions exist:

- 3.6.1. There is a single Institution authorized to grant the degree. The Institution is to provide evidence through student diplomas and transcripts from all campuses.
- 3.6.2. The Degree Program is led by a single qualified administrator from the home campus.
- 3.6.3. The Degree Program administrator has sufficient authority and experience to be able to provide the required leadership and supervision that allows the development of a strong academic Degree Program.
- 3.6.4. There are adequate faculty and staff to successfully facilitate the Degree Program at different geographic campus locations.
- 3.6.5. Degree Program curriculum, Student Learning Outcomes, and the degree requirements are the same on all campuses.
- 3.6.6. If multiple Educational Units are involved to support the Degree Program:
 - All Educational Units shall use only one academic quality plan identifying the process used for the continuous improvement of the Degree Program.
 - The goals and objectives of the Educational Units need to be aligned to facilitate the success of the Degree Program and its continual improvement.

3.6.7. One Educational Unit shall be identified as the home for the Degree Program. This unit shall be responsible for the successful delivery of the Degree Program and is the geographical base for Degree Program operations.

Dual programs not meeting all of these conditions shall be accredited independently.

3.7. DUAL OR SECOND DEGREES

ACCE accredited undergraduate Degree Programs that accept credits from other Degree Programs (second degrees, dual credit, and the like) or in any other way modify curriculum shall demonstrate that the modified degree path for those students fulfills the required curriculum requirements. The Degree Program shall meet all stated requirements regardless of whether the degree earned is first, second, or a subsequent Bachelor's degree. This also applies to existing, accredited Degree Programs that modify the curriculum for specific tracks, areas of specialization, or emphasis. Modified degree paths that do not meet ACCE curriculum requirements shall be specifically identified within their marketing materials (e.g., website, brochures, etc.) that they are not included in the ACCE accreditation.



SECTION FOUR: FACULTY AND STAFF

STANDARD 4: Establish and implement policies for the recruitment, retention, promotion, and development of qualified faculty.

4. REQUIREMENTS

In determining the qualitative and quantitative adequacy of the faculty and staff for the Degree Program, various criteria are applied. Significant emphasis is placed on the qualifications and responsibilities of the Degree Program's faculty.

4.1. FACULTY QUALIFICATIONS

- 4.1.1. The faculty shall possess appropriate academic qualifications, professional experience, and where applicable, pursue scholarly and creative activities essential to the successful conduct of an academic Degree Program of construction.
- 4.1.2. The faculty shall have demonstrated expertise in the areas for which they have teaching responsibilities and possess adequate background in the supporting disciplines from which their area of specialty draws major concepts and principles.
- 4.1.3. Evaluation of faculty competence shall recognize appropriate professional experience as being equally important as a formal educational background.

4.2. FACULTY SIZE

- 4.2.1. The size of the construction faculty shall be commensurate with the number of courses offered, the number of students enrolled, and the other responsibilities of the faculty.
- 4.2.2. The faculty size shall be appropriate to the type of instruction and comparable to that of the other academic Degree Programs of similar size and function within the Institution.
- 4.2.3. The Institution shall recognize the total professional responsibilities and services (in addition to the teaching assignments) of each faculty member in allocating faculty positions to the Degree Program.

4.3. FACULTY WORKLOAD

- 4.3.1. Faculty workload shall be distributed fairly.
- 4.3.2. It is recognized that workload assignment is a difficult process and requires the qualitative judgment of the administrator. The following factors shall be considered in the determination of a workload: number of lecture hours, number of laboratory hours, number of separate preparations, class size, availability of teaching assistants, counseling and advising activities, administrative activities, committee assignments, extension or continuing education commitments, and research activities.

4.4. ADMINISTRATIVE AND TECHNICAL STAFF SUPPORT

Administrative and technical staff support shall be adequate to sustain fulfillment of the Degree Program's mission and be consistent with the level of support provided to other Degree Programs of similar size and function within the Institution.



4.5. EMPLOYMENT POLICIES

- 4.5.1. Faculty compensation shall be competitive with comparable positions within the Institution to ensure that quality faculty are in place and high morale exists within the faculty.
- 4.5.2. To ensure that the construction unit is competitive in seeking faculty members, the Institution shall provide the faculty with rank, status, salary, and benefits commensurate with their educational background and professional experience.

4.6. PROFESSIONAL DEVELOPMENT POLICIES

- 4.6.1. Continuing professional growth of the faculty is a prerequisite to effective teaching. Administrative policy shall plan and ensure that opportunities for professional development are made available to faculty.
- 4.6.2. Consulting work is desirable and shall be encouraged, provided such activities do not conflict with normally assigned duties and responsibilities of the faculty member.

4.7. FACULTY EVALUATION

- 4.7.1. The Educational Unit shall have a clearly defined policy of faculty evaluation, in compliance with the Institution's general policy and practices, to assure the maintenance of high-quality instruction.
- 4.7.2. These evaluations shall be made on a cycle determined appropriate by the Institution, and may include student, peer, or administrator evaluations.



SECTION FIVE: STUDENT POLICIES

STANDARD 5: Establish and implement student policies for recruitment, retention, academic, and professional development that assures student success.

5. REQUIREMENTS

5.1. ACADEMIC POLICIES

Policies pertaining to academic requirements shall be in writing and shall be developed with input from faculty, students, and other Degree Program stakeholders. Such policies shall clearly indicate required courses and acceptable elective courses that meet Degree Program objectives and the SLOs.

5.2. TEACHING QUALITY

The Degree Program shall have a clearly established process for ensuring quality of teaching by full-time and part-time faculty that is consistent with the Degree Program's mission and objectives. A mechanism shall be in place through which there is a systematic assessment and clear set of metrics to verify improvement of the quality of teaching within the Degree Program.

5.3. ADMISSIONS AND ENROLLMENT

The Degree Program's requirements for admission shall reflect standards supportive of students' potential for success in studies and in professional practice, while also reflecting Institution-wide policies and the Degree Program's mission, goals and objectives.

5.4. RECRUITMENT AND COMPOSITION

The Degree Program shall undertake appropriate recruitment and retention strategies to achieve its aspirations regarding student composition. Recruitment and publicity for the Degree Program shall be comparable to other programs of the Institution.

