IREC Standard 01023:2013

GENERAL REQUIREMENTS FOR THE ACCREDITATION OF

Clean Energy
Technology Training

Interstate Renewable Energy Council, Inc.
IREC Standard 01023: 2013
General Requirements for the Accreditation of Clean Energy Technology Training

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Contents of this Standard

1. Scope

1.1. This standard identifies requirements for the quality systems, resources, personnel, and curriculum by which job-related training in clean energy technologies and practices may be accredited. For the purposes of this standard, clean energy technologies and practices include renewable energy, energy efficiency, distributed renewable energy generation, and other sustainability practices.

1.2. This standard provides the accreditation requirements that clean energy technology training providers must meet and document to earn and maintain accreditation. The purpose of accreditation is to determine whether a training provider meets the requirements for delivering high-quality, job-specific training.

1.3. The curriculum evaluation is based on a curriculum that covers the knowledge and skills competencies defined in an IREC-accepted job task analysis.

1.4. Training providers abide by local, state, and federal regulatory requirements. This standard is not intended to supersede any codes, requirements, or regulations.

1.5. It is possible that some elements of this standard may be the subject of patent rights. IREC shall not be held responsible for identifying any or all such patent rights.

2. Referenced Documents

At the time of publication of this standard, the following referenced documents are the most current:

ANSI/ASTM E2659-09 Standard Practice for Certificate Programs

ASTM E2708 Standard Terminology for Personnel Credentialing

Gelman, R., National Renewable Energy Laboratory, U.S. Department of Energy, Energy Efficiency and Renewable Energy, 2011 Renewable Energy Data Book, October 2012 DOE/GO-102012-3598

ISO/IEC 17011:2004(E) Conformity Assessment—General Requirements for Accreditation Bodies

ISO/IEC 17024:2012 Conformity Assessment—General Requirements for Bodies Operating Certification of Persons

ISO 9001:2008 Quality management systems — Requirements

3. Terminology

For the purposes of this standard, the following terms and definitions also apply:

Accreditation — Third-party review and attestation of a training provider's conformance with an established standard. Accreditation is awarded for a fixed period of time and requires renewal.

Applicant — An individual who applies to participate in any aspect of the training.

Authentic Assessment — An assessment where students are evaluated as they perform real-world tasks that show they have mastered the essential knowledge and skills necessary for their work. All assessments should be valid and reliable.

Conflict of Interest — A conflict between the various interests of an individual or organization that has the potential to lead to undue influence on professional judgments or actions.

Course — One or more discrete instructional sessions or a series of instructional sessions with a defined syllabus and stated expected outcomes. A series of courses taken together is often called a training program (see below).

Criterion-Referenced Assessment — A criterion-referenced assessment that measures the student's attainment of the learning objectives, but does not assess how well the student performs compared to other students.

Curriculum — Broadly, a plan for the education of a student. This can include a program of studies (e.g., subjects), course content (e.g., topical outlines), planned learning experiences, or a series of learning outcomes. It is typically a written plan.

Document Control — The procedures established in developing, approving, revising, naming, storing, accessing, and disposing of training-program documents.

Distributed Renewable Energy Generation — Electrical generation from a renewable energy source that feeds into the distribution grid rather than the bulk transmission grid, whether it is sited on the utility side of the meter or on the customer side.

E-Learning — Learning and training supported by the use of information and communication technologies as well as electronic media.

Energy Efficiency — The result of efforts to reduce the amount of energy or water consumed in producing a service, product, or condition.

Internal Audit — An internal review of an entity's policies and procedures to determine its conformance with them. Internal audits include preventive and corrective actions for areas of non-conformance, as well as opportunities for continuous quality improvement.

IREC-Accepted Job Task Analysis — A job task analysis that has been reviewed by IREC and accepted based on specific development guidelines. The job task analysis may be derived from one or more existing job task analyses and must define a specific job.

Job — A piece of work, especially a specific task or set of tasks, done as part of the routine of one's occupation.

Job Task Analysis: A formal, industry-accepted study, validated by a group of subject-matter experts that defines competencies in knowledge, skills, and attitudes as the basis for education/training curricula. Similar activities are also referred to as task analyses, practice analyses, and role-delineation studies.

    a. Tasks are the individual functions, whether mental or physical, necessary to carry out an aspect of a specific job.

    b. Knowledge, Skills, and Attitudes (KSAs) include the physical and mental capabilities that a practitioner must possess to perform a job competently, ethically, and safely.

Learning Objectives — Measureable and observable statements of student outcomes. Learning objectives typically have three components: conditions statements, behavior or action, and a performance standard. They are used as guides to develop tests and assessments.

Management System — The combination and integration of policies, procedures, and processes by which a training program is developed, implemented, maintained, and evaluated.

