Arkansas Department
ACE
of Career Education

Career and Technical Education Program Operational Guides

Mike Beebe, Governor
William L. “Bill” Walker, Jr., Director

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Statement of Assurance

All vocational opportunities are offered without regard to race, color, national origin, sex, handicap, or age. The following civil rights laws protect individuals from discrimination in programs or activities receiving federal financial assistance:

Title IV of the Civil Rights Act of 1964
Title IX of the Education Amendments of 1972
Section 504 of the Rehabilitation Act of 1973
Age Discrimination Act of 1975

RELATED LINK: Go to the Department of Labor for assistance with specific laws and regulations, http://www.dol.gov/dol/compliance/compliance-majorlaw.htm.

Summary of Dates/Forms Associated with Instructional Programs		
Date	**Form # and Web Site Address**	**Name of Form**
August 1	**(http://ace.arkansas.gov/CareerandTechEducation/TeacherInformationSystem.htm)**	Computer submission of **Teacher Information**
October 1		Notification by letter of schools using concurrent credit to meet standards
October 1	**WE-92 (http://ace.arkansas.gov/CTESCTENewandExpandedPrograms.htm)**	C & T New Program Start-up Proposals
November 10	**www.theaet.com**	Computer submission of Agriculture Education Program of Activities
February 1	**www.theaet.com**	Computer submission of Agriculture Education Program of Activities
February 15 (or 10 days before first contest)	**www.theaet.com**	Computer submission of Agriculture Education FFA membership dues
March 15	**WE-4 (http://ace.arkansas.gov/CTESCTENewandExpandedPrograms.htm)**	Reimbursement for C & T New Program Equipment
April 1	**www.theaet.com**	Computer submission of Agriculture Education National Chapter Report
June 1	**www.theaet.com**	Computer submission of Agriculture Education Annual FFA Report
June 30		STRIVE End of Year Report
2 weeks prior to beginning of class	**WE-6 (http://ace.arkansas.gov/CTESCTEReporting%20Forms.htm)**	Application for Adult Skill Training Class (no classes will be approved after May 1)
No later than 2 weeks after completion of class	**WE-PD (http://ace.arkansas.gov/CTESCTEReporting%20Forms.htm)**	Adult Skill Training Class Enrollment Report (all reimbursement requests must be received by May 30)

Program Approval Process

If a program was **conditionally approved** during the previous year and one of the following actions applies the following year, then the district will receive the program status indicated.

ACTION	STATUS TO RECEIVE
Problems are corrected	**FULL APPROVAL**
Problems not corrected	Disapproval
Critical elements from previous year received, and improvement plan not submitted	Disapproval

If a program had **full approval** during the previous year and one of the following actions applies the following year, then the district will receive the program status indicated.

ACTION	STATUS TO RECEIVE
No CTSO previous year	Conditional Approval
No program of study	Conditional Approval
No required foundations (reviewed by appropriate program area)	Conditional Approval
Core not offered every year	Conditional Approval
Testing data reflects insufficient number of students were tested	Conditional Approval
Meets all ACE standards	**FULL APPROVAL**

Program approval items reviewed during technical assistance visits and as information is available:

1. All report card items

    A. Completers
    B. Career and technical assessment
    C. Academic attainment
    D. Placement
    E. Nontraditional numbers

2. Advisory councils and meeting minutes

3. Safety issues

4. Any item noted as lacking in technical assistance visit

Arkansas Department ACE of Career Education

2013-2014
Start-up Equipment Computer Standards

Minimum Desktop, Laptop, Netbook, and Thin Client/VDI Specs

Note: these are ***minimum*** specifications that may meet the needs of online assessments, web-based instruction, etc., but schools should be mindful of the intended usage before purchasing. A Chromebook, for instance, is cloud-based and does not run Microsoft Office, OpenOffice, or any other installed software packages.

Operating System:
Windows: .....Windows 7
Mac: .....Mac OS 10.7
Linux: .....Ubuntu 11.10, Fedora 16
Chrome OS:.....Chrome OS 19

Memory:
1 GB of RAM

Connectivity:
Integrated 10/100 Network Card (Wired) or 802.11g Half Mini-Card (Wireless)

Audio:
Headphones or Earphones

Display:
9.5 inch screen size

Speech:
Microphone

Input Device:
Keyboard, Mouse, Touchpad, or Touchscreen

Arkansas Department ACE of Career Education

2013-2014
Start-up Equipment Computer Standards

Windows® Level II Desktop Minimum Specs

Suitable for the following programs:
Business: ***Web Design, Digital Communications.***
Career Guidance Exploration and Preparation: ***Studios and Labs utilizing editing suites.***
Office of Skilled and Technical Sciences: ***Video card requires minimum of 512 PCIE***

Operating System:
Microsoft® Windows® XP* with Service Pack 3 *(Microsoft will stop supporting Windows XP April 8, 2014)* **or** Windows 7 with Service Pack 1; Windows 7 with Service Pack 1 (64 bit) required for Adobe Premiere Pro, After Effects and Encore; Windows 7 with Service Pack 1 required for SpeedGrade

Processor:
Intel® Pentium® 4 or AMD Athlon® 64 processor with 64-bit support; Intel Core®2 Duo or AMD Phenom® II processor required for Adobe® Premiere® Pro, After Effects®, and Encore®

Memory:
4GB recommended for 32 bit; 8GB recommended for 64 bit

Boot Hard Drive:
500GB SATA 3.0Gb/s

Video:
1280x900 display with 16-bit color and 512MB of VRAM; 1680x1050 display required, and second professionally calibrated viewing display recommended for SpeedGrade
OpenGL 2.0–capable system

Sound:
Sound card compatible with ASIO protocol or Microsoft WDM/MME

Removable Media Storage:
DVD-ROM drive compatible with dual-layer DVDs
DVD+-R burner for burning DVDs

Data Entry:
USB Entry Keyboard
USB 2-Button Mouse with Scroll

Arkansas Department ACE of Career Education

2013-2014
Start-up Equipment Computer Standards

Mac® Level II Minimum Specs

Suitable for the following programs:
Business: ***Web Design, Digital Communications.***
Career Guidance Exploration and Preparation: ***Studios and Labs utilizing editing suites.***
Office of Skilled and Technical Sciences: ***Video card requires minimum of 512 PCIE***

Operating System:
Mac OS X v10.6.8 or v10.7

Processor:
2.5GHz quad-core Intel Core i5 with 6MB on-chip shared L3 cache

Memory:
4GB of RAM (8GB recommended)

Boot Hard Drive:
500GB (7200 rpm) hard drive

Video:
1920 by 1080 pixels

Removable Media Storage:
DVD-ROM drive compatible with dual-layer DVDs (SuperDrive for burning DVDs; Blu-ray burner for creating Blu-Ray Disc media)

Minimum Facility Requirements

http://arkansasfacilities.arkansas.gov/SchoolFacManual.aspx

Foundation Courses for All CTE Programs of Study

355910 Input Technologies
Credit: Grade Levels: 5
Input Technologies is a course designed to provide students with the necessary foundation skills to be successful in a technology enriched world. The minimum required amount of time to teach this course is forty minutes per week or its equivalent during the school year.
Does course count in required 38 units and, if yes, how: No
Does course count in the 21 units required for graduation: No
Licensure required to teach this course: 033 Middle School Business
224 Business Technology
250 Business Technology
419 Business Technology

366910 Technology Communications
Credit: Grade Levels: 6
Technology Communications is a that continues to develop the technology skills learned in the 5th grade. Word processing skills will be expanded as well as the introduction to basic spreadsheet functions and manipulation. The minimum required amount of time to teach this course is forty minutes per week or its equivalent during the school year.
Does course count in required 38 units and, if yes, how: No
Does course count in the 21 units required for graduation: No
Licensure required to teach this course: 033 Middle School Business
224 Business Technology
250 Business Technology
419 Business Technology