5.5. ACADEMIC ADVISING AND MENTORING

The Degree Program shall make available to students an organized system of academic advising and counseling and professional guidance. The process shall be clearly outlined and include competent, continuous, and consistent program advising, progress appraisal, and career guidance.

5.6. COURSE SCHEDULING

Courses shall be offered in formats and times to ensure appropriate student access and timely completion of Degree Program requirements.

5.7. STUDENT PLACEMENT

The Degree Program or its Institution shall provide a student placement service that can effectively assist students in entering the job market. The Degree Program shall ensure that students are well informed about and have adequate access to placement services and opportunities that are or may be available.



5.8. EXTRACURRICULAR ACTIVITIES

Extracurricular activities provide valuable interpersonal and leadership experience. Thus, students shall be encouraged to participate in activities that complement their academic studies. Such activities shall include involvement with industry-based professional and trade organizations. Students who are participating in courses via alternative delivery methods and who are not able to participate in campus-centered extracurricular activities shall be encouraged to become involved with industry-based professional and trade organizations and other related volunteer activities in their local area. The extent of participation by students in extracurricular activities is an indication of the unity of the student body and promotes interest in citizenship and professional societies after graduation.

5.9. STUDENT FEEDBACK

The Degree Program shall use an assessment strategy that systematically uses student feedback and input as an integral part of the decision making and continuous improvement processes.

5.10. FINANCIAL AID AND SCHOLARSHIPS

The Institution shall keep students informed about the availability of financial aid and shall have published criteria for its allocation. The Degree Program shall keep students informed of scholarship opportunities.



SECTION SIX: PHYSICAL RESOURCES

STANDARD 6: Ensure the availability of safe and appropriate facilities, equipment, and services necessary to accommodate all activities in support of the Degree Program’s mission, goals, and objectives.

6. REQUIREMENTS

Adequate physical resources for the Degree Program are an important indicator of institutional support, as such the Degree Program shall be accorded minimum resources comparable to other Degree Programs of similar function within the Institution, and commensurate with educational objectives.

6.1. OFFICES, CLASSROOMS AND LABORATORY SPACES

Physical facilities, such as offices, classrooms, laboratories, and associated equipment shall be available and maintained to adequately support the Degree Program’s mission, goals, and objectives; to enable students to attain required Learning Outcomes; and provide faculty and staff with adequate space.

6.2. LIBRARY RESOURCES

Students shall have access to adequate library services to enable attainment of required Learning Outcomes. Library resources shall support the scholarly and professional activities of the faculty.

6.3. INFORMATION SYSTEMS AND TECHNOLOGICAL EQUIPMENT

Students and faculty shall have access to adequate computational hardware and software to enable students to attain required Learning Outcomes and to support the scholarly and professional activities of the faculty.



SECTION SEVEN: FINANCIAL RESOURCES

STANDARD 7: Be afforded sufficient funding from recurring accounts to ensure program success.

7. REQUIREMENTS

7.1. BUDGETED FUNDS

7.1.1. Adequate funding of the Degree Program is an important indicator of institutional support. The Educational Unit shall be accorded status comparable to other Educational Units of similar size and function within the Institution with regard to finance. If the Educational Unit administers other Degree Programs, the Degree Program shall be accorded status comparable to other Degree Programs of similar size and function within the Educational Unit with regard to finance. Sufficient funds shall be budgeted for the following items: competitive salaries for faculty and support staff, educational materials and supplies, and equipment that are necessary for the program to achieve its stated mission, goals, and objectives and enable students to attain the required Learning Outcomes.

7.1.2. Projected resources shall be adequate to ensure the capacity of the Degree Program to achieve its planned growth, future goals, and objectives.

7.2. NON-RECURRING FUNDS

7.2.1. The source, amount, and use of nonrecurring funds (soft monies, annual gifts, donations, etc.) for the Degree Program shall be identified and recorded.

7.2.2. Nonrecurring funds shall be used to supplement budgeted funds allocated by the administration rather than to replace those funds described in 7.1, above.



SECTION EIGHT: INDUSTRY, ALUMNI, AND PUBLIC RELATIONS

STANDARD 8: Establish an effective relationship with the industry and program alumni and demonstrate accountable behavior by providing timely, accurate, readily accessible information about programmatic performance and student achievement to the general public.

8. REQUIREMENTS

8.1. SUPPORT FROM INDUSTRY

- 8.1.1. An advisory committee with representation from the construction industry shall be utilized to periodically review the Degree Program curriculum and advise the Educational Unit on the establishment, review, and revision of its Degree Program educational objectives.
- 8.1.2. The composition of the committee shall be representative of the potential employers of the graduates of the Degree Program and other industry professionals.
- 8.1.3. The committee shall meet at least once a year for the purpose of advising and assisting the development and enhancement of the Degree Program.
- 8.1.4. Minutes of such meetings shall be kept on record.

8.2. SUPPORT FOR INDUSTRY

The Degree Program shall maintain continuous liaison with the various constituencies it serves via active participation by faculty in associations and other professional organizations for the purpose of serving the construction industry.

8.3. STUDENT-INDUSTRY RELATIONS

- 8.3.1. The Degree Program shall actively encourage and facilitate participation of students in activities of construction related organizations, internships, and cooperative education programs.
- 8.3.2. Construction-related work experience is equally important for students who are enrolled in online classes or are participating in the program via distance education. These students shall have access to information about internships and cooperative education programs and activities of construction related organizations in their local area.

8.4. ALUMNI RELATIONS AND FEEDBACK

The Degree Program or its Institution shall maintain a current registry of alumni. The Degree Program shall seek their feedback in its improvement process. It shall engage the alumni in activities such as its industry advisory committee, student career advising, potential employment, curriculum review and development, fund raising, and continuing education.



8.5. PUBLIC DISCLOSURES

The Educational Unit shall demonstrate accountable behavior by providing information about its accredited Degree Program to the general public.

8.5.1. Institutions shall accurately publish on their websites and report annually to ACCE the following:

- Mission of the Degree Program,
- Objectives of the Degree Program,
- Annual number of graduates of the Degree Program,
- Number of annual enrollments in the Degree Program,
- Summary Report of Achievement of Student Learning Outcomes and Degree Program Objectives following the format prescribed in Section 9.4.1,
- Web link to the Educational Institution's admission requirements, and
- Degree Program Classification of Instruction Program (CIP) code.

