

Technology Education

Program Standards

Effective January 1, 2004

Approved by the Kansas State Board of Education, February 9, 1994

revised July, 2003

The following standards will be used to evaluate each VE-2 local program application in determining eligibility to participate and receive funding as approved in the 1992 legislative session for state board-approved career and technical education programs.

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INTRODUCTION

Mission:

to prepare students to comprehend and contribute to a technologically based society.

Historical context and rationale

Industrial education in the form of manual training and manual arts was an outgrowth of the 18th and 19th century industrial era. Manufacturing, a major factor in the nation's economic growth, demanded a large skilled labor force and social institutions were unable to satisfy these complex demands. During this period, industrial education split to provide a dual-track in education and training: industrial arts and trade and industrial education. Industrial arts, born of the progressive philosophy of John Dewey, sought to provide general education about industry and its relationship with the society in which it existed. Trade and industrial education developed from the manual training heritage of preparing skilled workers for the manufacturing industry. While these programs struggled to meet their objectives, the Western world made a sudden and dramatic shift from an industrial society to a technological society.

This shift created significant dislocations in the social/cultural fabric of society. New educational curriculums are essential to respond to these changes. In part these changes mean an expanded curriculum to include technological literacy. A technological society functions better when its citizens understand the technology that surrounds and sustains them; indeed, they can make wiser decisions about the development and use of technology. The content and methods of industrial arts are inadequate to prepare individuals to live in a world that is now technological rather than industrial. Technological literacy can be significantly enhanced through appropriate programs of technology education. Technology Education is the term used by the International Technology Education Association (ITEA) and American Vocational Association (AVA), now known as the Association for Career and Technical Education (ACTE) to designate educational programs that emphasize the systematic application of knowledge and other resources, through technological processes, to produce outcomes in response to human needs and wants. These programs have developed out of the industrial arts community (1925 - present) that emphasized the fabrication of individually crafted projects, and then in the 1960s began to include group or class manufacturing and construction systems. In the 1980s, these programs were broadened to include a wider range of technological knowledge.

Traditionally, industrial arts is structured into unit shops such as metals, woods, and drafting in which students fabricate individual projects. The addition of manufacturing and construction courses in the 1960's led to much broader content areas; however, unit shops still dominate the curriculum at the high school level. In the 1980s, traditional industrial arts began to be supplanted by

technology education, which emphasizes an understanding of, and active participation in technological systems such as transportation, power and energy, communications, and production. In these programs, systematic problem-solving, activity-centered techniques constitute the primary method of learning.

Technology education is geared to all middle and secondary-level students regardless of their occupational or professional interest. Technology education is particularly characterized by: (a) expanded breadth of technological content; (b) systems and process analysis; (c) problem-solving in a material culture context; (d) group interaction focused on material culture; and (e) study of the relationships between technology, the individual, and society.

It is clear that traditional industrial arts programs (i.e. unit shop areas) are still found in Kansas and will continue to exist for some time to come. However, such programs should be viewed as transitional as technology education programs are developed and replace traditional unit shops such as woods and metals. Nevertheless, there is no single technology education curriculum model for Kansas schools; instead, innovative curricula are being developed which are consistent with the ITEA philosophy.

Technology Education Definitions

Technology -- The process of applying knowledge and resources for a useful purpose.

Technology Education -- A comprehensive, activity-based program that enables the student to develop technological concepts and knowledge of processes and systems needed to live productively.

Kansas Technology Education Model

Elementary (K-5) Awareness of Technology in Our World

The student will become AWARE of technology in our world through a variety of integrated activities.

Middle Level (6-8) Explorations in Technology

The student will EXPLORE concepts of technology through a variety of student-centered experiences.

High School (9-10)

Investigations in Technology

The student will INVESTIGATE a variety of applications of technology.

High School (10-12)

Applications of Technology

The student will APPLY technology through specialized studies.

Each technology program is unique. The needs and concerns of the students, the level of parental support, the experience and interests of the teachers, and the financial and educational support of the administration all combine to create different programs in every school. General program guidelines, recommended competencies, and suggested courses should be used as guidelines in creating the strongest possible local program.

Basic Definitions

- Career Development Skills - A set of competencies outlining abilities essential to the personal development and professional preparation of all students; highly transferable to a variety of life and work situations.
- Completers - Students who have graduated from high school on time, completed at least 3 courses, two of which are funded, within a coherent sequence of courses in a Technology Education program with at least 80% of the competencies achieved.
- Sequence of Courses - A series of 3 or more courses, two of which are funded, in which technical and academic education are integrated, and which directly relates and leads to both academic and occupational competencies.
- Double Up - Offering two courses taught by the same teacher, during the same hour; allowable with certain limitations as outlined in the standards.
- Nesting - (or Triple Up); Offering three courses taught by the same teacher, during the same hour; allowable with certain limitations as outlined in the standards.
- Independent Study - Special course content developed around the needs of an individual student.

- Add/Delete Form - Form used by fully approved programs to add new courses, delete courses, change course names, and change course content within a program sequence for the following school year.
- VE-2 Form - Original form used to apply for a new program or to move a conditional program to full approval for the following school year.
- VE-2 Update Form - Form used **only** by fully approved programs during the Technical Program Review process.

.5 WEIGHTED FUNDING AND HOW IT WORKS

The VE-2 Application

Requirement 1:

Each program must have a completed VE-2 application if applying for a new program or the VE-2 Update form if the program is under technical program review.