378910 Information and Communications Technology
Credit: Grade Levels: 7-8
This course is designed to prepare students for the transition into 9th grade. This course is the culmination of skills mastered beginning in the 5th grade, while adding database and electronic presentation skills. The minimum required amount of time to teach this course is sixty clock hours or one semester.
Does course count in required 38 units and, if yes, how: No
Does course count in the 21 units required for graduation: No
Licensure required to teach this course: 031 Business Education (Secretarial)
032 Business Education
033 Middle School Business
034 Data Processing/Computer Permit
037 Computer Tech Permit
224 Business Technology
225 Business Technology
250 Business Technology

378920 Introduction to Business Communications and Technology
Credit: Grade Levels: 7-8
Introduction to Business Communications and Technology is the first semester of a two-semester foundation sequence designed to provide students with the necessary foundation skills to be successful in a technology enriched world. Word processing skills will be expanded as well as the introduction to basic spreadsheet functions and manipulation. The minimum required amount of time to teach this course is sixty clock hours or one semester.
Does course count in required 38 units and, if yes, how: No
Does course count in the 21 units required for graduation: No
Licensure required to teach this course: 031 Business Education (Secretarial)
032 Business Education
033 Middle School Business
034 Data Processing/Computer Permit
037 Computer Tech Permit
224 Business Technology
225 Business Technology
250 Business Technology

399040 Computer Technology: Introduction
Credit: Grade Levels: 7-8
Computer Technology: Introduction is a one-semester course designed to prepare seventh- and eighth-grade students with an introduction to computers and business applications that are necessary to live and work in a technological society. Emphasis is given to data entry, computer concepts and operations, programming and design, computer software, implications of technology in society, and ethics. The course is designed to provide students with an understanding of the business, industrial, and scientific areas in which the computer is used.

Does course count in required 38 units and, if yes, how: No
Does course count in the 21 units required for graduation: No
Licensure required to teach this course: 031 Business Education (Secretarial)
032 Business Education
033 Middle School Business
034 Data Processing/Computer Permit
037 Computer Tech Permit
224 Business Technology
225 Business Technology
250 Business Technology

399050 Keyboarding
Credit: Grade Levels: 7-8
Keyboarding is a one-semester course designed to help students develop speed and accuracy by learning the touch operation of alphanumeric/keyboard characters. Emphasis is placed on the following: mastery of the keyboard with desirable keyboarding techniques; development of speed and accuracy; basic problem-solving applications of centering and arranging reports, letters, and tables; proofreading; formatting; and proper care of the equipment. Keyboarding is a foundation for developing entry-level skills for business careers.
Does course count in required 38 units and, if yes, how: No
Does course count in the 21 units required for graduation: No
Licensure required to teach this course: 031 Business Education (Secretarial)
032 Business Education
033 Middle School Business
034 Data Processing/Computer Permit
224 Business Technology
225 Business Technology
250 Business Technology

399100 Career Orientation
Credit: Grade Levels: 7-8 (8th grade recommended)
This foundation course for all programs of study uses hands-on activities and research to provide an opportunity for exploring careers in the 16 career clusters. Career preparation and development begins with the establishment of individual career and education plans.
Does course count in required 38 units and, if yes, how: No
Does course count in the 21 units required for graduation: No
Licensure required to teach this course: 411 Career Orientation Endorsement

399280 CT Intro Based Career Orientation
Credit: Grade Levels: 7 or 8
This is an alternate course to combine Career Orientation and Computer Technology. This course will allow schools to meet the requirements for introducing students to hardware and application software of a computer with applications in career planning, preparation, exploration and development. Students will be knowledgeable about the world of work, career options, and the personal skills, aptitudes, and expectations to complete the education and training requirements to enter into a future career.
Does course count in required 38 units and, if yes, how: No
Does course count in the 22 units required for graduation: No
Licensure required to teach this course: 224 Business Technology with 411 CO Endorsement
225 Business Technology with 411 CO Endorsement

Elective Courses for All CTE Programs of Study

493860 Internship
Credit: 1 Grade Levels: 11-12
This is a practical and supervised job experience designed to assist students to successfully transition from school-to-work or successfully continue their education in a chosen program of study or career focus area. Internships are individualized and competency-based. It focuses on the SCANS competencies with emphasis on problem solving, teamwork, communication skills, applied math, literacy, and technology. It counts as one unit of credit toward completer status in any of the career and technical programs of study. Interns may receive 1 unit of credit for completing a minimum of 180 hours of internship and 18 hours of coordinator contact. Interns shall be limited to 4 credits for completing at least 720 hours of internship credit and 72 hours of coordinator contact within a consecutive two-year period.
Does course count in required 38 units and, if yes, how: Yes Career & Technical
Does course count in the 21 units required for graduation: Yes
Licensure required to teach this course: 412 Career Preparation

493880 Workplace Readiness
Credit: .5 Grade Levels: 11-12
This one semester course is an instruction-based course designed to help students transition from school to work or the next level of education and training. It focuses on the SCANS competencies with emphasis on problem solving, teamwork, communication skills, interpersonal skills, employability skills, self-management, applied math, literacy, locating information and career readiness. It counts as one-half unit of credit and can be used as an elective toward completer status in any of the career and technical programs of study. Students may earn the Arkansas Career Readiness Certificate upon completion by taking the ACT WorkKeys assessments in Reading for Information, Applied Math, and Locating Information.
Does course count in required 38 units and, if yes, how: Yes Career & Technical
Does course count in the 21 units required for graduation: Yes
Licensure required to teach this course: 412 Career Preparation

493900 Career Readiness
Credit: 1 Grade Levels: 11-12
This two-semester course is an alternative for Workplace Readiness. Applied Technology is taught in addition to the knowledge and skills competencies taught in Work place Readiness. It counts as one credit and can be used as an elective toward completer status in any of the career and technical programs of study. The on-line computer- based KeyTrain curriculum is required to help students prepare for the ACT WorkKeys assessments to earn the Arkansas Career Readiness Certificate.
Does course count in required 38 units and, if yes, how: Yes Career & Technical
Does course count in the 22 units required for graduation: Yes
Licensure required to teach this course: 412 Career Preparation

460010, 560020, 560030, 560040 EAST/Workforce Technology
Credit: 1 Grade Levels: 11-12
This one year EAST experience is designed to help students transition from school to work. It focuses on the SCANS competencies with emphasis on problem solving, teamwork, communications skills, interpersonal skills, employability skills, self-management, applied math, and literacy with the use of technology. Workforce Technology counts as one unit of credit toward completer status in any of the career and technical programs of study.
Does course count in required 38 units and, if yes, how: Yes ADE/Career & Technical
Does course count in the 21 units required for graduation: Yes
Licensure required to teach this course: 412 Career Preparation

493800 JAG Apprenticeship/Work-Based Learning
Credit: 1 Grade Levels: 9-12
This is an instructor-supervised work release course that includes monthly employer evaluations of participants. Employment is not a requirement of the JAG program, but credit can be given at the discretion of the individual school district. Participants should be expected to complete 180 hours of work-based learning in order to receive one credit—with a maximum of four credits for completing 720 hours of work study within a consecutive two-year period.
Does course count in required 38 units and, if yes, how: Yes Career & Technical
Does course count in the 22 units required for graduation: Yes
Licensure required to teach this course: 413 Career Services for Special Populations

Operational Guide for Agricultural Science Education

Summary of Changes (7/1/05)
Agricultural Science and Technology:
Course names starting with "Agriculture" or "Agricultural" in elective courses; Power, Structural, and Technical Systems Pathway; and prerequisites are corrected to match course codes.
Summary of Changes (4/1/05)
Incomplete sentences in numerous course code descriptions are completed.
Updated course codes.
Updated equipment lists.
Added Pathway – Program of Study Crosswalk.
Added Technology Standards for 2006-07.
Rearranged Technology Standards for Career Guidance Areas.