8.5.2. No ranking shall be implied through linkage to ACCE accreditation.

8.5.3. Indication of accreditation status is authorized during any defined term of accreditation.

SECTION NINE: ACADEMIC QUALITY PLANNING PROCESS AND OUTCOME ASSESSMENT

STANDARD 9: Conduct a systematic process of gathering, interpreting, and evaluating information that requires taking actions as part of an academic quality planning process and outcome assessment.

To meet this standard, the Degree Program shall present proof of the development, existence, and use of:

- A Strategic Plan for the Educational Unit;
- An Assessment Implementation Plan that includes the four segments of:
 - Assessment of the ACCE SLOs using the appropriate mix of direct and indirect measurements,
 - Assessment of the Degree Program Objectives,
 - Data gathering,
 - Data interpretation; and
- A Determination of Achievement of SLOs and Degree Program Objectives that describes actions taken to maintain or improve performance of SLOs and Degree Program Objectives.

9. REQUIREMENTS

While ACCE recognizes the obligation of Degree Programs to use assessment terminology congruent with their Institutions, it is necessary for ACCE Visiting Teams to have a consistent understanding of terminology used in the assessment process. With that purpose in mind, the ACCE will use the definitions in the Introduction Section as the preferred terminology in its assessment documentation.

If the Degree Program cannot use this terminology because of institutional constraints, they shall provide a glossary of compatible terminology at the beginning of Section 9 in the Self-Evaluation Study.

9.1. CONTINUOUS IMPROVEMENT

The Quality Improvement Plan (QIP) serves as the basis for the continuous improvement of the Degree Program. It shall have three major components:

- Strategic Plan for the Educational Unit,
- Degree Program Assessment Implementation Plan, and
- Determination of Achievement of SLOs and Degree Program Objectives.

These documents shall be included in the Self-Evaluation Study and made available for Visiting Teams to review.

9.2. EDUCATIONAL UNIT STRATEGIC PLAN

- 9.2.1. The Educational Unit shall have a comprehensive Strategic Plan that describes the systematic and sustained effort to enable the Degree Program to fulfill its mission.
- 9.2.2. The Strategic Plan shall review the internal status of the Degree Program resources as well as the external factors that influence the operation of the Degree Program.
- 9.2.3. The Strategic Plan shall be updated periodically and represent the collective input from all Degree Program constituencies.

9.3. DEGREE PROGRAM ASSESSMENT IMPLEMENTATION PLAN

The Degree Program shall produce an assessment implementation plan that is based on such tools as the results of surveys of graduates, employers of the graduates, and Industry Advisory Committee members; exit interviews; comprehensive exams; capstone projects; or other systematically structured information.

The mission, goals, and objectives shall reflect both short-range and long-range considerations and shall be clear as to the educational and institutional results expected.

At a minimum, the Degree Program Assessment Implementation Plan shall include the following:

9.3.1. Mission Statement of the Degree Program.

The Mission Statement expresses the underlying purposes and values of the Degree Program.

9.3.2. Degree Program Objectives.

The Degree Program Objectives shall be clearly defined and stated in a manner that permits an assessment of achievement.

9.3.3. Assessment Tools

These tools shall measure achievement of Degree Program Objectives and SLOs. All data from these tools shall be collected annually or collected across multiple years leading up to a complete assessment cycle; however, there must be a plan indicating what data is collected in each year. ACCE SLOs (Section 3.4) (Section 3.2 for Master's Degree) shall be regularly evaluated and reviewed with the appropriate participation of faculty, Industry Advisory Committee, and other pertinent parties.

9.3.4. Performance Criteria.

There must be at least one performance criteria for each assessment tool to achieve the Degree Program Objectives and SLOs.

9.3.5. Methodology.

The Degree Program shall comprehensively describe the methods used for data collection, the frequency of data collection, the assessment process, the evaluation process, and how it takes the results of assessment evaluation into consideration for Program improvement and development. A complete assessment cycle shall be performed at least once every three years. A complete assessment cycle is defined as data collection, data analysis, selection of appropriate actions (if needed), and review of the effect of such action (if applicable) in the assessment of SLOs and Program Objectives.

9.4. DETERMINATION OF ACHIEVEMENT OF STUDENT LEARNING OUTCOMES AND DEGREE PROGRAM OBJECTIVES

To determine student achievement of SLOs listed in Section 3.4 (or Section 3.2 for Master's Degree), the Degree Program shall:

9.4.1. Provide a summary report containing the following information for each SLO (e.g., direct and indirect) and Degree Program Objective:

- Methods of assessment,
- Current evaluation of the results,
- Last reported evaluation of the results,
- Resulting corrective actions,
- Follow-up of the impact of actions taken on student performance including the dates of each follow-up, and
- Description of any revisions made to Degree Program assessment tools (if applicable).

9.4.2. Evaluate each SLO by a minimum of two assessment methods, at least one of which must be direct. Provide a table identifying the specific assessment methods used for each SLO and the location the assessment is made (e.g., the course or activity) so each assessment can be easily located.

- If student teams or group projects are used for assessment, there must also be a process in this team/group environment to assess individual student learning.
- If an SLO direct assessment measure is an examination in a course with mixed enrollment, all non-construction majors shall be excluded from the assessment data collection.

9.4.3. Produce evidence in the form of assessment tools, associated grading rubrics, and one example of graded student work to:

- Demonstrate applicability of assessment content to the specified SLO.
- Demonstrate adequacy of the assessment tool in evaluating individual student's ability to meet each SLO at or above the required minimum level of Bloom's Taxonomy (e.g., Understand, Apply, etc.). Programs using third-party certifications shall provide comprehensive results for each SLO where such assessment is applied.
- The determination of achievement shall be documented in a systemic manner.

To determine the achievement of Degree Program Objectives, the Degree Program shall:

9.4.4. Evaluate each Degree Program Objective with at least one direct measure.

9.4.5. Provide evidence to demonstrate the applicability of the assessment to the specified Degree Program Objective.



APPENDIX A

SECTION THREE: CURRICULUM

ASSOCIATE DEGREE CONSTRUCTION EDUCATION PROGRAMS

SECTION THREE: CURRICULUM FOR THE ASSOCIATE DEGREE

STANDARD 3: The Degree Program shall contain a required curriculum that includes business and management courses as well as construction courses that address all prescribed Student Learning Outcomes.