The process of getting a new program approved begins with the VE-2 application. The date new programs are due is subject to change, so be sure to check the Technology Education Internet page for the most current dates and time lines. Remember that each program requires a separate application, as does each application from individual schools. Original signatures are required. At this time, VE-2 applications may not be submitted via facsimile or through electronic mail. Only one original copy of the VE-2 and all support material is needed. Please don't send multiple copies.

Return the VE-2 application and the documentation to:

State and Federal Programs
Coordinator - Technical Education
Kansas State Department of Education
120 S. E. Tenth Avenue
Topeka, KS 66612-1182

Listed below are the generic rules for determining .5 weighted funding for funded courses in an approved career and technical program. This list is not intended to be all-inclusive since special situations may develop or new funding rules may be released after publication of this document. The .5 weighted funding generated by all of the approved career and technical programs in one district is included in one check along with other general state aid monies, such as Free and Reduced Lunches, Transportation, Special Education, etc...

- September 20th is the date for counting students in funded courses.
 - In any year in which September 20th is not a day on which school is in session, it shall mean the first day after September 20th on which school is in session.
- Elementary and middle school (K-8) courses are not funded.
- Ninth grade courses are not funded.
- Introductory courses are not funded.
- The grade level and content of the course determines funding. If ninth graders are enrolled in a funded course on September 20th, they can be counted for funding, unless more than twenty-five percent (25%) of students enrolled in a funded course are ninth grade students. Then, the course will **not** to be funded during the current school year.
- Second semester courses are never funded. There is no student count date in the second semester.
- A course taught only first semester is funded as if it runs for an entire school year; the course is not awarded half of the .5 funding because it only operates for half a year (i.e., one semester).
- The state aid check will not show a break out of the amount of monies generated by .5 weighted funding.
- The .5 weighted funding is distributed in the general state aid payment which is divided into ten (10) payments starting in September and ending in June
- The KSDE auditors will determine the true student count number during the audit by comparing the enrollment rosters or other student records (dated September 20th) to the student count number reported to KSDE on the Building Principals Report for September 20th. The KSDE auditor has the authority to make the necessary adjustments when the two counts do not match.
- When the KSDE auditors need to resolve an auditing question that is beyond their scope, they are instructed to call KSDE for clarification.

Appropriate Expenditures

It is widely accepted that Career and Technical Education programs are expensive to operate and have lower enrollments than most core academic subjects. For this reason, the 1992 State Legislature approved .5 weighted funding to help offset the extra costs associated with operating a vocational program. State law requires

that .5 money must be spent on the program. A partial list of legal expenses that can be paid with .5 money include, but are not limited to the following:

- ◆ Extended Summer Contracts
- ◆ Equipment for shop, labs or classroom
- ◆ Computers, digital cameras, scanners, printers
- ◆ Software and site licenses
- ◆ Instructional materials, video tapes, textbooks, DVDs
- ◆ Internet services, connections, subscriptions, and wiring expenses
- ◆ Facility improvements such as painting, rewiring, air conditioning, sidewalks, doors, expanding classroom, storage space, and classroom tables and chairs
- ◆ Professional organization dues and expenses
- ◆ In-service registration, transportation, meals, and motel rooms
- ◆ Substitute teacher when instructor attends conferences or In-services
- ◆ Consumable supplies required for operation of the program

The .5 weighted funding cannot be expended on tangible or intangible items for non-vocational classrooms, offices, facilities, events, or staff. There are no exceptions.

Conditionally Approved Programs

Technology Education Programs that do not meet the program standards completely with the initial application will be allowed a conditional funding period to correct deficiencies. A new VE-2 application and the correction or addition of deficient elements is required to move to full approval. Funding does begin in the conditional year and with full approval the funding continues. Programs in which the deficiencies have not been corrected by the end of the conditional period will be recommended for disapproval and denial of .5 weighted funding.

Add/Delete Forms

Once programs are fully approved they may be changed each year to meet the constantly changing needs of students and communities. The process of changing a fully approved program calls for an add/delete form. To make changes to the VE-2 once it has been fully approved, **do not** submit another VE-2 application, just file an add/delete form. Programs that are conditionally approved do not use add/delete forms. The add/delete form can be found and downloaded at the ksde.org Internet site in the Technical Education section.

Rules for add/delete forms:

- Add/delete forms must be postmarked by the due date to be considered for approval. (Be sure to check the Technical Education Internet site for the current due date for add/delete forms.)

- Type or print the information on the form. Forms that can't be read can't be processed.
- Send in an add/delete form if the course title changes.
- Send in an add/delete form if the number of clock hours for the course changes substantially.
- Complete one add/delete form for each course that the high school wants to add, delete, or revise for the next fall.
- Do not include more than one course on an add/delete form.
- Do not submit a VE-2 form in place of the add/delete form to make changes.
- Submit the original of each add/delete form that is filed.
- We must have original signatures.
- Do not fax a copy of the completed add/delete form.
- Do not send the completed add/delete form as an e-mail attachment.
- Submit only one set of the documentation with the add/delete form. Multiple sets of the documentation are not needed.
- Return the add/delete form and any supporting documentation to:

State and Federal Programs
 Coordinator - Technical Education
 Kansas State Department of Education
 120 S. E. Tenth Avenue
 Topeka, KS 66612-1182

Double Ups and Nested Courses

At times there is a need to teach more than a single course the same hour to achieve a minimum enrollment number. If the need arises for two courses to be taught together during the same hour, there are specific guidelines to follow in order to not jeopardize the funding status of the courses approved.