CAREER CLUSTER PATHWAY – PROGRAM OF STUDY CROSSWALK	
Cluster: AGRICULTURE, FOOD, & NATURAL RESOURCES	
Pathway	**Program of Study**
Agribusiness Systems	Agribusiness Systems
Power, Structural, & Technical Systems	Power, Structural, & Technical Systems - Agri Mechanics
Agricultural Science – Animal Systems	Animal Systems - Agricultural Science/Animal
Agricultural Science - Plant Systems	Plant Systems - Biological
Agricultural Science – Plant Systems	Plant Systems - Horticulture
Natural Resources/Environmental Service Systems	Natural Resources/Environmental Service Systems

CAREER CLUSTER: AGRICULTURE, FOOD, AND NATURAL RESOURCES

The production, processing, marketing, distribution, financing, and development of agricultural commodities and resources, including food, fiber, wood products, natural resources, horticulture, and other plant and animal products/resources

Program Description

Agricultural science and technology education is an organized educational program designed to provide career exploration and technical preparation for students who are preparing for career success in the Agriculture, Food, and Natural Resources Career Cluster. The knowledge and performance skills required for successful achievements and/or advancement in agricultural occupations constitute the central focus of the program. This program seeks to broaden traditional agricultural education to include agricultural literacy, reinforcement of applied instruction, agricultural business and industry needs, and increase preparation for further education.

Occupational Program

The Agriculture, Food, and Natural Resources Career Cluster offers sequential career focus programs of study in pathways.

The Agriculture Industry has expanded into a large field of related occupations. Farming is no longer agriculture's primary occupation. Therefore, it is necessary to provide educational opportunities to students within this growing occupational field. Today's agricultural workplace demands a labor force that possesses not only advanced technical skills, but strong academic and interpersonal skills. Each local school district conducting Agricultural Education Programs should plan a program which will include those courses that most nearly meet the needs of students in the community. It is recommended that courses be offered in various careers in agriculture and to develop skills within those careers. Each teacher unit shall offer a minimum of four (4) semester courses per year from the selected programs of studies other than the Power, Structure, Technical (Ag Mechanics) Program of Study. Each program should offer at least two programs of study. The only exception is if horticulture is the only program of study.

Career and Technical Student Organization (CTSO)

The career and technical student organization (CTSO), FFA, shall be an integral part of the agriculture education instructional program and shall follow the applicable guidelines, goals, objectives, and participate in activities of the state and National FFA Organization.

All students enrolled are encouraged to become members of the FFA and take advantage of the leadership, citizenship, and personal development training and experience offered through participation in the FFA program. Each approved program of Agricultural Education shall have an active FFA Chapter that provides leadership development opportunities for all its members.

Agricultural Education teachers shall serve as FFA Chapter Advisors. In multiple-teacher departments, each teacher shall share the FFA Chapter responsibilities.

CLUSTER: AGRICULTURE, FOOD, & NATURAL RESOURCES (all pathways)

491010 Advanced Animal Science
Credit: .5 Grade Levels: 10-12
This course is designed at the local level for specialized instruction as determined by the local advisory committee and administration in a specific area of animal science. Pre-requisites would be animal science.
Does course count in required 38 units and, if yes, how: Yes Career & Technical
Does course count in the 21 units required for graduation: Yes
Licensure required to teach this course: 010 Agriculture
218 Agricultural Sciences & Technology

491020 Agricultural Apprenticeship/Work-Based Learning
Credit: 1 Grade Levels: 11-12
This course provides for the work-based component of a supervised agriculture experience program with an agriculture employer. It provides the experiential learning concepts that are needed for successful employment.
Does course count in required 38 units and, if yes, how: Yes Career & Technical
Does course count in the 21 units required for graduation: Yes
Licensure required to teach this course: 010 Agriculture
218 Agricultural Sciences & Technology
604 Horticulture
605 Forestry

491030 Agricultural Business
Credit: .5 Grade Levels: 9-12
This course provides students with a basis for making effective decisions, setting goals, assessing and solving problems, evaluating the management of resources, and gaining skills useful in everyday life. FFA and SAEs will be covered as well.
Does course count in required 38 units and, if yes, how: Yes Career & Technical
Does course count in the 21 units required for graduation: Yes
Licensure required to teach this course: 010 Agriculture
218 Agricultural Sciences & Technology
604 Horticulture
605 Forestry

491040 Agricultural Electricity
Credit: .5 Grade Levels: 10-12
Students will cover electrical terms, careers, sources, tools, and practical wiring. Students will learn to read plans and wire according to plan. They will use hands-on activities and safety will be stressed.
Does course count in required 38 units and, if yes, how: Yes Career & Technical
Does course count in the 21 units required for graduation: Yes
Licensure required to teach this course: 010 Agriculture
218 Agricultural Sciences & Technology

491060 Agricultural Marketing
Credit: .5 Grade Levels: 9-12
This course will cover all aspects of marketing agricultural products and services from wholesale to retail, including futures markets, international marketing, and the role of agricultural products and services in the U.S. and world economies.
Does course count in required 38 units and, if yes, how: Yes Career & Technical
Does course count in the 21 units required for graduation: Yes
Licensure required to teach this course: 010 Agriculture
218 Agricultural Sciences & Technology
604 Horticulture
605 Forestry

491380 Agricultural Metals
Credit: 1 Grade Levels: 10-12
This course covers safety, technical information, tool fitting, sheet metal, hot and cold metal work, as well as an introduction to oxyacetylene welding and cutting and arc welding. It will also cover cold metal, hot metal, fabrication concepts, reading and implementing blueprints as they relate to metal work, arc welding, gas welding, MIG welding, TIG welding, plasma cutting, and careers related to metal work. Safety practices and performance skills will be emphasized in each area.
Does course count in required 38 units and, if yes, how: Yes Career & Technical
Does course count in the 21 units required for graduation: Yes
Licensure required to teach this course: 010 Agriculture
218 Agricultural Sciences & Technology

491390 Agriculture Mechanics
Credit: 1 Grade Levels: 10-12
This course connects scientific principles with mechanical skills. This course will enhance the student's understanding of traditional areas of agriculture mechanics and will emphasize agricultural technology, including such topics as electricity, internal combustion engines, metal technology, construction, and the development, role, and scope of mechanical technology in agriculture.
Does course count in required 38 units and, if yes, how: Yes Career & Technical
Does course count in the 21 units required for graduation: Yes
Licensure required to teach this course: 010 Agriculture
218 Agricultural Sciences & Technology

491400 Agriculture Power Systems
Credit: 1 Grade Levels: 10-12
This course covers the basic principles of agricultural power (electrical and internal combustion), maintenance and repair of equipment, career opportunities, and safety. It will focus on the technical areas of maintenance and repair of small engines, control and installation of electrical power, electronics, and repair and maintenance of agricultural machinery.
Does course count in required 38 units and, if yes, how: Yes Career & Technical
Does course count in the 21 units required for graduation: Yes
Licensure required to teach this course: 010 Agriculture
218 Agricultural Sciences & Technology

491410 Agriculture Structural Systems
Credit: 1 Grade Levels: 10-12
Students will be introduced to basic practices used in farm building and construction of facilities for the farm. A more in-depth look will be given to the technical areas of the agriculture structural industry. Topics will include FFA, SAEs, safety, planning, tools, basic construction, surveying, concrete and masonry structures, basic carpentry, plumbing, electricity, metal fabrication, and painting and finishing.
Does course count in required 38 units and, if yes, how: Yes Career & Technical
Does course count in the 21 units required for graduation: Yes
Licensure required to teach this course: 010 Agriculture
218 Agricultural Sciences & Technology

