4.13 Technology Education (Grades 7-12)

To be endorsed in technology education, an applicant shall hold an earned bachelor’s or higher degree from an accepted institution of higher education; have completed an approved teacher preparation program including prescribed field experience and student teaching requirements; have completed an approved program in technology education; and have demonstrated the competencies specified below:

4.13(1) Knowledge: The beginning technology educator shall have:

4.13(1)(a) a basic understanding of the history of technology education and the historical development and trends of technology and technology education.

4.13(1)(b) extensive preparation in technology systems and processes and demonstrate applied knowledge with respect to the following areas:

- 4.13(1)(b)(i) communication/information including verbal, written, graphic and electronic components;
- 4.13(1)(b)(ii) transportation including power, energy and mechanical systems; and
- 4.13(1)(b)(iii) production including construction, manufacturing, authoring, design and prototyping.

4.13(1)(c) additional preparation and demonstrated applied knowledge in the natural physical sciences, including environmental science, as used in technological systems and processes.

4.13(1)(d) additional preparation and demonstrated applied knowledge in mathematics as used in technological systems and processes.

4.13(1)(e) extensive preparation in the principles of contextual learning methodology.

4.13(1)(f) a knowledge and understanding of workforce preparation documents and employability skills and standards.

4.13(1)(g) a basic understanding of the principles of high-productivity organizations from business and industry.

4.13(1)(h) a basic understanding of the economic, political and legal consequences inherent within the application of technological systems and processes to our society.

4.13(1)(i) extensive preparation in application of the various tools accessible by students to facilitate improved self-learning.

4.13(1)(j) a basic understanding of the methodologies of research into projected developments and applications of emerging technologies.

4.13(1)(k) an understanding of good questioning skills and techniques to be used with students and peers to collect, organize and interpret information.

4.13(1)(l) the knowledge and understanding to organize and manage a student organization.

4.13(2) Performance: The beginning technology educator is able to:
4.13(2)(a) manage all student work areas in a safe and prudent manner and guide students in the safe use of tools, systems and processes in school-based and work-based learning sites.

4.13(2)(b) guide students to become knowledgeable in:

4.13(2)(b)(i) the application of academic concepts from math, science and communications as they apply to technological systems and processes;

4.13(2)(b)(ii) the allocation of resources such as time, money, materials, facilities and human resources;

4.13(2)(b)(iii) the acquisition, evaluation, organization, interpretation and communication of information related to technological systems and processes:

4.13(2)(b)(iv) the selection and application of technology appropriate to tasks;

4.13(2)(b)(v) the maintenance of systems of information, technology and records; and

4.13(2)(b)(vi) the application of relevant conflict resolution techniques as applied to the workplace.

4.13(2)(c) work as a team member in conjunction with academic and other occupational educators to develop systems that support learning across curricular disciplines.

4.13(2)(d) demonstrate competency in the management of equipment, materials, supplies and people.

4.13(2)(e) demonstrate good questioning skills and techniques to be used with students and peers to collect, organize and interpret information.

4.13(2)(f) employ interpersonal and organizational skills to develop an ongoing working relationship with community business and industry partners.

4.13(2)(g) communicate the possible career pathways for students entering an occupation in the communications, transportation, architecture, construction, manufacturing and environmental areas.

4.13(2)(h) guide students in the use of communication technologies to research occupational clusters occupational opportunities.

4.13(2)(i) guide students to develop problem-solving techniques or adopt problem-solving techniques from other sources.

4.13(2)(j) demonstrate the proper use of tools, systems and processes appropriate to the course content with respect to the acceptable standards of business and industry.

4.13(2)(k) construct individual and cooperative learning experiences which integrate school-based and work-based learning for students utilizing student-centered approaches.

4.13(2)(l) reinforce the academic concepts by demonstrating their practical applications.

4.13(3) The technology educator shall self-assess the effectiveness of instruction based on the achievement of students and pursue continuous professional development through appropriate activities, coursework and participation in relevant professional organizations.