- A list of courses, by CIP Code, approved for 'doubling-up' and 'nesting' will be available on the KSDE Internet site.
- When 2 or more funded courses are taught within the same period and one course is not part of an allowable 'double-up/nesting' combination, then only one course will receive funding.
- When a course that is eligible for funding is taught with a non-funded technical education or an academic course, other than Independent Study, the eligible course will **not** be funded.
- Independent Study courses will not be approved for funding.
- To receive the additional .5 weighted funding, course titles must match the titles of courses approved for the school. A list of approved courses will be

faxed to each superintendent by September 1. Course titles that do not match will not receive the additional weighted funding. Course title changes on the master schedule and course roster may be made to match the list of approved courses. Changes may be made on the list of approved courses for the following year by using the Add/Delete process.

THE ELEMENTS OF AN APPROVED AND FUNDED TECHNOLOGY EDUCATION PROGRAM

IMPORTANT NOTE:

Elements with a Requirement number indicate material that must be present for program approval.

Each approved program contains the same basic elements: classroom-based learning, experienced-based learning, connecting activities, and accountability. The following pages will review the basic program choices in Technology Education, the specific elements needed for an approved program, and provide some format for the required material.

A Technology Education program is composed of coherent sequence of courses from grade nine to grade twelve that focuses on one of the four approved program areas. All of the courses in a given program area must be related to that program area. A school may have more than one Technology Education program.

Program Choices

Programs Approved Prior to 2004 and Not Participating in the 2004 Technical Program Review

Prior to the publication of this new standards document only one program number has been available for approved Technology Education programs, 15.9999. Due to the large number of funded programs it is not possible to move all programs into the new standards in a single year. New programs submitted in 2004, as well as programs that come up for the Technical Program Review in 2004 and later, will need to meet the new standards. Some programs will fit into a single program area but many programs will, reasonably, fit into more than one program area. This means that the majority of currently approved programs will divide into two separate Technology Education programs. Some drafting or production strands in the old 15.9999 Technology Education program will move to become full programs in the Trade and Industrial Education area.

The 15.9999 CIP will continue to be used for programs approved prior to the publication of this new standards document. Those 15.9999 CIP programs should see no change in their funding and would be expected to continue to submit add/delete forms. The basic requirement for strands in the 15.9999 programs will

continue to be in effect until those programs participate in the Technical Program Review. Programs must have at least three courses in an individual strand to have courses in that strand funded. For example, a program may have a communications strand composed of Computer Applications I, Yearbook, and Newspaper. In addition, that same program may also have a production strand composed of Introduction to Shop, Metals Production I, and Metals Production II. This program would divide into two separate programs when they converted to the new standards.

New Programs Approved Following January 2004

Funding for your Technology Education program starts with the VE-2 application. This form is not difficult or complex and is available at the ksde.org Internet site. There are three separate Technology Education programs that can be funded. Each program is an individual and separate operation. A school may have multiple Technology Education programs. The type of program selected and the number of programs selected must meet the needs of your students and your community. Each program uses a unique VE-2 application.

- **10.0105 - Communications Technology Program:** This program focuses on the application of technology to communicate, inform, and entertain. General areas within this program include: graphic design, print and non-print production, newspaper, yearbook, web page design, and commercial art.
- **15.0613 - Production Technology Program:** This program focuses on the application of technology in manufacturing. General areas within this program include: mass production, drafting, CAD, CNC, wood technology, metal technology, welding, casting and forming, engineering design, and construction.
- **14.0101 - Pre-Engineering Program:** This program focuses on the application of technology as a general preparation for upper level engineering and technical training. This program is intended as both an introduction and initial course work leading to a specific post-secondary degree. Courses within this program include: Introduction to Engineering, Digital Electronics, Principles of Engineering, Computer Integrated Manufacturing, and Engineering Design and Development.

CLASSROOM-BASED LEARNING

Instructional Staff

Requirement 2:

Each program must have a completed Submit a copy of the teaching certificate/license for each teacher teaching any course listed on VE-2 application. This copy of the teaching certificate can be a photocopy of the certificate on file at the district office or a printed copy of the information available for every certified/licensed teacher at the ksde.org Internet site. Include as well a copy of the master teaching schedule with all program teachers listed along with the courses they are teaching.

See Appendix B for a list of courses in each program with the required certification/license.

Certification

The goal for the certification/licensure process is to insure that all teachers in the approved Technology Education programs are fully qualified to teach. The instructional staff must meet both Kansas and Federal requirements. Program instructional staff must hold the appropriate certificate or licenses.

The change from a certification process to a licensure process will take a number of years. Until all teachers are fully covered under the new licensure process some teachers will hold a teaching certificate and some teachers will hold a teaching license. See Appendix B for a current chart of program areas, general course titles, and required certification/licenses. This chart will be updated as necessary and posted to the Technology Education portion of the ksde.org Internet site.

When the licensure process is fully implemented, most of the teachers working in a Technology Education program will need one of the three specific Technology Education licenses: Communication, Production, or Power & Energy /Transportation. In limited circumstances, other certifications/licenses can be held by teachers working in an approved Technology Education program. If an instructor does not hold the required certification/license, any courses that instructor teaches **can not** be counted for funding.

The licensure process does not smoothly cover every teacher in all Technology Education programs. For example, teachers in a Communications Technology Program where the courses taught may include: graphic design, print and non-print production, newspaper, yearbook, drafting, CAD, web page design, networking, and commercial art should have the Communications Technology license. It would not be unusual if a teacher working in this program held a Journalism license. This license would allow a teacher to teach the following

courses: newspaper, yearbook, or school publications. A teacher with a Journalism license would not be able to teach any of the following funded courses: graphic design, drafting, CAD, networking, or commercial art.