To meet this standard, the curriculum of the Degree Program shall:

- Account for the semester hours (or quarter hours) of the categories specified in Table 3.3.1 and
- Contain required Construction Courses that have learning outcomes that address all the Student Learning Outcomes listed in Section 3.4.

3. REQUIREMENTS

3.1. DEGREE PROGRAMS

It is the Degree Program's responsibility to develop its own goals, objectives, and particular emphasis, and prescribe the number of courses for graduation, sequencing of study, course numbers, and titles.

- 3.1.1. The Degree Program shall be consistent with the teaching philosophy and the purposes of both the educational unit and the institution.
- 3.1.2. The Degree Program curriculum shall be related to the needs of society and the construction profession.
- 3.1.3. The Degree Program curriculum may require specific General Education courses for graduation to provide the desired educational experience for students. These courses shall be identified, and a description of how each course supports the construction curriculum shall be provided.

3.2. BUSINESS AND MANAGEMENT

- 3.2.1. Only general and fundamental business topics can be used for this requirement and are intended as foundational knowledge for construction business practices. These topics shall be taught outside of the Degree Program unless the courses are unavailable at the Institution.
- 3.2.2. They shall be separate and distinct and are not to be confused or intermingled with the construction business and management topics.

Graduates of Associate Degree Programs shall have an understanding of the fundamentals of:

- Accounting, or
- Economics, or
- Business law, or
- Principles of management.

A minimum of 3 semester hours (4 quarter hours) is required in the business and management core subject area.

3.3. CONSTRUCTION

Required courses counted in the core subject area of construction shall address all the Student Learning Outcomes listed in Section 3.4.

A minimum of 33 semester hours (48 quarter hours) is required in the construction core subject area.

Table 3.3.1 Summary of Category Semester (Quarter) Hour Requirements

Curriculum Categories	Associate Degree	
	SH*	QH**
3.2 Business & Management	3	4
3.3 Construction	33	48

* Semester Hour

** Quarter Hour

3.4. STUDENT LEARNING OUTCOMES

Note: In defining the Learning Outcomes for Associate Degree Programs, the following verbs consistent with Bloom's taxonomy are used:

Apply: At this level, students begin to put the information they are learning into context. Here they are able to interpret ideas across multiple situations or utilize the content in a new way.

Understand: At this level, students demonstrate that they understand the content by explaining, summarizing, classifying, or translating the given information.

Upon graduation from an accredited Associate Degree Program, ACCE requires that all graduates shall be able to:

1. *Apply written communication skills appropriate to the construction discipline.*
2. *Apply oral communication skills appropriate to the construction discipline.*
3. *Apply quantity takeoff skills for a construction project estimate.*
4. *Apply basic scheduling techniques to a basic construction project.*
5. *Apply current technology related to the construction industry.*
6. *Apply construction documents interpretation skills.*
7. *Understand the basic principles of construction accounting.*
8. *Apply basic surveying techniques for construction layout.*
9. *Understand basic principles of ethics in the construction industry.*
10. *Understand the fundamentals of contract, common, and regulatory laws that govern a construction project.*
11. *Understand materials and methods used in construction projects..*
12. *Understand safety hazards on a construction site and standard prevention measures.*
13. *Understand the basic concepts of structural design.*
14. *Understand the basic concepts of HVAC, electrical, and plumbing systems.*
15. *Understand the roles and relationships between various project team stakeholders.*



- 3.4.1. Provide an index, crosstab, curriculum map, or other form of summary relating courses used to meet the 33 semester hours (48 quarter hours) construction core requirements to the Student Learning Outcomes. The Educational Program must demonstrate that required construction courses adequately prepare graduates to be able to achieve all required SLOs.
- 3.4.2. Provide a syllabus for each course used in fulfillment of the required 33 semester hours (48 quarter hours) in Construction (reference Table 3.3.1). Syllabi for the courses taught by the program shall include the following:
 - Course Learning Outcomes in relation to the Student Learning Outcomes,
 - Instructional methods,
 - Topical outline,
 - Method of assessment of Course Learning Outcomes, and
 - Grade performance criteria.

3.5. COURSES DELIVERED BY ALTERNATIVE FORMS OF DELIVERY

Courses delivered by alternative forms of delivery to the traditional face-to-face classroom (e.g., distance learning or online courses via synchronous or asynchronous delivery) may be incorporated in an accredited Degree Program's curriculum under the following conditions:

- 3.5.1. The alternative delivery courses will be accepted for transfer credit as reviewed and accepted by the accredited Educational Institution programs.
- 3.5.2. The Degree Program shall display the same kind of course material for evaluation of alternative courses as set forth in this document for a traditionally offered classroom lecture or laboratory course. Online course materials, including examples of student work, may be presented for review in online format as long as they are readily accessible to the Visiting Team and are accurately identified with course number and semester (or quarter).
- 3.5.3. Programs that offer the same course via two or more forms of delivery (e.g., live classroom and online) shall demonstrate that courses with the same course number have consistent content and Course Learning Outcomes.

3.6. MULTIPLE CAMPUS DEGREE PROGRAM DELIVERY

It is possible for split or dual institutional campuses to be accredited as a single Degree Program as long as the following conditions exist:

- 3.6.1. There is a single Institution authorized to grant the degree. The Institution is to provide evidence through student diplomas and transcripts from all campuses.
- 3.6.2. The Degree Program is led by a single qualified administrator from the home campus.
- 3.6.3. The Degree Program administrator has sufficient authority and experience to be able to provide the required leadership and supervision that allows the development of a strong academic Degree Program.
- 3.6.4. There are adequate faculty and staff to successfully facilitate the Degree Program at different geographic campus locations.
- 3.6.5. Degree Program curriculum, Student Learning Outcomes, and the degree requirements are the same on all campuses.
- 3.6.6. If multiple Educational Units are involved to support the Degree Program:
 - All Educational Units shall use only one academic quality plan identifying the process used for the continuous improvement of the Degree Program.



- The goals and objectives of the Educational Units need to be aligned to facilitate the success of the Degree Program and its continual improvement.

3.6.7. One Educational Unit shall be identified as the home for the Degree Program. This unit shall be responsible for the successful delivery of the Degree Program and is the geographical base for Degree Program operations.

Dual programs not meeting all of these conditions shall be accredited independently.