Policy — Principles upon which decisions are based to assure consistency and fairness in all practices.

Prerequisites — Previously learned knowledge, skills, and abilities that a student must acquire before new learning can occur. Prerequisites can take the form of individual knowledge and skills, skill sets, and lessons as well as units of instruction and courses that have specific learning objectives. These differ from training-entry requirements, which are abilities and accomplishments that an individual must have before taking a course. Entry requirements usually take the form of abilities (such as math, language, or kinesthetic aptitudes), work experience (for example, two to three years working as a solar installer apprentice), or education (such as a high school diploma).

Procedure — A specified way to implement policies and/or activities to assure consistency and fairness.

Renewable Energy —Wind, solar, geothermal, bioenergy, hydrogen, non-conventional hydro, and renewable fuels.

Stakeholder — Any individual or group who has a primary interest in, or who may be significantly affected by, the training program.

Student —A participant in a learning event who acquires knowledge or skills directly or indirectly through the facilitation of a subject-matter expert.

Subject-Matter Experts (SMEs) — Qualified personnel who contribute to the development and implementation of a training program, including the student assessments. SMEs are selected based on their extensive knowledge of the content being delivered and the student outcomes and competencies being assessed.

Sustainability —Methods and practices for using resources to fulfill the social, environmental, and economic needs of today without compromising the ability to meet the needs of tomorrow.

Syllabus —A curriculum-related document that provides course structure, outlines the goals and objectives of a course, summarizes topics to be covered, explains the grading/evaluation scheme, identifies materials to be used (such as textbooks or software), and presents the schedule.

Training —A process developed to ensure that individuals receive the knowledge and skills necessary to perform a defined job safely and effectively.

Training Cycle —The delivery of training in its entirety such that a student is exposed to the full content and scope of the curriculum.

Training Program —A course, sequence of courses, or learning events that focus on an area of specialized knowledge or information and have specific learning objectives covering one or more IREC-accepted job task analyses.

Training Provider —An entity that provides training covering one or more IREC-accepted job task analyses. This could be a department or unit within a larger organization or an independent entity.

Training-Related Personnel — Individuals who are employed, contracted, or volunteer to administer any component of the training program, including: instructional design and delivery, assessment development and administration, student registration, training delivery support and administration, and other key program-related activities and services.

4. General Requirements

4.1. Legal Entity: The training provider shall be a legal entity or part of a legal entity.

4.2. Financial Resources: The training provider shall have the financial resources needed to operate the training program. Such resources shall cover expenditures and other liabilities for a reasonable length of time, which is not less than the duration of one training cycle.

4.3. Training Delivery Experience: The training provider shall have delivered the training program, including all component courses, at least once.

5. Ethical Practices

The training provider shall have written policies and procedures in the following areas.

5.1. Non-discrimination: The training provider shall ensure non-discrimination in all aspects of the training.

5.2. Conflicts of Interest: The training provider shall avoid both real and perceived conflicts of interest.

5.3. Confidentiality: The training provider shall make provisions for the confidentiality of information. Such information includes, but is not limited to, any personally identifiable information for students, applicants, and training-related personnel.

5.4. Release of Information: The training provider shall ensure that circumstances for the release of confidential information are clearly defined, understood by stakeholders, and documented.

6. Administration and Management

6.1. Organizational Goals: The training provider shall have written goals to guide the training program.

6.2. Commitment to Quality: The training provider shall have a written commitment to quality for the training program. This commitment should be consistent with the mission and goals of the training provider as they directly relate to the delivery of training. Management shall ensure that this commitment is understood and implemented by all training-related personnel.

6.3. Commitment to Continuous Improvement: The training provider shall have a written commitment assuring continuous improvement of the training.

6.4. Management System: The training provider shall maintain a documented management system that shall include, but not be limited to:

6.4.1. Policies and Procedures: Written policies and procedures governing all aspects of the training.

6.4.2. Document Control: Provisions for document review, approval, updates, revision tracking, and archiving.

6.4.3. Internal Audit: Written policies and procedures providing an internal audit of administrative policies and procedures. This includes provisions for management review and continual improvement, as well as corrective and preventive actions. The internal audit shall take place at least annually, or as deemed necessary by the training provider.