In the Pre-Engineering programs any of the regular Technology Education licenses will be acceptable, however, evidence of additional, specific training is required for teachers working in this program area. A list of approved training sites can be located on the Technology Education portion of the ksde.org Internet site. See also, Appendix B for more information on the courses that comprise the Pre-Engineering program.

Professional Growth

Each instructor should annually continue his/her professional growth in Technology Education through: college credit courses; by attending program related professional improvement meetings, workshops, in-services or conferences; or participating in program-related professional organization activities.
Summer K-ACTE/KSDE Summer Conference

Curriculum

Requirement 3:

Submit current course outlines detailing the course content for **all** courses listed on VE-2 application.

It is important that courses within the program follow a sequence allowing students to expand their knowledge base and competency level. Courses within a sequence are funded based on their content, not by the name of the course. However, in an effort to ease confusion, there are guidelines to follow in naming courses for the program:

1. The name of the course must accurately portray the content of the course.
2. The name of the course should be short enough to fit into the school's master schedule, teacher's roster, counselor's scheduling program and the enrollment handbook.
3. The name of the course used locally must match the name as approved on the VE-2 application.
4. Introductory level courses are not funded; therefore, do not use the word "Introduction" or "Exploratory" for an approved funded course.

Course Outline Format

A course outline is designed to show what the instructor is actually teaching. It should not be a listing of competencies and skills, but rather the content that is taught in order for the student to achieve skills in the area. Course outlines must include the following information:

1. Give title of course.
2. State length of course including credit and/or clock hours.
3. Identify grade level for course.
4. List prerequisites, if any.
5. List teaching resources including copyright dates of resources, if available.
6. Give brief description of course.
7. Outline course content including topic headings.

Requirement 4:

Submit a competency profile for each course listed on the VE-2 application, which shows the technical, academic, leadership and career development knowledge and skills expected of the student.

Competency Profile Format

The course competency profile is a listing of skills and competencies that the student should be able to demonstrate upon completion of the course. The difference between the course outline and the competency profile is that the outline details what the instructor will teach, while the competency profile details what the student has achieved after instruction has taken place. Competency profiles must include the following information:

1. Course/program title.
2. Name of student.
3. Completion date of student.
4. Rating or grading scale with a key for that scale.
5. Topic headings for content areas.
6. Student competencies listed under topics.
7. Identify that competencies integrate:
 - a. Academic knowledge and skills;

- | |
|---|
| <ul style="list-style-type: none">b. Leadership knowledge and skills;c. Career Development knowledge and skills;d. Experienced-based learning activities. |
|---|

Core Competencies

A set of core course competencies can be found in **Appendix D** of this document. If a funded course is represented in Appendix D, the local course competency profile must include those competencies as a minimum.

The local course competency profile will also include competencies that are specific to the local program. The state course competency profile is only a base to build on. In addition to the technical competencies each local competency profile will also include, as a minimum, at least ten (10) competencies in each of these areas: academic knowledge and skills (mathematics, language arts, and science), leadership, and career development skills. Some of the course competencies will very likely include a larger number of these non-technical competencies.

Distance Learning and Internet Based Courses

Sometimes courses may be offered at other locations that would benefit students within the local program. These may be offered via the Internet or by Interactive Distance Learning (IDL). The following standards must be followed in order for the courses to be approved for funding.

1. Course content and delivery must be from an accredited post-secondary institution, an approved Technology Education program in Kansas, or other program approved by the Technology Education consultant at the KSDE.
2. The course must be supervised locally by a certified Technology Education instructor certified/licensed to teach that course.
3. Course competencies delivered via the Internet or an IDL system may only comprise 75% of the course competencies
 - a. At least 25% of the course competencies must be provided locally through hands on application of course work, research, or additional competencies.
4. Courses must be offered and students enrolled during the school day at a set time to be determined locally; course may be doubled up with another approved course in the program.
5. Dual or concurrent credit may be granted if the course is offered through an accredited post-secondary institution. The cost of college tuition, fees and other expenses is the responsibility of the student.

Equipment and Software

Requirement 5:

List by course all equipment and software purchased or leased specifically for this program.

Hardware and Software Format

Use this format to submit a list of the hardware and software used for each course listed on the VE-2 application.

1. List the title of course.
2. List the hardware, software, and all equipment used in the course.
3. For computer hardware include the following: Operating system, Processor, Memory, Hard drive size, CD ROM/CDR or DVD drives, Monitor(s), Video RAM, Printers, and Network connection, if available.
4. For production equipment include the following: Manufacturer and date of manufacture.
5. For hand tools just list the total number of tools in individual categories.
6. List the manufacturer and date of manufacture for essential hardware in a Communications Technology such as: Digital camera(s), Video camera(s), Scanner(s), and High-resolution printer(s).
7. List supporting equipment such as: LCD projector(s), Scanner(s), Color printer, Digital camera(s), and Video camera(s).
8. List software used by title and version number.