491180 Animal Science I
Credit: .5 Grade Levels: 10-12
The course is structured to enable all students to have an overview of the Animal Industry. Topics covered in Animal Science I include the Animal Industry, Animal Handling and Safety, Animal Anatomy/Physiology, and Animal Nutrition. Opportunities are provided for students to participate in FFA and supervised experience activities.
Does course count in required 38 units and, if yes, how: Yes Career & Technical
Does course count in the 21 units required for graduation: Yes
Licensure required to teach this course: 010 Agriculture
218 Agricultural Sciences & Technology

491190 Aquaculture
Credit: .5 Grade Levels: 9-12
This course is the science of water farming. It includes the production and marketing of aquatic animals and plants.
Does course count in required 38 units and, if yes, how: Yes Career & Technical
Does course count in the 21 units required for graduation: Yes
Licensure required to teach this course: 010 Agriculture
218 Agricultural Sciences & Technology

491200 Animal Science II
Credit: .5 Grade Levels: 10-12
This course is structured to enable all students to have an overview of the Animal Industry. Topics covered in Animal Science II include Animal Reproduction, Genetics, Animal Health, Animal Products, and Marketing. Opportunities are provided for students to participate in FFA and supervised experience activieits.
Does course count in required 38 units and, if yes, how: Yes Career & Technical
Does course count in the 21 units required for graduation: Yes
Licensure required to teach this course: 010 Agriculture
218 Agricultural Sciences & Technology

491210 Biological Plant Science
Credit: .5 Grade Levels: 9-12
This course is a scientific approach to plant science using scientific principles and applied management practices. An emphasis on selection and industry review will be based on scientific data.
Does course count in required 38 units and, if yes, how: Yes Career & Technical
Does course count in the 21 units required for graduation: Yes
Licensure required to teach this course: 010 Agriculture
218 Agricultural Sciences & Technology
604 Horticulture
605 Forestry

491370 ACE-Approved Agriculture
Credit: 1 Grade Levels: 9-12
This is an individually approved course in agriculture submitted by the district.
Does course count in required 38 units and, if yes, how: Yes Career & Technical
Does course count in the 21 units required for graduation: Yes
Licensure required to teach this course: 010 Agriculture
218 Agricultural Sciences & Technology

590050 ACE-Approved Agriculture
Credit: 1 Grade Levels: 9-12
This is an individually approved course in agriculture submitted by the district.
Does course count in required 38 units and, if yes, how: No
Does course count in the 21 units required for graduation: Yes
Licensure required to teach this course: 010 Agriculture
218 Agricultural Sciences & Technology

491320 ACE-Approved Meat Processing Laboratory
Credit: 1 Grade Levels: 9-12
This laboratory-specific course is designed to develop skill in the slaughter and processing of animals. The course emphasizes safety, sanitation, equipment care and maintenance, slaughter procedures, wholesale and retail meat fabrication, meat quality including quality and yield grade, preparation, and merchandising trends. Instruction will include career opportunities, leadership activities, aspects of HASSIP, and other practices related to the meat-packing industry. This course is approved for the Centerpoint School District only. Other districts must request approval prior to implementation.
Does course count in required 38 units and, if yes, how: Yes Career & Technical
Does course count in the 21 units required for graduation: Yes
Licensure required to teach this course: 010 Agriculture
218 Agricultural Sciences & Technology

491230 Environmental Resources: Soil and Water
Credit: .5 Grade Levels: 9-12
This course focuses on environmental concerns related to soil, air, and water. Emphasis is placed on soil and water in relation to agricultural processes. Students will also investigate ways to conserve soil and water and prevent contamination.
Does course count in required 38 units and, if yes, how: Yes Career & Technical
Does course count in the 21 units required for graduation: Yes
Licensure required to teach this course: 010 Agriculture
218 Agricultural Sciences & Technology
605 Forestry

491240 Floriculture
Credit: .5 Grade Levels: 9-12
This course covers the principles of design, merchandising, careers, selection, storage, supplies, management practices, ownership, and employment in the floriculture industry.
Does course count in required 38 units and, if yes, how: Yes Career & Technical
Does course count in the 21 units required for graduation: Yes
Licensure required to teach this course: 010 Agriculture
218 Agricultural Sciences & Technology
604 Horticulture

491250 Food Science Technology
Credit: 1 Grade Levels: 9-12
This course examines the food industry in production, manufacturing/processing, distribution, and marketing. It also explores careers, consumer consumption, food safety, global commodities, and food companies.
Does course count in required 38 units and, if yes, how: Yes Career & Technical
Does course count in the 21 units required for graduation: Yes
Licensure required to teach this course: 010 Agriculture
218 Agricultural Sciences & Technology

491260 Forestry
Credit: .5 Grade Levels: 9-12
This course provides an overview of the forest industry and its importance to the economy of the nation. Tree identification, management practices, harvesting and marketing processes, and business applications are major topics. GPS and GIS are included.
Does course count in required 38 units and, if yes, how: Yes Career & Technical
Does course count in the 21 units required for graduation: Yes
Licensure required to teach this course: 010 Agriculture
218 Agricultural Sciences & Technology
605 Forestry

491270 Greenhouse Management
Credit: .5 Grade Levels: 9-12
This course covers greenhouse management practices, including structural considerations, plant propagation, pesticide use, and product marketing. The student will also receive ample hands-on practice.
Does course count in required 38 units and, if yes, how: Yes Career & Technical
Does course count in the 21 units required for graduation: Yes
Licensure required to teach this course: 010 Agriculture
218 Agricultural Sciences & Technology
604 Horticulture

491280 Intro to Horticultural Science
Credit: .5 Grade Levels: 9-12
This course covers basic plant systems, pest control, and the areas of greenhouse management, nursery and landscaping, and turf management. This course is recommended for those students interested in the horticulture program of study.
Does course count in required 38 units and, if yes, how: Yes Career & Technical
Does course count in the 21 units required for graduation: Yes
Licensure required to teach this course: 010 Agriculture
218 Agricultural Sciences & Technology
604 Horticulture

491300 Leadership & Communications
Credit: .5 Grade Levels: 9-12
Public speaking, parliamentary procedure, organization, delegation, oral communication, conflict resolution, business etiquette, and community service are major topics to assist students in development of their leadership skills for the future.
Does course count in required 38 units and, if yes, how: Yes Career & Technical
Does course count in the 21 units required for graduation: Yes
Licensure required to teach this course: 010 Agriculture
218 Agricultural Sciences & Technology
604 Horticulture
605 Forestry

491310 Managing Our Natural Resources
Credit: .5 Grade Levels: 9-12
Students will explore natural resources (soil, water, air, forests, energy, minerals and metals, and wildlife) and develop the knowledge and skills to use them wisely. Other issues include outdoor recreation, careers, and the environment.
Does course count in required 38 units and, if yes, how: Yes Career & Technical
Does course count in the 21 units required for graduation: Yes
Licensure required to teach this course: 010 Agriculture
218 Agricultural Sciences & Technology
605 Forestry

491330 Nursery/Landscape
Credit: .5 Grade Levels: 9-12
This course covers the production of plants, shrubs, and ornamental trees for transplanting to landscape designs. Propagation, designing plans, installation, maintenance, transportation, and careers are included in the curriculum.
Does course count in required 38 units and, if yes, how: Yes Career & Technical
Does course count in the 21 units required for graduation: Yes
Licensure required to teach this course: 010 Agriculture
218 Agricultural Sciences & Technology
604 Horticulture