6.5. Record-Keeping

6.5.1. Record-Keeping Policy: The training provider shall maintain written policies and procedures for record-keeping that include:

a. The types of records retained
b. Accommodations for confidentiality and security
c. A retention time frame
d. Descriptions of the persons who have access to records and under what conditions
e. The allowable means for record disposal once the retention period is past

6.5.2. Types of Records Retained: The training provider shall, at a minimum, retain the following types of records — either for a defined period of time, as required by the applicable jurisdiction or training provider policy, or for no less than one internal audit cycle:

a. Complaints and appeals
b. Contracts with personnel and vendors
c. Course and instructor evaluation reports
d. Documentation of development and maintenance of training content
e. Documentation of linkages with the relevant industry
f. Financials
g. Internal audit results and corrective actions
h. Personnel files
i. Stakeholder feedback and analysis
j. Student application forms
k. Other records relating to student participation in the training

6.6. Stakeholder Input

6.6.1. Stakeholder Participation: The training provider shall have written policies and procedures to ensure that stakeholders — including those concerned with the workforce outcomes of the training program — can provide comments, input, suggestions, and other feedback about all aspects of the training.

6.6.2. Linkages with Industry: The training provider shall maintain active linkages with the subject industry. These linkages shall ensure that industry job and performance requirements are addressed and information about new technologies is sought regularly and is accurately included in the curriculum.

6.6.3. Training Feedback: The training provider shall use feedback from stakeholders for organizational and instructor performance evaluation — as well as delivery, maintenance, and improvement of the curriculum.

6.7. Complaints, Disputes and Appeals: The training provider shall have written policies and procedures regarding complaints, disputes, and appeals. Policies and procedures shall provide for timely resolution and the appeal of adverse decisions.

6.8. Information for Students

6.8.1. Informational Materials: The training provider shall maintain informational materials that provide prospective students with:

a. An accurate, current, and detailed description of the training
b. A description of training content, including clearly stated skills or jobs for which the training will prepare students
c. Reference to the relevant job task analysis
d. A description of the training process (including fees)
e. A list of training prerequisites (if any)
f. The criteria by which student outcomes will be assessed

6.8.2. Student Participation Agreement: The training provider shall require students to submit a completed and signed participation agreement form prior to commencing training. At a minimum, the agreement shall contain:

a. A description of the training
b. A statement in which the student 1) agrees to comply with the requirements and directions of the training and supply any information that is relevant to safety and medical issues and 2) confirms that he or she is physically capable of performing all requirements of the training

c. A statement describing how the student meets any required education and work experience criteria —including supporting documentation/materials, as required by the training provider

6.8.3. Job Placement Support: The training provider shall provide a forum to inform students of industry-related job placement resources and allow members of the industry to make information on employment opportunities available

7. Safety

7.1. Commitment to Safety and Safe Practices: The training provider shall have a written safety plan that ensures safety and safe practices in the training environment and encourages safe practices in the workforce. This plan shall be communicated to all training-related personnel and shall contain:

a. Policies regarding the responsibilities of training-related personnel for maintaining a safe workplace and training environment
b. Policies regarding requirements for and documentation of safety training and certifications for training-related personnel, in accordance with their job responsibilities
c. Required safety practices for the provision and maintenance of training equipment
d. Policies and procedures for enforcing safety rules, investigating incidents, and responding to emergencies
e. Policies and procedures providing for regular review and revision of the written safety plan

8. Training Content

8.1. Curricula and Syllabi

8.1.1. Defined Curricula and Syllabi: The training provider shall have a defined curriculum for each program and syllabus for each course. Curricula and syllabi must be current, accurately represent what is taught, and include the following:

a. Overall expectations of the course that are clearly described
b. Learning objectives for guiding student learning that are clearly stated and measurable
c. Communication of assessment criteria
d. Instructional materials that are sufficiently comprehensive to achieve the stated course goals and learning outcomes.

8.1.2. Job Task Analysis Basis for Curricula: The training provider shall ensure that the curricula and syllabi, together with the prerequisites, cover all content of the relevant IREC-accepted job task analysis or analyses.

8.2. Curriculum Management

8.2.1. Curriculum Development: The training provider shall have written policies and procedures that guide the development of the curriculum. These shall address the definition of prerequisites that students must meet to ensure that the full job task analysis is covered.

8.2.2. Curriculum Maintenance: The training provider shall have written policies and procedures for maintaining the curriculum -- including, at a minimum, an annual review of the curriculum, with prerequisites.

8.3. Student Learning Assessment Methodology

8.3.1. Required Assessment: The training provider shall evaluate student-learning outcomes using assessments that are measurable, objective, criterion-referenced, and authentic.

8.3.2. Assessment Framework: The training provider shall have written policies and procedures for assessment development, delivery, administration, scoring, scoring analysis, and review to ensure that students are meeting the stated learning outcomes.

9. Training Delivery

9.1. Facilities

9.1.1. Classroom Facilities: The training provider shall provide classroom facilities that accommodate training in a manner that is safe and secure and support the learning process.

9.1.2. Off-site Classroom Facilities: The provider shall have written policies and procedures to ensure that off-site classroom facilities meet the requirements of this standard.