Basic Hardware and Software

The availability and proper utilization of instructional materials is considered essential to conducting quality instruction. Schools offering Technology Education programs must ensure that adequate amounts of such materials, including audiovisual aids, reference texts, competency profiles, connection to the Internet, etc., are made available for instructional purposes. Technology Education instructors shall utilize a variety of instructional materials, technology and methods in accordance with student needs

Instructional Hardware

Required	Recommended	Item
X		Fax Machine (access to)
	X	Internet in Technology Education classroom;
X		Computer for instructor use
X		Telephone in classroom/instructor office
X		Digital Camera (access to)
X		Scanner (access to)
X		VCR or DVD player (access to)
X		27 inch Television (access to)
X		Access to fully networked, Internet computer lab, 2:1 ratio, 1:1 ratio recommended
	X	Web page design program
	X	LCD projector
	X	Document camera

Integration

Requirement 6:

Technology Education related academics and career development skills are incorporated/integrated into the instructional content.

Besides the technical competencies, each local course competency profile must include competencies in math, science, language arts, and projects that reflect real world and relevant learning activities that promote higher-level skills. In addition, at least ten (10), as a minimum, Technology Education related career development skills must be incorporated/integrated into each course in the instructional program.

Examples of academic competencies can include:

- ◆ Technical reading - read repair manuals; follow directions to build a project; reading blueprints
- ◆ Technical writing - write instructions for operating a piece of equipment; safety guides

- ◆ Oral communications - oral reports; demonstrations of equipment; multimedia presentations
- ◆ Math - business management problem solving; determining geometric angles in project construction; balancing ratios; determining volumes needed for production runs
- ◆ Science - conduct research and present results in science fair exhibit using scientific method

Examples of career development skills can include:

- ◆ Listening Skills - analyzing speeches and oral reports; maintain proper and effective debate in a parliamentary procedure demonstration
- ◆ Oral Communication - participate in technology Issues Forum; demonstrate job interview skills
- ◆ Mathematics - analyze supply and demand, break even, or market charts and graphs
- ◆ Writing - write reports on research; create manuals
- ◆ Computer Literacy - develop marketing graphs; make computer generated presentations
- ◆ Human Relations - provide opportunities for every student to chair a committee
- ◆ Decision Making/Problem Solving - participate in problem solving simulations
- ◆ Teamwork - provide opportunities for all students to work in a team setting
- ◆ Resource Management - pre-determining cost of major shop project and ordering necessary materials
- ◆ Time Management - utilize timelines for major assignment deadlines; allow students to organize and operate sale of production items
- ◆ Work Ethics - treat laboratory time as the workplace, students as employees; assign students specific duties
- ◆ Career Planning - prepare personal budgets compared to desired career pay; arrange for job shadowing experience for students

EXPERIENCE-BASED LEARNING

Every approved career and technical program must contain elements of experience-based learning. These experiences must be directly related to the program. All experiences are "live" and do not include simulations. Depending on the program selected and the availability of placement, the type of experience-based learning will vary. Students may be paid for their work but that is not required. This most often occurs in a formal OJT situation where the student is working at a local business. A completed student evaluation from employer or project supervisor is due for each program completer for each year.

One of three types of experience-based learning can be found in the Technology Education programs. Those are: on-the-job training (OJT), in-house training, or tech support.

On-the-Job Training (OJT)

OJT is the most traditional of the experience-based learning types. It has been used with a few Technology Education programs in the past but does require a high level of administration and teacher time. For OJT, coordination time is provided for the instructor with a teacher/student ratio not to exceed 1:14 and the experience is either a semester or a year in length. If an OJT placement is a part of the experience-based learning there are some specific requirements that must be met. Those include a formal training agreement with the employer, a training plan, teacher coordination time, and a more formal student evaluation.

OJT-Training Agreement

A training agreement must be completed and signed for each OJT student. The training agreement is a legal document signed by the training station supervisor (employer), the student, the student's parents/guardian, and the career and technical coordinator. The training agreement indicates employment information and general provisions of training. The career and technical coordinator may use training agreements provided by KSDE or a locally designed training agreement can be created to fit the specific needs of the programs. A sample training agreement is available from KSDE. Training agreements should be kept on file at the school for three (3) years. The KSDE auditors may ask to see the current year's training agreements during the school's yearly state audit.

OJT-Training Plan

Training plans must be completed and signed for each OJT or OJT/IHT student. The training plan is a legal agreement between the employer, the school and the student that specifically lists the job duties to be performed by the student while employed at the OJT training site. The training plan is developed jointly by the career and technical coordinator, the instructor, the employer, and the student. The training plan must show that the training site will provide the OJT student with a variety of opportunities and skills that progress in experience during the training period. The training plan must include job duties that are appropriate for the approved career and technical program and the student's career and technical objective.

OJT-Teacher Coordination Time

The Technology Education instructor that supervises a formal OJT process for an approved career and technical program must have one-hour (60 minutes) of coordination time per day, or the equivalent, when one (1) to fourteen (14) students are enrolled in OJT. When fifteen (15) to twenty-five (25) students are

enrolled in OJT, the instructor shall receive two hours (120 minutes) of coordination time per day.

The OJT coordination time for OJT shall be used to:

- Locate appropriate OJT training stations.
- Deliver training plans and training agreements to each OJT training site.
- Conduct monthly on-site visits to each OJT training site.
- Assist OJT students at the training site.
- Update VE-2 program documentation and technology.
- Complete CaTE reports for KSDE.
- Participate in professional development directly related to the career and technical program.
- Visit business and industry sites.
- Work with other teachers in the program.
- Work with academic teachers in the district/high school to facilitate integration activities into the career and technical education curriculum and vice versa.
- Research newest technology releases using the Internet, e.g., business and industry trends, new and emerging occupations, and teaching methodologies.
- Preparing for meetings with the advisory committee.

