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## SWST PROGRAM ACCREDITATION: OUR FOUNDATIONS, OUR PAST AND OUR FUTURE

Accreditation is a voluntary method of quality assurance developed more than 100 yr ago by American universities and secondary schools. It was designed primarily to distinguish schools adhering to a set of educational standards from those that did not (Advanc-Ed 2011. What is Accreditation? <http://www.advanc-ed.org/what-accreditation>). In most countries in the world, institutional accreditation is conducted by an agency of the government but in the United States, accreditation is voluntary and performed by regional organizations working under government guidelines as described subsequently. However, institutions have a powerful incentive to become accredited because federal funding for contracts and student aid is withheld from nonaccredited institutions. Since the origin of the SWST accreditation standards follows from the approach used in the US, the focus will center on the development of standards in the US.

The first accreditation initiatives were in the US and centered on program or discipline-specific areas where the potential for malpractice and malfeasance was high. The specific goal, then as now, was to ensure a high level of professionalism and a mastery of the subject. A sampling of the first accredited disciplines and the dates that standards were established is as follows:

- 1904—Council on Medical Education and Hospitals (AMA)
- 1918—Dental education standards
- 1923—Legal education
- 1936—Engineering education
- 1940—Pharmaceutical education

In the US, there are two types of accreditation. The first is the accreditation of an institution, such

as a college or university. The second is accreditation of a program or discipline within an educational institution. The two are related and they often have many requirements in common.

Although institution-wide accreditation initiatives were proposed early in the 20th century, there was little incentive to become accredited. The US federal government began to play a limited role in higher education accreditation in 1952 with reauthorization of the GI Bill for Korean War veterans. The original GI Bill legislation stimulated establishment of new colleges and universities to accommodate the influx of new students, but some of these new institutions were of dubious quality. Under the GI Bill, eligibility was limited to students enrolled at accredited institutions included on a list of federally recognized institutions published by the US Commissioner of Education (Wellman, Jane V. 1998. Recognition of Accreditation Organizations: A Comparison of Policy & Practice of Voluntary Accreditation and the United States Department of Education. CHEA white paper. [http://www.chea.org/pdf/RecognitionWellman\\_Jan1998.pdf](http://www.chea.org/pdf/RecognitionWellman_Jan1998.pdf)).

The federal government in the US has taken an increasingly active role in defining the broad guidelines under which institutions and specific disciplines should be accredited. The US Department of Education now recognizes 52 national agencies that accredit institutions and programs. Among the recognized agencies and perhaps most importantly is that the Department of Education recognizes six regional accrediting agencies that implement and refine the guidelines for institutional accreditation put forward by the Agency. They include:

- New England Association of Schools and Colleges (NEASC). Established: 1885; Location: Massachusetts, web: <http://www.neasc.org>
- North Central Association of Colleges and Schools (NCACS) Established: 1895; Location: Illinois, web: <http://www.ncahlc.org>
- Northwest Commission on Colleges and Universities (NWCCU) Established: 1917; Location: Washington, web: <http://www.nwccu.org>
- Southern Association of Colleges and Schools (SACS) Established: 1912; Location: Georgia, web: <http://www.sacscoc.org>
- Western Association of Schools and Colleges (WASC). Established: 1962; Location: California, web: <http://www.wascenior.org>
- Middle States Association of Colleges and Schools (MSACS). Established: 1919; Location: Pennsylvania, web: <http://www.msche.org>

Also prominent is a nongovernmental association called the Council for Higher Education Accreditation (CHEA) which functions as a clearinghouse and resource for institution-wide and discipline-specific accreditation worldwide (Wikipedia 2011. Higher education accreditation in the United States. <http://en.wikipedia.org/wiki>). The CHEA is a US organization of degree-granting colleges and universities with approximately 3000 academic institutions as members. CHEA currently recognizes approximately 60 accrediting organizations and maintains an International Directory that has contact information for about 467 quality assurance bodies, accreditation bodies, and Ministries of Education in 175 countries (CHEA 2011. CHEA at a glance. <http://www.chea.org/default.asp?link=7>). CHEA does not actually accredit any institution, but, like the US Department of Education, they “recognize” accreditors who perform accreditations of institutions and programs or disciplines.

#### RULES AND REGULATIONS

Not only do accreditors of institutions and programs fall under both the US Department of

Education and the CHEA, the requirements for accrediting institutions and programs share many traits in common. According to the US Department of Education, the goal of accreditation is to ensure that education provided by institutions of higher education meets acceptable levels of quality (Ed. Gov. 2011. Accreditation in the US. US Department of Education. <http://www2.ed.gov/admins/finaid/accred/index.html>). The broad guidelines in force until the education amendments of 1992 were as follows.

- Appropriateness of the institutional mission and objectives
- Effectiveness of the institution in meeting its mission and objectives
- Adequacy of financial and physical resources library, classrooms, laboratories, offices
- Quality of faculty
- Effectiveness of management, administrative structure, and function
- Adequacy of personnel and student services offered by the institution

The Higher Education Act of 1992 included amendments that made several significant changes in the suggested accreditation guidelines. Debated at that time was the inclusion of a controversial addition of “student outcome measures.” The intent of the student outcomes assessment was related to a number of competency-related initiatives being promoted by professional organizations and trade groups. While the Higher Education Act does not specifically state that student outcome measures or “student learning” should be included in assessments made by regional accreditors, the requirement has been adopted by them in various ways. The broad guidelines used for institutional accreditation are now as follows:

- Academic calendars, catalogs, publications, grading, and advertising
- Curricula
- Faculty
- Facilities, equipment, and supplies
- Student support services
- Recruiting and admissions practices