491340 Plant Science
Credit: .5 Grade Levels: 9-12
This course covers the relationship between plants and people, plant morphology and physiology, plant production, the environment, soil, and other related areas.
Does course count in required 38 units and, if yes, how: Yes Career & Technical
Does course count in the 21 units required for graduation: Yes
Licensure required to teach this course: 010 Agriculture
218 Agricultural Sciences & Technology
604 Horticulture
605 Forestry

491350 Small Engine Technology
Credit: .5 Grade Levels: 10-12
This course examines the uses of small engines in all areas of agriculture. Selection, maintenance and repair, careers, and employability are major topics.
Does course count in required 38 units and, if yes, how: Yes Career & Technical
Does course count in the 21 units required for graduation: Yes
Licensure required to teach this course: 010 Agriculture
218 Agricultural Sciences & Technology
604 Horticulture
605 Forestry

491150 Survey of Agricultural Systems
Credit: 1 Grade Levels: 9-12
This is a foundation course for all agriculture programs of study. Topics covered include general agriculture, FFA, leadership, record keeping, Supervised Agricultural Experiences (SAEs), animal science, plant science, soil science, and agricultural mechanics.
Does course count in required 38 units and, if yes, how: Yes Career & Technical
Does course count in the 21 units required for graduation: Yes
Licensure required to teach this course: 010 Agriculture
217 Agricultural Sciences & Technology
218 Agricultural Sciences & Technology

491360 Turf Grass Management
Credit: .5 Grade Levels: 9-12
This course covers all aspects of turf grass management, including lawn care, turf production, golf course management, sports turf, irrigation, equipment, maintenance, and human relations.
Does course count in required 38 units and, if yes, how: Yes Career & Technical
Does course count in the 21 units required for graduation: Yes
Licensure required to teach this course: 010 Agriculture
218 Agricultural Sciences & Technology
604 Horticulture

491420 Equine Science
Credit: .5 Grade Levels: 11-12
Equine Science will introduce students to a broad spectrum of topics in Equine Science and establish a solid foundation of general horse knowledge. The course will begin with discussions of the development, domestication, and use of the horse; as well as the economic impact and future trends of the horse industry.
Does course count in required 38 units and, if yes, how: Yes Career & Technical
Does course count in the 21 units required for graduation: Yes
Licensure required to teach this course: 010 Agriculture
218 Agricultural Sciences & Technology

491430 Beef Science
Credit: .5 Grade Levels: 11-12
This course is designed to provide an advanced study in the science and application of beef production.
Does course count in required 38 units and, if yes, how: Yes Career & Technical
Does course count in the 21 units required for graduation: Yes
Licensure required to teach this course: 010 Agriculture
218 Agricultural Sciences & Technology

491450 Small Animal Science
Credit: .5 Grade Levels: 11-12
This course is designed to provide students with skills and concepts involved with the care and management of companion animals.
Does course count in required 38 units and, if yes, how: Yes Career & Technical
Does course count in the 21 units required for graduation: Yes
Licensure required to teach this course: 010 Agriculture
218 Agricultural Sciences & Technology

491460 Veterinary Science
Credit: 1 Grade Levels: 11-12
This course will provide the student with a sound platform to master the knowledge and skills necessary to become a veterinary assistant. It will also prepare the student to pursue a rewarding career as part of the professional veterinarian team. It will also equip the next generation of veterinarians and veterinarian assistants with the new technological tools that reinforce our industries expectations. Finally, it provides academic knowledge, higher order reasoning and problem solving skills, work attitudes, general employability skills, technical skills and occupational skills.
Does course count in required 38 units and, if yes, how: Yes Career & Technical
Does course count in the 21 units required for graduation: Yes
Licensure required to teach this course: 010 Agriculture
218 Agricultural Sciences & Technology

Middle School Courses

399030 Intro to World Agriculture Science
Credit: Grade Levels: 7-8
This is a foundation course for agriculture courses. Basic agriculture concepts are introduced, and students explore careers in the agriculture industry. Students will also be introduced to the FFA, leadership, and Supervised Agricultural Experiences.
Does course count in required 38 units and, if yes, how: No
Does course count in the 21 units required for graduation: No
Licensure required to teach this course: 010 Agriculture
217 Agricultural Sciences & Technology
218 Agricultural Sciences & Technology

Pathways and Programs of Study by Career Cluster

AGRICULTURE PREREQUISITES	
COURSES	**PRE-REQUISITE COURSE(S)**
Advanced Animal Science	Animal Science
Biological Animal Science	Animal Science
Biological Plant Science	Plant Science
All courses (except Survey of Agricultural Systems and Intro to World Ag)	Survey of Agriculture Systems

Agribusiness Systems

Course Code	Core Requirements	Units of Credit	7th	8th	9th	10th	11th	12th
491030	Agricultural Business	.5			X	X	X	X
491060	Agricultural Marketing	.5			X	X	X	X
491150	Survey of Agricultural Systems	1			X	X	X	X

Power, Structural, and Technical Systems (Agricultural)

Course Code	Core Requirements	Units of Credit	7th	8th	9th	10th	11th	12th
491390	Agriculture Mechanics	1				X	X	X
491150	Survey of Agricultural Systems	1			X	X	X	X

Animal Systems

Course Code	Core Requirements	Units of Credit	7th	8th	9th	10th	11th	12th
491180	Animal Science	.5			X	X	X	X
491200	Biological Animal Science	.5			X	X	X	X
491150	Survey of Agricultural Systems	1			X	X	X	X

Plant Systems (Biological)

Course Code	Core Requirements	Units of Credit	7th	8th	9th	10th	11th	12th
491210	Biological Plant Science	.5			X	X	X	X
491340	Plant Science	.5			X	X	X	X
491150	Survey of Agricultural Systems	1			X	X	X	X

Plant Systems (Horticulture)

Course Code	Core Requirements	Units of Credit	7th	8th	9th	10th	11th	12th
491270	Greenhouse Management	.5			X	X	X	X
491280	Intro to Horticultural Science	.5			X	X	X	X
491150	Survey of Agricultural Systems	1			X	X	X	X

Natural Resource Systems/Environmental Service Systems

Course Code	Core Requirements	Units of Credit	7th	8th	9th	10th	11th	12th
491230	Environmental Resources	.5			X	X	X	X
491310	Managing Our Natural Resources	.5			X	X	X	X
491150	Survey of Agricultural Systems	1			X	X	X	X

AGRICULTURE SCIENCE AND TECHNOLOGY COURSES:

Course Code	Elective Courses	Units of Credit	7th	8th	9th	10th	11th	12th
491010	Advanced Animal Science	.5				X	X	X
491020	Agricultural Apprenticeship/Work-Based Learning	1					X	X
491030	Agricultural Business	.5			X	X	X	X
491040	Agricultural Electricity	.5				X	X	X
491060	Agricultural Marketing	.5			X	X	X	X
491150	Survey of Agricultural Systems	1			X	X	X	X
491180	Animal Science	.5			X	X	X	X
491190	Aquaculture	.5			X	X	X	X
491200	Biological Animal Science	.5			X	X	X	X
491210	Biological Plant Science	.5			X	X	X	X
491230	Environmental Resources	.5			X	X	X	X
491240	Floriculture	.5			X	X	X	X
491250	Food Science Technology	1			X	X	X	X
491260	Forestry	.5			X	X	X	X
491270	Greenhouse Management	.5			X	X	X	X
491280	Intro to Horticulture	.5			X	X	X	X
491300	Leadership & Communications	.5			X	X	X	X
491310	Managing Our Natural Resources	.5			X	X	X	X
491330	Nursery/Landscape	.5			X	X	X	X
491340	Plant Science	.5			X	X	X	X
491350	Small Engine Technology	.5				X	X	X
491360	Turf Grass Management	.5			X	X	X	X
491380	Agricultural Metals	1				X	X	X
491390	Agricultural Mechanics	1				X	X	X
491400	Agricultural Power Systems	1				X	X	X
491410	Agricultural Structures	1				X	X	X