In-house training

In-house training is the most common type of experience-based learning for the Technology Education programs. Programs are strongly encouraged to include work that comes from the community but the experienced based learning may consist of tasks assigned by the course instructor. The best example of this arrangement is where students are producing a yearbook or school newspaper. In this example the yearbook instructor is the sponsor and students who are program completers would have an experience-based learning evaluation form completed.

The experience-based learning element must fit the specific program area. In a communications program students might produce a flyer for a civic organization, provide computer support for the community, or produce a video yearbook. In a production program students might design and manufacture benches for a local park, assist a community organization in building toys for children, or build furniture for people in temporary housing. In a transportation program students might provide a children's car seat check for new parents, do minor basic maintenance on the vehicles for senior citizens, or participate in student driving skills training. In the pre-engineering program students might participate in a national design contest, design and produce an electric car, or assist a civic group with the design of a new building.

Tech Support

The Tech Support experience is designed to allow students to serve as tech support personnel at the high school or entire district. Students in Tech Support are responsible for:

- installing hardware, peripheral devices and software.
- upgrading hardware, peripheral devices and software.
- maintaining hardware, peripheral devices and software.
- troubleshooting hardware, peripheral devices and software.
- training faculty and staff to operate hardware, peripheral devices and software.
- administering and troubleshooting the network (where appropriate).

In terms of experience-based learning it is important to remember that **all** Technology Education programs must have an element of experience-based learning for all completers. Students can not count working as a teacher's aide as part of their experience-based learning.

Experience-Based Learning Student Evaluation

All program completers must have a completed experience-based learning student evaluation form. The content of this form will change for each program completer depending on the specific work experience. The basic format for the evaluation form is listed below. Your district office or the local service center may have sample evaluation forms available.

Requirement 7:

Complete an experience-based learning student evaluation form for each program completer.

STUDENT EVALUATION FORMAT

Complete a student evaluation from the employer or project sponsor for each program completer.

1. Give name of student.
2. Give name of employer/sponsor.
3. Give brief description of experience.
4. List competencies for the experience related to the course or program.
5. Show rating scale with key.

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| 6. Include rating and/or signatures by all parties involved (student, employer/sponsor, and instructor, if different from sponsor). |
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CONNECTING ACTIVITIES

Student Leadership

Requirement 8:

Indicate on the VE-2 application form how student leadership will be addressed for the program. Be sure to document how leadership skills will be accomplished in the absence of a CTSO.

The skills, knowledge, and experiences we give our students within the Technology Education programs include a solid base of technical, academic, and career development skills, knowledge of the careers available to them, and the leadership experiences that tie their program together. All career and technical programs must integrate student leadership activities into the curriculum.

There are two ways to provide student leadership for your Technology Education program. Leadership skills can be provided by a career and technical student organization (CTSO) with those skills documented on course competency profiles. Leadership skills can also be provided at the individual course level with those skills documented on course competency profiles.

Student Leadership with a CTSO

In general, the CTSOs offer a much stronger connection to your Technology Education program. The career and technical student organization is student centered, student directed, and teacher coordinated. The goals of career and technical student organizations are to develop leadership, improve social awareness, develop awareness of technology as a vocation, strengthen citizenship skills, to understand and promote the effective and ethical applications of technology. Depending on the type of Technology Education program in your school either the Technology Student Association (TSA) or the SkillsUSA organization may be the appropriate career and technical student organization (CTSO). No other student organizations qualify as CTSOs for your Technology Education program.

There are other student and teacher organizations in engineering, design, CAD, and journalism but they don't meet the basic standards for a Technology Education CTSO. It is important to note that effective CTSOs are integrated into the program curriculum as part of the school day. They should **never** be operated as an extra-curricular activity held outside school hours.

Student Leadership without a CTSO

If a CTSO is not in place, student leadership activities **must** be reflected in the course competencies for all courses. In the sample set of course competencies at the end of this document is a student leadership profile that can be used to add leadership competencies to the individual course competencies. There must be at least ten (10) leadership competencies for each course profile. Leadership skills listed on course competency profiles must include supporting documentation indicating how each skill will be addressed.

IMPORTANT NOTE:

During the program review process you will need to be able to describe how each leadership competency was achieved in some detail. A simple listing of the leadership competencies from each course is not sufficient for new program application or the technical program review process. When your program comes up for the program review each leadership competency must be listed along with a brief description of how students achieved the individual leadership competency.

Career Counseling Services

Requirement 9:

The program shall provide career-counseling services to facilitate an easy transition to post-secondary education or training.

The program must provide career-counseling services to facilitate an easy transition to post-secondary education, training, or employment. This element is not part of the formal VE-2 application process but it is a required element of the program review. When your program is reviewed, there are some activities that must be addressed:

- Activities are provided for students to give them information about post-secondary institutions & careers in the program area.
- Students visit area post-secondary programs related to the career and technical area.
- Student enrollment materials include information about technical programs offered at the school.
- General information to students about careers includes information about career and technical opportunities.

The program instructor should work with the counselor to guide students to education following high school. The instructor should also work with the counselor to provide opportunities for students to become program completers. This can be accomplished by

giving preference in courses with limited enrollment to students that have taken one or more courses within the sequence, and are on track to be completers.

Advisory Committee

Requirement 10:

The program has an active advisory committee to meet the specific needs of the Technology Education Department comprised of business, industry, and community partners reflective of the program area. Provide list of names, job titles, and names, city/state, and types of organizations/businesses represented on the advisory committee.

The program advisory committee is a required element for your Technology Education program. On the VE-2 application you will need to indicate that an advisory committee has been formed and the advisory committee has reviewed all of the course competencies. An active advisory committee must be comprised of business, industry, and community partners whose work touches the Technology Education program area.