3.7. DUAL OR SECOND DEGREES

ACCE accredited Degree Programs that accept credits from other Degree Programs (second degrees, dual credit, and the like) or in any other way modify curriculum shall demonstrate that the modified degree path for those students fulfills the required curriculum standards. The Degree Program shall meet all stated requirements regardless of whether the degree earned is first or second degree. This also applies to existing, accredited Degree Programs that modify the curriculum for specific tracks, areas of specialization, or emphasis. Modified degree paths that do not meet ACCE standards shall be specifically identified within their marketing materials (e.g., website, brochures, etc.) that they are not included in the ACCE accreditation.



APPENDIX M

SECTION THREE: CURRICULUM

MASTER'S DEGREE CONSTRUCTION EDUCATION PROGRAMS

SECTION THREE: CURRICULUM FOR THE MASTER’S DEGREE

STANDARD 3: The Degree Program shall meet the prescribed preliminary learning outcomes and contain a required curriculum that includes courses that address all prescribed Student Learning Outcomes.

To meet this standard, the curriculum of the Degree Program shall contain required courses that have learning outcomes that address all the Student Learning Outcomes listed in Section 3.2.

3. REQUIREMENTS

3.1. PRELIMINARY LEARNING OUTCOMES FOR THE MASTER’S DEGREE

Applicants to an accredited Master’s Degree Program must demonstrate a high level of knowledge and understanding of the use and application of construction principles and technology required to be successful in the program, including core competencies of cost estimating, scheduling, and project management. Master’s Degree Programs seeking accreditation must:

- 3.1.1. Identify the minimum acceptable Preliminary Learning Outcomes required of applicants.
- 3.1.2. Describe how the mastery of the Preliminary Learning Outcomes are assessed by the Master’s Degree Program.
- 3.1.3. Explain what actions are taken for students who do not meet the minimum Preliminary Learning Outcomes.

3.2. STUDENT LEARNING OUTCOMES

Note: In defining the Learning Outcomes for Master’s Degree Programs, the following verbs consistent with Bloom’s taxonomy are used:

Create: At the highest level, students are producing new ideas or products that integrate the knowledge they have gained. When students are involved in creating new artifacts, they are actively engaged in the subject matter.

Apply: At this level, students begin to put the information they are learning into context. Here they are able to integrate ideas across multiple situations or utilize the content in a new way.

Understand: At this level, students demonstrate that they understand the content by explaining, summarizing, classifying, or translating the given information

The development of professional skills and knowledge is a central requirement of an accredited Master's Degree Program. ACCE requires that all graduates of accredited Master's Degree Programs be able to:

1. *Create effective and professional written communications.*
 2. *Apply critical thinking.*
 3. *Apply problem solving techniques.*
 4. *Apply decision making techniques.*
 5. *Apply research methods.*
 6. *Apply advanced communication technology.*
 7. *Apply professional ethics.*
 8. *Apply advanced construction management practices.*
 9. *Understand risk management.*
 10. *Understand the principles of leadership in business.*
- 3.2.1. Provide an index, crosstab, curriculum map, or other form of summary relating courses to the Student Learning Outcomes. The Educational Program must demonstrate that required courses adequately prepare graduates to be able to achieve all required SLOs.
- 3.2.2. Provide a syllabus for each course used to support the Student Learning Outcomes. Syllabi for the courses taught by the program shall include the following:
- Course Learning Outcomes in relation to the Student Learning Outcomes,
 - Instructional methods,
 - Topical outline,
 - Method of assessment, and
 - Grade performance criteria.

3.3. COURSES DELIVERED BY ALTERNATIVE FORMS OF DELIVERY

Courses delivered by alternative forms of delivery to the traditional face-to-face classroom (e.g., distance learning or online courses via synchronous or asynchronous delivery) may be incorporated in an accredited Degree Program's curriculum under the following conditions:

- 3.3.1. The alternative delivery courses will be accepted for transfer credit as reviewed and accepted by the accredited educational institution programs.
- 3.3.2. The Degree Program shall display the same kind of course material for evaluation of alternative courses as set forth in this document for a traditionally offered classroom lecture or laboratory course. Online course materials, including examples of student work, may be presented for review in online format as long as they are readily accessible to the visiting team and are accurately identified with course number and semester (or quarter).
- 3.3.3. Degree Programs that offer the same course via two or more forms of delivery (e.g., live classroom and online) shall demonstrate that courses with the same course number have consistent content and Course Learning Outcomes.

3.4. MULTIPLE CAMPUS DEGREE PROGRAM DELIVERY

It is possible for split or dual institutional campuses to be accredited as a single Degree Program as long as the following conditions exist:

- 3.4.1. There is a single Institution authorized to grant the degree. The institution is to provide evidence through student diplomas and transcripts from all campuses.
- 3.4.2. The Degree Program is led by a single qualified administrator from the home campus.
- 3.4.3. The Degree Program administrator has sufficient authority and experience to be able to provide the required leadership and supervision that allows the development of a strong academic Degree Program.
- 3.4.4. There are adequate faculty and staff to successfully facilitate the Degree Program at different geographic campus locations.
- 3.4.5. Degree Program curriculum, Student Learning Outcomes, and the degree requirements are the same on all campuses.
- 3.4.6. If multiple educational units are involved to support the Degree Program:
 - All Educational Units shall use only one academic quality plan identifying the process used for the continuous improvement of the Degree Program.
 - The goals and objectives of the Educational Units need to be aligned to facilitate the success of the Degree Program and its continual improvement.
- 3.4.7. One educational unit shall be identified as the home for the Degree Program. This unit shall be responsible for the successful delivery of the Degree Program and is the geographical base for Degree Program operations.

Dual programs not meeting all of these conditions shall be accredited independently.

3.5. DUAL OR SECOND DEGREES

ACCE accredited Master's Degree Programs that accept credits from other Degree Programs (second degrees, dual credit, and the like) or in any other way modify curriculum shall demonstrate that the modified degree path for those students fulfills the required curriculum standards. The Degree Program shall meet all stated requirements regardless of whether the degree earned is first, second, or a subsequent Master's Degree. This also applies to existing, accredited Degree Programs that modify the curriculum for specific tracks, areas of specialization, or emphasis. Modified degree paths that do not meet ACCE standards shall be specifically identified within their marketing materials (e.g., website, brochures, etc.) that they are not included in the ACCE accreditation.