Course Code	Special Elective Courses	Units of Credit	7th	8th	9th	10th	11th	12th
Seek ACE prior approval before implementation.								
491370	ACE-Approved Agriculture	1			X	X	X	X
590050	ACE-Approved Agriculture	1			X	X	X	X
491320	ACE-Approved Meat Processing Laboratory	1			X	X	X	X

Course Code	ACE Middle School Electives	Units of Credit	7th	8th	9th	10th	11th	12th
399030	Intro to World Agriculture Science	.5	X	X				

AGRICULTURE SCIENCE AND TECHNOLOGY

MINIMUM INSTRUCTIONAL EQUIPMENT AND SOFTWARE

Cluster: Agriculture, Food, and Natural Resources
Pathway: Agribusiness Systems
Program of Study: Agribusiness Systems

Item Name	Number per Dept.	Specification/ Description
Student Computer System	20	See ACE Technology Standards
Presentation Equipment	1	LCD Projector (Mounted recommended) Teacher Laptop (See ACE Technology Standards) Computerized Presentation Board
Printer	1	Laser Printer (Color)

Cluster: Agriculture, Food, and Natural Resources
Pathway: Plant Systems (Horticulture)
Program of Study: Plant Systems (Horticulture)

Item Name	Number per Dept.	Specification/ Description
Greenhouse	1	Minimum of 1,800 sq.ft. w/environmental system
Potting Tables	1	18 sq. ft. minimum work space
Table system for greenhouse	1	400 sq. ft. minimum
Emergency Shower	1	
Eye Wash Station	1	
Approved Metal Storage Cabinet for flammable, caustic, and/or toxic materials	1	
Presentation Equipment	1	LCD Projector (Mounted recommended) Teacher Laptop (See ACE Technology Standards) Computerized Presentation Board
Student Computer System	5	See ACE Technology Standards
Microscope, compound	1	
Teacher Microscope	1	digital

Item Name	Number per Dept.	Specification/ Description
Student Microscopes	10	10x, 40x objectives
Student Calculators	20	
Soil test kit	1	See Approved Kit List
Water test kit	1	Nitrate, phosphate, & alkaline
Horticulture tool kit	1	See Approved Kit List
DNA Kit	1	See Approved Kit List
Tiller	1	5 hp
Mower	1	
Grass trimmer	1	
Backpack blower	1	2-cycle
Plant/flower models	Set	
Soil Sterilizer	1	¼-yard capacity

Cluster: Agriculture, Food, and Natural Resources
Pathway: Power, Structural, And Technical Systems (Agricultural)
Program of Study: Power, Structural, And Technical Systems (Agricultural)

Item Name	Number Needed	Specification/ Description
Oxyacetylene welding outfit	2	Single-stage installation A manifold
Oxyacetylene welding tables	2	
Anvil	1	70 lb.
Bench grinder	1	1" x 7", 1/2 hp
Arc welder	2	225 amp, AC-DC
MIG welder	1	
Arc welding table	2	36” x 36”
Engine, air cool gas	2	4-cycle & 2-cycle
Micrometer, inside/outside	1	
Air compressor	1	150 psi, 60-gal. tank
Gun, spray paint	1	1 qt.
Table saw	1	10", 2 hp
Automatic Level Kit	1	Level, Rod, Plum Bob, and Tripod
Welding tool kit	1	See Approved Kit List
Sheet metal &cold metal tool kit	1	See Approved Kit List
Plumbing tool kit	1	See Approved Kit List
Concrete tool kit	1	See Approved Kit List
Woodworking tool kit	1	See Approved Kit List
Power machines tool kit	1	See Approved Kit List
Electricity tool kit	1	See Approved Kit List
Small gas engines tool kit	1	See Approved Kit List
Laser Level	1	
Agri graphics tool kit	1	See Approved Kit List
Eye protection cabinet	1	
Cabinets for each area	12	
Presentation Equipment	1	LCD Projector (Mounted recommended) Teacher Laptop (See ACE Technology Standards) Computerized Presentation

Item Name	Number Needed	Specification/ Description
		Board
Student Computer System	5	See ACE Technology Standards
Point Source Ventilation System	1	
Emergency Shower	1	
Eye Wash Station	1	
Safety Equipment Kit	1	See Approved Kit List
Approved Metal Storage Cabinet for flammable, caustic, and/or toxic materials	1	

Note: Same equipment is required regardless of class size.

Cluster: Agriculture, Food, and Natural Resources
Pathway: Natural Resource Systems/Environmental Service Systems
Program of Study: Natural Resource Systems/Environmental Service Systems

Item Name	Number Needed	Specification/ Description
Land Measuring Wheel	1	
Forestry Instructional Kit	1	See Approved Kit List
Safety Equipment Kit	1	See Approved Kit List
GPS Receiver	10	
Laser Level or Automatic Level	1	
Soil Test Kit	1	See Approved Kit List
Water Test Kit	1	See Approved Kit List
Air Pollution Test Kit	1	See Approved Kit List
Presentation Equipment	1	LCD Projector (Mounted recommended) Teacher Laptop (See ACE Technology Standards) Computerized Presentation Board
Student Computer System	5	See ACE Technology Standards
Microscope Compound	1	
Teaching Microscope	1	Digital
Student Microscope	10	10x, 40x objectives
Emergency Shower	1	
Eye Wash Station	1	
Approved Metal Cabinet for Flammable, Caustic, and/or Toxic Materials	1	

If teaching Forestry, or substituting Forestry for Environmental Resources: Soil and Water, the following equipment must be in place in addition to the minimum for Natural Resources Program of Study:

Item Name	Number Needed	Specification/ Description
Clinometer	5	
Altimeter	5	
Tree Injector	1	
Staff Compass	1	
Stereoscope	1	5' common field of view
Increment Borer	1	
Tree Marking Gun	5	Backpack, 2-cycle
Mist blower	1	
Relaskop	1	16", 2-cycle
Wheeler Caliper	1	
Fire Weather Kit	1	See Approved Kit List
The following items should be in place for regular classroom demonstration and student application or school should have documentation of agreement with industry partner to provide classroom demonstration and application under industry supervision.		
Drip Torch	1	
Firefighting Pump	1	
Chainsaw	1	

Cluster: Agriculture, Food, and Natural Resources
Pathway: Plant Systems (Biological)
Program of Study: Plant Systems (Biological)

Item Name	Number Needed	Specification/ Description
Soil Test Kit	1	See Approved Kit List
Water Test Kit	1	See Approved Kit List
Light Meter	1	0-2, 000 foot candles
Environmental Chamber	1	
Hydroponic Tabletop Unit	1	Double unit
Indoor Growing Lab	1	Aluminum frame, timer on light, 4' adjustable fluorescent lights
Air Pollution Test Kit	1	See Approved Kit List
DNA Kit	1	See Approved Kit List
Deep Soil Corning Tube	1	
Environmental Data Logger	1	
Teaching Microscope	1	Digital
Student Microscopes	10	10x, 40x objectives
Presentation Equipment	1	LCD Projector (Mounted recommended) Teacher Laptop (See ACE Technology Standards) Computerized Presentation Board
Student Computer System	5	See ACE Technology Standards
Emergency Shower	1	
Eye Wash Station	1	
Approved Metal Cabinet for Flammable, Caustic, and/or Toxic Materials	1	

Cluster: Agriculture, Food, and Natural Resources
Pathway: Animal Systems
Program of Study: Animal Systems