In terms of the composition of the advisory committee, members must represent businesses (or organizations) from the program area. Advisory committees must consist of at least three members for a stand-alone or single program advisory committee. If you have a school-wide advisory committee then at least three members must serve for **each** specific program area. For greatest effectiveness, there should be five to seven members on the advisory committee. The meetings of the advisory committee are semi-formal activities and minutes of the meeting must be kept on file. The minutes of the advisory committee should reflect the following items:

- Review program/course competencies;
- Review equipment & instruction materials;
- Participate in technical program review process;
- Submits recommendations annually to the building administrator;
- Held at least two meetings during the school year.

For more complete information on advisory committees refer to the publication, *Functions of an Advisory Committee*, which outlines recommendations on how to select the members of the Advisory Committee and how to organize and conduct meetings. A copy of this publication can be obtained on the Technical Education section of the KSDE Internet site. It is a good idea to provide a copy of this publication to each advisory committee member.

FORMAT FOR ADVISORY COMMITTEE INFORMATION

Use this format to complete requirements for the advisory committee information:

1. List name of advisory committee member.
2. Give job title of committee member.
3. Give name of organization/business represented.
4. Identify type of organization/business.
5. List city/state of organization/business.

ACCOUNTABILITY

Requirement 11:

A record of student enrollment, placement and follow-up activities are maintained and used in program planning and development.

Concentrators and Completers

Not every student who enrolls in a funded course in your Technology Education program will complete the program. Students involved in the program become concentrators at the point where they have completed two courses in the program sequence, are enrolled in a third course of the program, and entered eleventh grade. Students who complete at least three courses in the appropriate sequence, at least two of which are funded, and graduate on time are program completers. Most of the time students will not take every class in a program. Part of the program design process is to establish the sequence students will need to take to become completers.

It is highly recommended that the student have completed the equivalent of three full year courses or six semester courses, and have completed a quality experience-based project. Local programs may elect to set higher standards for the definition of a completer than those outlined here.

As students enter the 10th grade and begin to take funded courses in the program sequence, the course competency profiles for each course must be completed for each student enrolled in the funded courses. All funded course competencies need to be collected in this manner. The expectation is that each completer will achieve 100% of the course competencies. There is some flexibility at the course

competency level in that specific course competencies not taught are not evaluated. They do not count against the 100% standard. Teachers almost always include some competencies that are an extension of the course and may not always, or even often, be achieved due to time limitations.

Course competencies for completers must be retained by the school for five years. It is strongly encouraged that students receive a copy of their competency profiles as part of the completer process. These competency profiles should be the best indicator of what the student could “do” when they leave the secondary program and the school. This information is of great value to future employers, instructors, and counselors. It is often a source of pride for students who complete the Technology Education program.

Funding

Requirement 12:

The Local Education Agency will provide adequate funds to sustain the school’s instructional program, providing for the purchase of equipment and technology; software; teaching materials; consumable supplies; staff development; and facility improvements.

Proper equipment and adequate supplies must be made available to support the Technology Education program. Schools offering vocational programs shall provide funds for equipment and supplies in accordance with acceptable standards and at a level to assure quality agricultural education. Equipment selected should be representative of the grade and type used by business and industry and must meet or exceed all appropriate safety standards.

ADDITIONAL STATE PROGRAM REQUIREMENTS

Articulation Agreements

Requirement 13:

Each program must have an articulation agreement with appropriate post-secondary institution(s).

This agreement sets the stage for students to move from secondary Technology Education programs directly into post-secondary technology programs with the academic skills and the knowledge of technology applications necessary to be successful. The articulation agreement is an integral and required part of the Technology Education program.

The articulation agreement is a contract between the secondary school district and a post-secondary institution. This contract states very clearly what is available to secondary students who complete a specific course or courses or who

complete the secondary Technology Education program. Students may have one of several possibilities available:

- students may receive college credit for courses taught in the high school;
- students may be able to test out of specific courses at the post-secondary institution;
- students may be able to skip an introductory course;
- students may move into the post-secondary programs ready to go with no special accommodation necessary.

All of these possibilities must be spelled out very clearly in the articulation agreement. It is certainly appropriate for secondary Technology Education programs to align with post-secondary programs so that no additional accommodations need to be offered to secondary students and no remediation is needed.

IMPORTANT NOTE:

The inclusion of an articulation agreement does make every Technology Education program a Tech Prep program under the definitions of the federal Perkins legislation. No special activity is required, but the program will show up as a Tech Prep program in the Career and Technical Education (CaTE) data collection system.

A model of the articulation agreement is included in **Appendix A**. This agreement is in wide use in Tech Prep programs in Kansas and can be copied, modified, and used for any Technology Education program.

Facilities

Requirement 14:

The facilities are accessible to all populations, clean, attractive, safe, healthy, adequate, and appropriate for the instructional program being offered.

Physical facilities for Technology Education programs shall include adequate space and utilities in classrooms, laboratories, and production areas, which provide for safe and orderly instruction. Both instructional and non-instructional areas, including storage areas, restrooms and offices, shall be adequate for the number of students and staff using such areas. Special consideration shall be given to students with special needs as well as providing for the special needs of co-ed classes.

According to the state fire marshal, the classroom facility must provide a minimum of 15 square feet of usable space per student. Usable space is defined as actual space provided for the movement or seating of students. Built in cabinets, storage, audiovisual equipment, production equipment, and other components that take up floor space do not count toward usable space for students. Classrooms that do not meet the minimum size requirements must either be expanded, or the class size limited to meet the standards.