9.1.3. Hands-on Classroom/Lab Facilities: The training provider shall ensure that students have the tools, equipment, and hardware they need for a complete and safe training experience. These shall include, but not be limited to:

    a. Personal protective equipment
    b. Safety materials and equipment
    c. Training hardware and tools that represent current technologies in the relevant industry

d. Quantities of tools, equipment, and hardware that correlate to the number of students in the training program and the types of activities in the curriculum.

9.1.4. Field Training Facilities: If field training is conducted off site, the training provider shall have a written procedure for reviewing and warranting that the site includes the characteristics needed to instruct students effectively and that the site meets the requirements of this standard.

9.2. Continuity of Training Delivery: The training provider shall have written policies and procedures to ensure continuity of both in-person and e-learning training delivery in the case of interruptions and changes in personnel.

9.3. Instructor-Student Interaction: The training provider shall ensure that instruction allows students to pose questions, make comments, receive feedback, and practice the knowledge and skills competencies outlined in the course learning objectives.

9.3.1 Instructor-Student Ratio: The training provider shall maintain defined instructor-student ratios to promote student attainment of learning objectives.

9.4. Library Resources: The training provider shall advise students of and provide access to adequate library and research materials in support of the relevant curricula.

9.5. E-Learning

9.5.1. Student Support and Resources: Training providers that offer courses online or use electronic media for course delivery shall provide sufficient resources to support students. At a minimum these shall include:

a. A description of the hardware, software, and bandwidth required for the student to participate
b. Explicit instructions and direct support related to navigation of the electronic/digital content
c. A feedback process regarding the accessibility of electronic delivery
d. An instructor assigned as a point of contact for students

9.5.2. E-learning Organization and Design: Training providers that offer courses online or use electronic media for course delivery shall ensure that:

a. The online and electronic media that will be used in the course are described in the course syllabus
b. Online and electronic content is presented in a clear and direct manner that supports learning

c. Electronic content is presented with consistent appearance and functionality
   d. Electronic content is delivered through a system that allows a training provider to evaluate and improve student participation and performance
   e. Reasonable accommodations are made for students who require access to assistive technologies
   f. The learning environment is free from distractions, including the advertising or promotion of products and services

   9.5.3. Innovative Teaching with Technology: Training providers that offer courses online or use electronic media for course delivery shall employ a variety of educational technologies to address the diverse learning styles of their students and enhance effective instruction and communication. These technologies shall be sufficiently interactive to engage students and enrich their learning experience.

10. Training-Related Personnel

10.1. Written Job Descriptions: The training provider shall maintain clearly documented job descriptions that include the duties, responsibilities, and reporting relationships for all training-related personnel. These job descriptions shall be kept current through at least an annual review.

10.2. Organizational Structure: The training provider shall maintain a description of the organizational structure, which reflects the reporting relationships.

10.3. Competency Requirements and Performance Evaluation

   10.3.1. Defined Competency Requirements: The training provider shall define competency requirements for all training-related personnel.

   10.3.2. Instructor Competency Requirements: The training provider shall define competency requirements for instructors to ensure that they have expert knowledge in the content they deliver, relevant field and instructional experience, and effective communication skills in the language in which the training is offered.

   10.3.3. Curriculum-Design Personnel Competency Requirements: The training provider shall define competency requirements for training-related personnel involved in curriculum design and delivery to ensure that they have knowledge of learning principles relevant to the target student audience.

   10.3.4. Regular Review of Competency Requirements: The training provider shall review competency requirements for all training-related personnel to ensure that the requirements remain relevant.

10.3.5. Personnel Evaluation: The training provider shall evaluate training-related staff at least annually to ensure that they are meeting defined competency and performance requirements.

10.3.6. Contractor Evaluation: The training provider shall have a written process to ensure that contractors are meeting defined competency and performance requirements.

10.3.7. Professional Development: The training provider shall provide training-related staff with opportunities for continued professional development.

10.4. Key Management and Staff Responsibilities: The training provider shall have a defined staff or management position and a specific person assigned to the following key tasks:

a. Defining and updating the prerequisites for entry into the training program
b. Verifying that students who enter the training program meet the appropriate experience or education requirements
c. Formulating the policies and procedures that guide operation of the training program
d. Implementing the policies and procedures that guide operation of the training program
e. Overseeing the finances of the training program
f. Overseeing each committee or contractor that undertakes defined activities on behalf of the training program
g. Formulating and implementing policies and procedures related to personnel/human resources
h. Developing and regularly revisiting the requirements for training-related staff experience and qualifications
i. Ensuring that training-related documents and records are maintained in a confidential manner
j. Mentoring and developing trainers

10.5. Management of Volunteers: The training provider shall develop and implement a signed commitment whereby volunteers shall be informed of and agree to comply with all requirements of this standard that apply to their area of contribution.