APPENDIX H-A

SECTION THREE: CURRICULUM

ASSOCIATE DEGREE HEATING, VENTILATION, AIR CONDITIONING, AND REFRIGERATION (HVACR) EDUCATION PROGRAMS



SECTION THREE: CURRICULUM FOR THE HVACR ASSOCIATE DEGREE

STANDARD 3: The degree program shall contain a required curriculum that includes professional administration courses as well as HVACR courses that address all prescribed student learning outcomes.

To meet this standard, the curriculum of the Degree Program shall:

- Account for the semester hours (or quarter hours) of the categories specified in Table 3.3.1. and;
- Contain required HVACR Courses with learning outcomes that address all the Student Learning Outcomes listed in Section 3.4.

3. REQUIREMENTS

3.1. DEGREE PROGRAMS

It is the Degree Program's responsibility to develop its own goals, objectives, and particular emphasis and prescribe the number of courses for graduation, sequencing of study, course numbers, and titles.

3.1.1. The Degree Program shall be consistent with the teaching philosophy and the purposes of both the educational unit and the institution.

3.1.2. The Degree Program curriculum shall be related to the needs of society and the construction profession.

3.1.3. The Degree Program curriculum may require specific General Education courses for graduation to provide the desired educational experience for students. These courses shall be identified, and a description of how each course supports the construction curriculum shall be provided.

3.2. PROFESSIONAL ADMINISTRATION

3.2.1. Only general and fundamental business topics can be used for this requirement and are intended as foundational knowledge for HVACR business practices. These topics shall be taught outside of the Degree Program unless the courses are unavailable at the Institution.

3.2.2. They shall be separate and distinct and are not to be confused or intermingled with the HVACR core subject area.

Graduates of Associate Degree Programs shall have an understanding of the fundamentals of:

- Professional Communication, or
- Information Technology, or
- Ethics, or
- Principals of Management.

A minimum of 3 semester hours (4 quarter hours) is required in the business and management core subject area.

3.3. HVACR

Required courses counted in the core subject area of HVACR shall address all the Student Learning Outcomes listed in Section 3.4.

A minimum of 33 semester hours (48 quarter hours) is required in the HVACR core subject area.

Table 3.3.1 Summary of Category Semester (Quarter) Hour Requirements

Curriculum Categories	Associate Degree	
	SH*	QH**
3.2 Professional Administration	3	4
3.3 HVACR	33	48

* Semester Hour

** Quarter Hour

3.4. STUDENT LEARNING OUTCOMES

Note: In defining the Learning Outcomes for HVAC programs, the following verbs consistent with Bloom's taxonomy are used:

Evaluate: This level requires the student to make criteria-based judgments through the processes of critiquing and checking.

Analyze: Students begin to develop higher-order thinking. They may be asked to compare and contrast or take a concept and break it into parts to explore the relationships present.

Apply: At this level, students begin to put the information they are learning into context. Here, they are able to integrate ideas across multiple situations or utilize the content in a new way.

Understand: At this level, students demonstrate that they understand the content by explaining, summarizing, classifying, or translating the given information.

The reference for the details of the following will be the documents: *Curriculum Guide* by Air-Conditioning, Heating & Refrigeration Institute (AHRI), Arlington, VA, latest edition, and the ACCA's *ANSI-Approved Quality Standards*.

Upon completion of an accredited ACCE AAS education, graduates shall be able to:

1. Evaluate mechanical, piping, and HVACR systems.
2. Evaluate tools and equipment common to the occupation.
3. Evaluate load calculations.
4. Analyze mechanical control systems.
5. Analyze system servicing and troubleshooting.
6. Analyze preventative maintenance program.
7. Analyze mechanical systems for installation, start-up, and operations.
8. Apply appropriate safety measures.
9. Apply refrigerant, refrigerant recovery, and lubricants.
10. Apply effective communication, both oral and written.
11. Understand the legal implications of contract and regulatory law regulations to manage a mechanical system project.
12. Understand indoor air quality.

3.4.1. Provide an index, crosstab, curriculum map, or other form of summary relating courses used to



meet the 33 semester hours (48 quarter hours) HVACR core requirements to the Student Learning Outcomes. The Educational Program must demonstrate that required HVACR courses adequately prepare graduates to be able to achieve all required SLOs.

3.4.2. Provide a syllabus for each course used in fulfillment of the required 33 semester hours (48 quarter hours) in HVACR. (Reference Table 3.3.1). Syllabi for the courses taught by the program shall include the following:

- Course Learning Outcomes in relation to the Student Learning Outcomes,
- Instructional methods,
- Topical outline,
- Method of Assessment of Course Learning Outcomes and
- Grade performance criteria.

3.5. COURSES DELIVERED BY ALTERNATIVE FORMS OF DELIVERY

Courses delivered by alternative forms of delivery to the traditional face-to-face classroom (e.g., distance learning or online courses via synchronous or asynchronous delivery) may be incorporated into an accredited Degree Program's curriculum under the following conditions:

3.5.1. The alternative delivery courses will be accepted for transfer credit as reviewed and accepted by the accredited educational institution programs.

3.5.2. The Degree Program shall display the same kind of course material for evaluation of alternative courses as set forth in this document for a traditionally offered classroom lecture or laboratory course. Online course materials, including examples of student work, may be presented for review in an online format as long as they are readily accessible to the Visiting Team and are accurately identified with course number and semester (or quarter).

3.5.3. Programs that offer the same course via two or more forms of delivery (e.g., live classroom and online) shall demonstrate that courses with the same course number have consistent content and Course Learning Outcomes.

3.6. MULTIPLE CAMPUS DEGREE PROGRAM DELIVERY

It is possible for split or dual institutional campuses to be accredited as a single Degree Program as long as the following conditions exist:

3.6.1. There is a single institution authorized to grant the degree. The Institution is to provide evidence through student diplomas and transcripts from all campuses.

3.6.2. The Degree Program is led by a single qualified administrator from the home campus.

3.6.3. The Degree Program administrator has sufficient authority and experience to be able to provide the required leadership and supervision that allows the development of a strong academic Degree Program.

3.6.4. There are adequate faculty and staff to successfully facilitate the Degree Program at different geographic campus locations.