Item Name	Number Needed	Specification/ Description
Presentation Equipment	1	LCD Projector (Mounted recommended) Teacher Laptop (See ACE Technology Standards) Computerized Presentation Board
Student Computer System	5	See ACE Technology Standards
Teaching Microscope	1	Digital
Student Microscopes	10	10x, 40x objectives
Squeeze Chute w/Palpation Cage	1	
Livestock Panel	12	5' x 10'
Bow Panel Gates	3	5' x 10'
Sweep Chute	1	90˚
Refrigerator	1	
Microwave Oven	1	
Liquid Nitrogen Tank	1	
Artificial Insemination Kit	1	See Approved Kit List
Livestock Management Kit	1	See Approved Kit List
DNA Model	1	
Food Preservation Kit	1	See Approved Kit List
Emergency Shower	1	
Eye Wash Station	1	
Approved Metal Cabinet for Flammable, Caustic, and/or Toxic Materials	1	

AGRICULTURAL EDUCATION APPROVED KITS

Cluster: Agriculture, Food, and Natural Resources
Pathway: Plant Systems (Horticulture)
Program of Study: Plant Systems (Horticulture)

Horticulture Tool Kit		
Item Name	**Number Per Department**	**Specification/ Description**
Round-Pointed Shovel	2	
Garden Trowel	5	
Scoop Shovel	2	
Garden Hoe	2	
Pitchfork or Spade Fork	2	
Lopping Shears	2	
Hedge Shears	2	
Double Edge Pruning Saw	1	
Hand-crank Spreader	1	

Horticulture Tool Kit		
Item Name	**Number Per Department**	**Specification/ Description**
Wheel Barrow	1	
Garden Rake	2	
Pruning Knife	2	
Watering Can	2	

DNA Kit		
Item Name	**Number Per Department**	**Specification/ Description**
DNA Model	1	
DNA Extraction Lab Equipment	1	

Soil Testing Kit		
Item Name	**Number Per Department**	**Specification/ Description**
Soil Test Kit	1	Tests for N, P, K, and pH
Soil Tester	1	Test for soil moisture, light intensity

Water Test Kit		
Item Name	**Number Per Department**	**Specification/ Description**
Water Test Kit	1	Tests for chlorine, pH, alkalinity, calcium, nitrates, nitrites

Air Pollution Kit		
Item Name	**Number Per Department**	**Specification/ Description**
Air Quality Test Kit	1	Tests for ammonia, carbon monoxide, chlorine

Cluster: Agriculture, Food, and Natural Resources
Pathway: Power, Structural, and Technical Systems (Agricultural)
Program of Study: Power, Structural, And Technical Systems (Agricultural)

Welding Tool Kit		
Item Name	**Number Per Department**	**Specification/ Description**
Spark Lighter (Striker)	2	
Wire Brushes	2	
Oxyacetylene Tip Cleaners	2	
Scratch Awls	2	
Ball Peen Hammers	2 each	16 oz. and 24 oz.
Slip Joint Pliers	2	10”
Soapstone Holder	2	6”
Vise Grip	2	10”
Vise Grip Clamps	2	
C Clamps	2	6:
Machinist Vises	2	4½” jaw
Power Rules	2	¾ - 16’

Welding Tool Kit		
Item Name	**Number Per Department**	**Specification/ Description**
Alum. Squares	2	12 x 24
Flat File	1	12”
Half Round	1	12’
Chipping Hammer	2	
Bench Grinder	1	8”
Portable Grinders	1 each	4½“ and 7½“

Plumbing Tool Kit		
Item Name	**Number Per Department**	**Specification/ Description**
Pipe Wrench	2 each	10” and 14”
Chain Pipe Wrench	1	10”
Channel Locks	2	
Pipe Cutter	1	⅛ to 1¼“
Tubing Cutters	2 each	⅛ to 1“ and ⅜ to 2”
Hacksaw	2	
Burr Reamer	1	
Flaring Tool	2	3/16 to ⅝”
Scratch Awls	2	
Wire Brush	2	
Oil Cans Pump Metal	2	
Pipe Threaders	1	⅛ to 1“
Hammers	2	
Propane Torch Kits	2	
Chain Vise		⅛ to 2½“
Power Tubing Cutter1	1	

Concrete/Masonry Tool Kit		
Item Name	**Number Per Department**	**Specification/ Description**
Edger	2	
Jointers	2 each	½” and ⅝”
Broom	2	
Finishing Trowel	2	
Hand Float	2	
Bull Float	2	With handle
Pointing Trowel	2	
Masonry Drill Set	2	3/16 to ½“
Sledge Hammer	1	8 lb
Line Levels	2	
Wheel Barrow	1	6 cu ft, metal
Masonry Level	2	
Square Point Shovel	2	
Steel Tapes	2	⅜ x 50”
Bricklayer Hammers	2	
Half Hatchets	2	

Concrete/Masonry Tool Kit		
Item Name	**Number Per Department**	**Specification/ Description**
Steel Squares	2	8 x 12
Level	2	2’
Torpedo Level	2	
Mortar Hoe	1	

Hand Woodworking Tool Kit		
Item Name	**Number Per Department**	**Specification/ Description**
Back Saw	2	
Hand Saw	2	
Compass Saw	2	
Coping Saw	2	
Wood Chisel	2	
Steel Tape	2	
Try Square	2	
Carpenter’s Square	2	
Bevel	2	
Combination Square	2	
Curved Claw Hammer	2	
Rubber Mallet	2	
Bit Brace	2	
Nail Set	2	

Sheet Metal and Cold Metal Tool Kit		
Item Name	**Number Per Department**	**Specification/ Description**
Pop Rivet Gun	2	3/16
Awl Scratchers	2	
Tin Snips	2 each	Straight cut, left cut, right cut, circular cut
Combination Square	2	
Hex Key Sets	1 each	050-5/32, 3/16-3/8
Hacksaw		
Cold Chisel Sets	2	⅜ - ¾“
Adjustable Wrenches	2	
Tap & Die Set	1	
Screw Driver Sets	2	Standard and Phillips
Center Punch	2	
Ball Peen Hammer	2	
Soldering Iron	1	200 watt
Hand Seamer	1	
Steel Rulers	2	Pocket
Wire Brushes	2	
Uni Bit	2	
Rubber Mallet	2	
Tinners Hammer	2	
Ruler	5	6” folding

Sheet Metal and Cold Metal Tool Kit		
Item Name	**Number Per Department**	**Specification/ Description**
Vise Grips	2	Sheet metal
Slip joint Pliers	2	
Flat File	2 each	10” and 12”
Alum. Squares	2	16 x 24
Metal Bit Sets	2	1/16 to ½“
Drill Gauges	2	1/6 – ½”
Caliper Outside	1	
Oil Cans Pump Metal	2	
C Clamps	6	
Propane Bottles	2	
Steel Square	2	
Electric Soldering Gun	1	
Dual Caliper	1	
Drill Press Vise	1 each	4” and 6”

Power Machines Tool Kit		
Item Name	**Number Per Department**	**Specification/ Description**
Saber Saw	1	
Reciprocating Saw	1	
Belt Sander	1 each	3 x 21 and 6 x 48
Disk Sander	1 each	6: and 9”
Router	1	
Electric Drill	1 each	⅜” and ½”
Nailer Air Brad	1	Up to 2”
Hand Stapler	1	
Portable Grinders	1 each	4½” and 7½”
Air Impact Wrench	1 each	⅜ pistol grip, ⅜ ratchet, ½ drive
Circular Saw	1	
Router Bit Set	1	
Impact Set	1 each	⅜ socket set, ⅜ metric, and ½ socket set
Drill Press	1	17”
Band Saw	1	14”
18 Volt Drill	1	With 2 batteries and charger
Sliding Compound Miter Saw	1	