- Fiscal and administrative capacity as appropriate for the scale of the institution
- Program length and tuition and fees and the objectives of the degree
- Measures of program length in clock hours or credit hours
- Student outcome measures
- Default rate for loans made to students
- Record of student complaints received by the accrediting association or state agency
- Compliance with program responsibilities under Title IV of the Higher Education Act

#### PROGRAMS AND DISCIPLINES

While the accreditation of institutions of higher learning is interesting, the accreditation of programs or disciplines within colleges, institutes, and universities tends to have a different focus than topics such as “admissions practices” or “program length.” To accredit programs or disciplines, the US Department of Education policies for accreditation agencies’ standards, Section 602.16 requires that “agencies” (such as SWST) demonstrate that it has standards “that are sufficiently rigorous to ensure that the agency is a reliable authority regarding the quality of the education or training provided by the institutions or programs it accredits” (CFR 34 2011. Accreditation and preaccreditation standards. Code of Federal Regulations Title 34, Subtitle B, Chapter VI, Part 602, Subpart B, Section 602.16. <http://www.law.cornell.edu/cfr/text/34/602/16>).

Both institutional and discipline-specific accreditations require external and generally rigorous assessment by professionals. Institutional assessment, through regional agencies, evaluates the assessment areas detailed here while discipline-specific assessment is more likely to look for direct evidence of student learning and exposure to the tenets of a profession at the program level. At its core, the external assessment of a program or discipline relies on the belief that there are constituencies that rely on the accreditation process to ensure a level of knowledge about specific topic areas that are important to the constituent group. As such, and most importantly, program-

specific accreditation defines the profession to a large extent. Other, specific reasons have been cited for accreditation of programs:

- Quality assurance/quality control
- Recognition by the profession
- Certain level of professionalism
- Credibility
- Recognition within the university

SWST began development of accreditation guidelines and standards in the 1960s. Following standards covering most of the topic areas specified by institutional accrediting bodies discussed previously, there was, and there remains, professional standards that are detailed, prescriptive, and narrow in scope. In Standard II, there is a strong emphasis on the anatomy and biology of wood formation, wood identification, physical and chemical properties of wood, and wood degradation. Soon after the original standards were written language was added to cover the topic of wood-based composite materials. Also incorporated in the original standards is an emphasis on processing specifics for various wood manufacturing operations. Much later, a category called “contemporary issues of wood use” was added in view of policy, environmental, market, and economic issues. The SWST code of ethics for professionals was incorporated when the contemporary issues category was included. Finally, in 2005, the standards were refocused on student outcomes rather than credit hour totals.

Many of the accredited SWST programs have revamped their curricula and have changed focus in response to industry requests, student interests, and university administrative demands. Recognizing that programs are changing, the SWST Executive Committee has charged the Accreditation Committee of SWST with reviewing and refocusing the existing standards. The Committee, aided by Jim Armstrong, has made a number of suggested revisions using the following broad guidelines:

- Do not abandon the unique body of knowledge distinctive to the science and technology of wood and other lignocellulosic materials.

- Allow for an international focus in accrediting programs.
- Do not be overly prescriptive with respect to curriculum content.
- Allow a broader base of subdisciplines to fall under the SWST accreditation banner.

The committee has reached consensus and forwarded to the Executive Committee the following broad guidelines and existing guideline changes.

Standard II (1.3) has been revised to re-emphasize the core of the training for a wood scientist and technologist yet allow for broadening of accredited the programs: "The core of an SWST Accredited program must include fundamental understanding of wood and wood-based materials. Fundamental to the discipline is basic materials science, including raw materials biology, physical properties, mechanical properties, and chemical characteristics and properties. Candidate programs may broaden coverage to embrace non-wood biomaterials and may include properties of these materials in their basic materials science coursework."

Further emphasis for the fundamentals of wood science and technology are found in revised Section 1.3.2 of Standard II: Basic Materials Sciences which states that competencies must be demonstrated in:

- Biology of raw materials
- Physical properties
- Mechanical properties
- Chemical characteristics and properties

The greatest suggested change comes in the so-called "area of emphasis" under Section 1.3 of Standard II. The new wording states that the candidate program must include one or more areas of emphasis that stress applications of basic biomaterials sciences. The program must provide a rationale for each area of emphasis and demonstrate that students are provided the opportunity to achieve competence in each area.

The suggested approach is developed in more detail under the revised Section 1.3.3 of Standard II "Applications of Biomaterial Sciences and Technology" as follows: "Beyond the fundamental knowledge of lignocellulosic materials outlined above, it is required that students develop a foundation of understanding in one or more focus or topic areas. While flexibility is encouraged, the areas of application should be well defined within the program and application-related options, should be readily available to both students and program evaluators. Further, within the topic areas, it is expected that students will be exposed to depth of knowledge beyond the introductory level and that programmatic outcomes and expectations will be well defined and measurable."

Finally, while not strictly limited, the following areas of emphasis have been suggested under revised Section 1.3 of Standard II:

- Harvesting, processing, and manufacturing of biomaterials
- Environmental impacts, assessment, and sustainability
- Bioenergy and bioconversion
- Business and entrepreneurship
- Forestry/forest sciences
- Sustainable building materials and construction techniques
- Biomaterials science and engineering
- Pulp, paper, and packaging sciences

The revised Standard II has been reviewed by the SWST Executive Board and presented at the annual SWST meeting in Portland, OR, in June of 2011. The Executive Board has authorized moving forward with revising the accreditation manual used by SWST for site visits. Those changes are being prepared and should be completed soon.

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