3.6.5. Degree Program curriculum, Student Learning Outcomes, and the degree requirements are the same on all campuses.

3.6.6. If multiple Educational Units are involved to support the Degree Program:

- All Educational Units shall use only one academic quality plan identifying the process used for the continuous improvement of the Degree Program.
- The goals and objectives of the Educational Units need to be aligned to facilitate the success of the Degree Program and its continual improvement.

3.6.7. One Educational Unit shall be identified as the home for the Degree Program. This unit shall be responsible for the successful delivery of the Degree Program and is the geographical base for Degree Program operations.

Dual programs not meeting all of these conditions shall be accredited independently.

3.7. DUAL OR SECOND DEGREES

ACCE accredited Degree Programs that accept credits from other Degree Programs (second degrees, dual credit, and the like) or in any other way modify curriculum shall demonstrate that the modified degree path for those students fulfills the required curriculum standards.

The Degree Program shall meet all stated requirements regardless of whether the degree earned is first or second degree. This also applies to existing accredited Degree Programs that modify the curriculum for specific tracks, areas of specialization, or emphasis.

Modified degree paths that do not meet ACCE standards shall be specifically identified within their marketing materials (e.g., website, brochures, etc.) that they are not included in the ACCE accreditation.



APPENDIX H-B

SECTION THREE: CURRICULUM

BACHELOR OF SCIENCE DEGREE

HEATING, VENTILATION, AIR CONDITIONING, AND REFRIGERATION (HVACR) EDUCATION PROGRAM



SECTION THREE: CURRICULUM FOR THE HVACR BACHELOR OF SCIENCE DEGREE

STANDARD 3: The Degree Program shall contain a required curriculum that includes professional administration courses as well as HVACR courses that address all prescribed student learning outcomes.

To meet this standard, the curriculum of the Degree Program shall:

- Account for the semester hours (or quarter hours) of the categories specified in Table 3.3.1, and
- Contain required HVACR Courses that have learning outcomes that address all the Student Learning Outcomes listed in Section 3.4.

REQUIREMENTS

3.1.DEGREE PROGRAMS

It is the Degree Program's responsibility to develop its own goals, objectives, and particular emphasis and prescribe the number of courses for graduation, sequencing of study, course numbers, and titles.

- 3.1.1. The Degree Program shall be consistent with the teaching philosophy and the purposes of both the educational unit and the institution.
- 3.1.2. The Degree Program curriculum shall be related to the needs of society and the HVACR profession.
- 3.1.3. The Degree Program curriculum may require specific General Education courses for graduation to provide the desired educational experience for students. These courses shall be identified, and a description of how each course supports the HVACR curriculum shall be provided.

3.2.PROFESSIONAL ADMINISTRATION

- 3.2.1. Only general and fundamental business topics can be used for this requirement and are intended as foundational knowledge for HVACR business practices. These topics shall be taught outside of the Degree Program unless the courses are unavailable at the Institution.
- 3.2.2. They shall be separate and distinct and are not to be confused or intermingled with the HVACR core subject area.

Graduates of Bachelor of Science Degree Programs shall have an understanding of the fundamentals of:

- Professional Communication and
- Information Technology, and
- Ethics, and
- Principals of Management.

A minimum of 12 semester hours (18 quarter hours) is required in the professional administration core subject area.



3.3.HVACR

Required courses counted in the core subject area of HVACR shall address all the Student Learning Outcomes listed in Section 3.4.

A minimum of 50 semester hours (75 quarter hours) is required in the HVACR core subject area.

Table 3.3.1 Summary of Category Semester (Quarter) Hour Requirements

Curriculum Categories	Bachelor Degree	
	SH*	QH**
3.2 Professional Administration	12	18
3.3 HVACR	50	75

* Semester Hour

** Quarter Hour

3.4.STUDENT LEARNING OUTCOMES

Note: In defining the Learning Outcomes for the degree program, the following verbs consistent with Bloom’s taxonomy are used:

Create: At the highest level, students are producing new ideas or products that integrate the knowledge they have gained. When students are involved in creating new artifacts, they are actively engaged in the subject matter.

Evaluate: This level requires the student to make criteria-based judgments through the processes of critiquing and checking.

Analyze: Students begin to develop higher-order thinking. They may be asked to compare and contrast or take a concept and break it into parts to explore the relationships present.

Apply: At this level, students begin to put the information they are learning into context. Here, they are able to integrate ideas across multiple situations or utilize the content in a new way.

The reference for the details of the following will be the documents: Curriculum Guide by Air-Conditioning, Heating & Refrigeration Institute (AHRI), Arlington, VA, latest edition and the Air Conditioning Contractors of America Association, Inc. (ACCA), Alexandria, VA, ANSI-Approved Quality Standards.

Upon completion of an accredited ACCE BS education, graduates shall be able to:

1. *Create written communications appropriate to the HVACR discipline.*
2. *Create oral presentations appropriate to the HVACR discipline.*
3. *Create mechanical control systems.*
4. *Create system servicing and troubleshooting activities.*
5. *Create a preventative maintenance program.*
6. *Create designs of mechanical, piping, and HVACR systems.*
7. *Create building energy load calculations.*
8. *Create installation, start-up, commissioning, and operations for mechanical systems.*
9. *Evaluate tools and technology common to the HVACR discipline.*
10. *Analyze the legal implications of contract and regulatory law regulations to manage a mechanical system project.*
11. *Analyze indoor air quality.*
12. *Apply appropriate safety measures.*

3.4.1. Provide an index, crosstab, curriculum map, or other form of summary relating courses used to meet the 50 semester hours (75 quarter hours) HVACR core requirements to the Student Learning Outcomes. The Educational Program must demonstrate that required HVACR courses adequately prepare graduates to be able to achieve all required SLOs.

3.4.2. Provide a syllabus for each course used in fulfillment of the required 50 semester hours (75 quarter hours) in HVACR (reference Table 3.3.1). Syllabi for the courses taught by the program shall include the following:

- Course Learning Outcomes in relation to the Student Learning Outcomes,
- Instructional methods,
- Topical outline,
- Method of Assessment of Course Learning Outcomes and
- Grade performance criteria.