While this is the minimum space requirement for adequate fire safety, there are other concerns to consider. Since Technology Education programs include hands-on production activities and laboratory activities within the classroom, the Technology Education classroom should be larger than a minimum sized classroom.

The student-teacher ratio will vary with the program, depending on the number of students to be served, the specific skills to be taught, the size of the facility, and the methods of instruction to be used. However, reasonable enrollment limits must be maintained in order to ensure that program objectives may be met in an efficient and effective manner.

For safety reasons, it is recommended that courses involving production activities are limited in enrollment to a size appropriate for the instruction. In addition to the size limitations below, the maximum number of students in a project or production based course should be 18, fewer if the facilities are more restrictive.

The space requirements for other facility components are less easily defined, depending on the program and how the facility is utilized. Below are listed the recommended sizes of various facility areas, based on a one teacher department. When possible these guidelines should be followed for the local program.

Facility	Minimum recommended size:
Classroom	20 square feet per student
Production facility	150 square feet per student
Lab storage	320 square feet
Teacher office	120 square feet
Classroom Storage	120 square feet
Computer lab	15 square feet per student
Locker/storage space for student lab clothes and supplies	as needed based on class size
Clean-up/wash basin area	as needed based on class size

Bathroom facilities for male and female students	as needed based on class size
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Safety

Requirement 15:

Safety is incorporated into all phases of the Technology Education program including instruction and production. Equipment must be properly maintained and in safe working condition.

Due to the nature of Technology Education training and related employment, student safety and safety training are essential to quality program operations. Schools offering Technology Education programs shall ensure that safety features in the instructional facilities and equipment are properly implemented and maintained. In addition, adequate lighting, heat, and ventilation shall be provided to ensure a safe and healthy learning environment. The Kansas Department of Health and Environment (KDHE) and Kansas Department of Human Resources (KDHR) standards shall be used to guide the implementation and maintenance of environmental health and safety features.

PROGRAM IMPROVEMENT

Preparing for the Technical Program Review

Once every five years all of the career and technical programs in a school take part in a technical program review. The review process is much the same as the process of initial VE-2 application with some added elements to indicate how the program has maintained quality over time.

Activities and expenditures in the following areas should be logged for inclusion in the review process. Most school districts already track these activities very closely and this should not be a new or difficult process.

Course Competencies

Submit copy of completed course competency profiles for each program completer for the **last** course each completer takes in the program.

Staff Training

List instructional staff participation in ongoing, program specific staff development in the last three years.

List instructional staff participation in program-related professional organizations(s) in the last three years.

Budget

Provide a list by year of the following program specific purchases for the last three fiscal years prior to a program review in the following areas:

- List of Equipment
- List of Software
- List of Supplies and Materials
- List of Facility Improvements

Program Improvement

Each Technology Program has a plan for continuous improvement based on analyzing program data. With the essential cooperation of the program advisory committee each program will submit a program improvement plan. The program staff, school administration, and the advisory committee will review the following areas:

- Classroom Based Learning including instructional staff, curriculum, and integration;
- Experience Based Learning including experienced based learning examples;
- Connecting Activities including student leadership, career counseling services, and technical program advisory committee; and
- Program Accountability including student learning, staff training, funding, and additional program requirements.

SUMMARY OF REQUIREMENTS

Requirement 1:

Each program must have a completed VE-2 application if applying for a new program or the VE-2 Update form if the program is under technical program review.

Requirement 2:

Each program must have a completed Submit a copy of the teaching certificate/license for each teacher teaching any course listed on VE-2 application. This copy of the teaching certificate can be a photocopy of the certificate on file at the district office or a printed copy of the information available for every certified/licensed teacher at the ksde.org Internet site.

Include as well a copy of the master teaching schedule with all program teachers listed along with the courses they are teaching.

Requirement 3:

Submit current course outlines detailing the course content for **all** courses listed on VE-2 application.

Requirement 4:

Submit a competency profile for each course listed on the VE-2 application, which shows the technical, academic, leadership and career development knowledge and skills expected of the student.

Requirement 5:

List by course all equipment and software purchased or leased specifically for this program.

Requirement 6:

Technology Education related academics and career development skills are incorporated/integrated into the instructional content.

Requirement 7:

Complete an experience-based learning student evaluation form for each program completer.

Requirement 8:

Indicate on the VE-2 application form how student leadership will be addressed for the program. Be sure to document how leadership skills will be accomplished in the absence of a CTSO.

Requirement 9:

The program shall provide career-counseling services to facilitate an easy transition to post-secondary education or training.

Requirement 10:

The program has an active advisory committee to meet the specific needs of the Technology Education Department comprised of business, industry, and community partners reflective of the program area. Provide list of names, job titles, and names, city/state, and types of organizations/businesses represented on the advisory committee.

Requirement 11:

A record of student enrollment, placement and follow-up activities are maintained and used in program planning and development.

Requirement 12:

The Local Education Agency will provide adequate funds to sustain the school's instructional program, providing for the purchase of equipment and technology; software; teaching materials; consumable supplies; staff development; and facility improvements.

Requirement 13:

Each program must have an articulation agreement with appropriate post-secondary institution(s).

Requirement 14:

The facilities are accessible to all populations, clean, attractive, safe, healthy, adequate, and appropriate for the instructional program being offered.

Requirement 15:

Safety is incorporated into all phases of the Technology Education program including instruction and production. Equipment must be properly maintained and in safe working condition.