3.5. COURSES DELIVERED BY ALTERNATIVE FORMS OF DELIVERY

Courses delivered by alternative forms of delivery to the traditional face-to-face classroom (e.g., distance learning or online courses via synchronous or asynchronous delivery) may be incorporated into an accredited Degree Program's curriculum under the following conditions:

3.5.1. The alternative delivery courses will be accepted for transfer credit as reviewed and accepted by the accredited Educational Institution programs.

3.5.2. The Degree Program shall display the same kind of course material for evaluation of alternative courses as set forth in this document for a traditionally offered classroom lecture or laboratory course. Online course materials, including examples of student work, may be presented for review in an online format as long as they are readily accessible to the Visiting Team and are accurately identified with course number and semester (or quarter).

3.5.3. Programs that offer the same course via two or more forms of delivery (e.g., live classroom and online) shall demonstrate that courses with the same course number have consistent content and Course Learning Outcomes.

3.6.MULTIPLE CAMPUS DEGREE PROGRAM DELIVERY

- 3.6.1. It is possible for split or dual institutional campuses to be accredited as a single Degree Program as long as the following conditions exist:
- 3.6.2. There is a single Institution authorized to grant the degree. The Institution is to provide evidence through student diplomas and transcripts from all campuses.
- 3.6.3. The Degree Program is led by a single qualified administrator from the home campus.
- 3.6.4. The Degree Program administrator has sufficient authority and experience to provide the required leadership and supervision that allows the development of a strong academic Degree Program.
- 3.6.5. There are adequate faculty and staff to successfully facilitate the Degree Program at different geographic campus locations.
- 3.6.6. Degree Program curriculum, Student Learning Outcomes, and the degree requirements are the same on all campuses.
- 3.6.7. If multiple Educational Units are involved to support the Degree Program:
 - All Educational Units shall use only one academic quality plan identifying the process used for the continuous improvement of the Degree Program.
 - The goals and objectives of the Educational Units need to be aligned to facilitate the success of the Degree Program and its continual improvement.
- 3.6.8. One Educational Unit shall be identified as the home for the Degree Program. This unit shall be responsible for the successful delivery of the Degree Program and is the geographical base for Degree Program operations.

Dual programs not meeting all of these conditions shall be accredited independently.

3.7.DUAL OR SECOND DEGREES

ACCE accredited Degree Programs that accept credits from other Degree Programs (second degrees, dual credit, and the like) or in any other way modify curriculum shall demonstrate that the modified degree path for those students fulfills the required curriculum standards.

The Degree Program shall meet all stated requirements regardless of whether the degree earned is first or second degree. This also applies to existing accredited Degree Programs that modify the curriculum for specific tracks, areas of specialization, or emphasis.

Modified degree paths that do not meet ACCE standards shall be specifically identified within their marketing materials (e.g., website, brochures, etc.) that they are not included in the ACCE accreditation.

REVISION LOG

Date	Revision Description
2021.07.25	Added this Revision Log to the Document
2021.07.25	Revised Section 9.4.3. – Former text “... Degree Program’s Quality Improvement Plan...” to “...Educational Unit’s Quality Improvement Plan....”
2023.02.17	Revised Section 3 to eliminate General Education Requirements, revised Section 7 to eliminate redundancy, revised Section 8.5 to prescribe a revised set to data to be provided to the public and eliminated Section 9.5.
2023.07.12	Corrected an error Section 9.4 in which there is a reference to the SLOs in Section 3.5. This is not correct. The SLOs are located in Section 3.4. The text has been changed to Section 3.4.
2023.08.07	Corrected the language in Appendix A, Section 3.4.2. <i>3.4.2. Provide a syllabus for each course used tin fulfillment of the required 33 semester hours (48 quarter hours) in Construction (reference Table 3.3.1).</i> The word “tin” has been replaced with the word “in.”
2023.12.15	Added Appendix H-A and Appendix H-B, approved by the BofT on 2023.12.11.
2024.02.14	Revisions to coordinate with Document 102.
2024.04.27	Revised the language in Section 3.1.3. This change was made to all Appendices, where applicable. Main Document: <i>Formerly: The Degree Program curriculum may require specific General Education courses for graduation to provide the desired educational experience for students. These courses HAVE BEEN identified, and a description of how each course supports the construction curriculum provided.</i> <i>Revised to: The Degree Program curriculum may require specific General Education courses for graduation to provide the desired educational experience for students. These courses SHALL BE identified, and a description of how each course supports the construction curriculum SHALL BE provided.</i> Appendix A: <i>Formerly: The Degree Program curriculum may require specific General Education courses for graduation to provide the desired educational experience for students. These courses HAVE BEEN identified, and a description of how each course supports the construction curriculum HAS BEEN provided.</i> <i>Revised to: The Degree Program curriculum may require specific General Education courses for graduation to provide the desired educational experience for students. These courses SHALL BE identified, and a description of how each course supports the construction curriculum SHALL BE provided.</i>



	<p>Appendix M:</p> <p>This revision does not apply to Master’s Degree Programs.</p> <p>Appendix H-A:</p> <p>Formerly: <i>The Degree Program curriculum may require specific General Education courses for graduation to provide the desired educational experience for students. These courses HAVE BEEN identified, and a description of how each course supports the construction curriculum HAS BEEN provided.</i></p> <p>Revised to: <i>The Degree Program curriculum may require specific General Education courses for graduation to provide the desired educational experience for students. These courses SHALL BE identified, and a description of how each course supports the construction curriculum SHALL BE provided.</i></p> <p>Appendix H-B:</p> <p>Formerly: <i>The Degree Program curriculum may require specific General Education courses for graduation to provide the desired educational experience for students. These courses HAVE BEEN identified, and a description of how each course supports the construction curriculum HAS BEEN provided.</i></p> <p>Revised to: <i>The Degree Program curriculum may require specific General Education courses for graduation to provide the desired educational experience for students. These courses SHALL BE identified, and a description of how each course supports the construction curriculum SHALL BE provided.</i></p>
2024.08.08	<ul style="list-style-type: none">• In Section 5 – revised the language to include the complete spelling of the “ret” to “retention” and added “academic.”• In Section 9 – added the conjunction “the” - With that purpose in mind, the ACCE will use the definitions in the Introduction Section as the preferred terminology in its assessment documentation. <p>Edits suggested by John Schmidt and Chris Morton</p>
2024.09.06	<ul style="list-style-type: none">• DRAFT of the revised 15 Associate Degree SLOs.