Electricity Tool Kit		
Item Name	**Number Per Department**	**Specification/ Description**
Hacksaw	2	
Cable Ripper	2	
Ball Peen Hammer	2	
Volt-Ohmmeter	2	
Screwdriver Sets	2 each	Standard and Metric 8 pc.
Adjustable Jaw Wrench	2	
Lineman's Pliers	2	
Longnose Pliers	2	
Wire Stripper	2	
Nut Driver Sets	2	
Diagonal Pliers	2	
Test Lights	2	
Commercial Wrench Set	2	¼, ⅜, ½"
AD/DC/110-550 Volt Tester	1	

Small Gas Engine Tool Kit		
Item Name	**Number Per Department**	**Specification/ Description**
Socket Set	2	
Torque Wrench	2	
Box End Wrench	2	
Combination Wrench	2	
Adjustable Wrench	2	
Allen Wrenches	2	
Open End Wrench	2	
Center Punch	2	
Drift Punch	2	
Retaining Ring Pliers	2	
Reed and Prince	2	
Phillips Screwdriver	2	
Slotted Screwdriver	2	
Gear Pullers	2	
Screw Pitch Gauge	2	
Ball Peen Hammer	2	
Pliers	2	
Longnose Pliers	2	
Vise Grips	2	

Agri Graphics Tool Kit		
Item Name	**Number Per Department**	**Specification/ Description**
Ruler	5	
Pencil	5	
Eraser	5	
Compass	5	
Protractor	5	

Agri Graphics Tool Kit		
Item Name	**Number Per Department**	**Specification/ Description**
Drawing Board	5	
Right-Angle Triangle	2	
T-Square	2	
Triangular Scale	2	
Flat Scale	2	

Safety Equipment Kit		
Item Name	**Number Per Department**	**Specification/ Description**
Safety Glasses	20	
Oxyacetylene Goggles	5	
Welding Helmets	10	
Welding Aprons	15	
Welding Gloves	15	
Fire Blanket	1	
First Aid Kit	1	

Cluster: Agriculture, Food, and Natural Resources
Pathway: Natural Resource Systems/Environmental Service Systems
Program of Study: Natural Resource Systems/Environmental Service Systems

Forestry Instructional Kit		
Item Name	**Number Per Department**	**Specification/ Description**
Compass	10	
Biltmore Stick	5	
Diameter Tape	2	

Safety Equipment Kit		
Item Name	**Number Per Department**	**Specification/ Description**
Safety Glasses	20	
Hardhat	20	
First Aid Kit	1	
Fire Extinguisher	1	

Soil Testing Kit		
Item Name	**Number Per Department**	**Specification/ Description**
Soil Test Kit	1	Tests for N, P, K, and pH

Water Test Kit		
Item Name	**Number Per Department**	**Specification/ Description**
Water Test Kit	1	Tests for chlorine, pH, alkalinity, calcium, nitrates, nitrites

Air Pollution Kit		
Item Name	**Number Per Department**	**Specification/ Description**
Air Quality Test Kit	1	Tests for ammonia, carbon monoxide, chlorine

Fire Weather Kit (for Forestry class)		
Item Name	**Number Per Department**	**Specification/ Description**
Wind Meter	1	
Compass	1	
Psychrometer	1	
Psychrometer Slide Rule	1	
Notebook Journal	1	

Cluster: Agriculture, Food, and Natural Resources
Pathway: Plant Systems (Biological)
Program of Study: Plant Systems (Biological)

DNA Kit		
Item Name	**Number Per Department**	**Specification/ Description**
DNA Model	1	
DNA Extraction Lab Equipment	1	

Soil Testing Kit		
Item Name	**Number Per Department**	**Specification/ Description**
Soil Test Kit	1	Tests for N, P, K, and pH
Soil Tester	1	Test for soil moisture, light intensity
Water Test Kit		
Item Name	**Number Per Department**	**Specification/ Description**
Water Test Kit	1	Tests for chlorine, pH, alkalinity, calcium, nitrates, nitrites

Air Pollution Kit		
Item Name	**Number Per Department**	**Specification/ Description**
Air Quality Test Kit	1	Tests for ammonia, carbon monoxide, chlorine

Cluster: Agriculture, Food, and Natural Resources
Pathway: Animal Systems
Program of Study: Animal Systems

Artificial Insemination Kit		
Item Name	**Number Per Department**	**Specification/ Description**
Cattle Insemination Gun	1	
Sheaths for Insemination Gun	1 box	
Thaw Unit	1	Electric
Thaw Unit	1	Manual

Artificial Insemination Kit		
Item Name	**Number Per Department**	**Specification/ Description**
Straw Cutter	1	
Straw Tweezers	1	
Lubricant	1	
Shoulder Length Plastic Gloves	1 box	

Livestock Management Kit		
Item Name	**Number Per Department**	**Specification/ Description**
Balling Gun	1	Large animal
Balling Gun	1	Small animal
Dehorner	1	
Hoof Nippers	1	
Hoof Trimmers	1	Small animal
Ear Notcher	1	
Electric Branding Iron	1	
Paint Brander	1	
Paint Brander Numbers Set	1	
Tattoo Kit	1	
Tag Applicator	1	
Scalpels	1 box	
Syringes	1 box	
Drench Gun	1	
Thermometer	1	
Hog Snare	1	
Sorting Stick	5	
Hanging Scales	1	
Calf Scale Birthweight Tape	1	
Soil Temperature Probe	1	
Digital Hay Tester	1	

Food Preservation Kit		
Item Name	**Number Per Department**	**Specification/ Description**
Food Dehydrator	1	
Electronic Yogurt Maker	1	
Cheese-Making Kit	1	
Kitchen Utensils	5	
Large Spoons	5	
Mixing Bowls	5	
Thermometer	5	
Knives	5	

Operational Guide for
Business and Marketing Technology

Summary of Changes (9/16/13)
DELETED COURSES AND CODES
-Database Fundamentals – Oracle Internet Academy (492560) – Move to STEM
-Database Programming – Oracle Internet Academy (492570) – Move to STEM
-Introduction to Java – Oracle Internet Academy (492580) – Move to STEM
-Java Programming – Oracle Internet Academy (492590) – Move to STEM
-Programming I (492390) – Move to STEM
-Programming II (492400) – Move to STEM
-ACE-Approved Programming III (492520) – Move to STEM
LICENSURE ADDITIONS
-Added Code 419 Business Technology to 399230 ACE-Approved Keyboarding (grades 5-6)
-Added Code 250 to all courses which had either 224 or 225.
NEW COURSES
Added 492220 International Business
Added 355910 Input Technologies
Added 366910 Technology Communications
Added 378910 Information and Communications Technology
Added 378920 Introduction to Business Communications and Technology
Added 460100 Technology Design and Applications
Added 492670 Web Technologies
NAME CHANGES
From: Desktop Publishing I (.5 credit) (492150) to Digital Communications I: Layout & Design (.5 credit)
From: Desktop Publishing II (.5 credit) (492160) to Digital Communications II: Imaging (.5 credit)
From: Multimedia Applications I (.5 credit) (492360) to Digital Communications III: Digital Media (.5 credit)
From: Multimedia Applications II (.5 credit) (492360) to Digital Communications IV: Audio/Video Production (.5 credit)
GRADE LEVEL CHANGES
Banking & Finance Consumer Lending (.5 credit) From: 10-12, To: 9-12 (492020)
Banking & Finance Law (.5 credit) From: 10-12, To: 9-12 (492030)
Desktop Publishing I (.5 credit) From: 10-12, To: 9-12 (492150)
Desktop Publishing II (.5 credit) From: 10-12, To: 9-12 (492160)
Entrepreneurship I (.5 credit) From: 10-12, To: 9-12 (492170)
Entrepreneurship II (.5 credit) From: 10-12, To: 9-12 (492180)
Insurance & Risk Management (.5 credit) From: 10-12, To: 9-12 (492210)
International Travel (.5 credit) From: 10-12, To: 9-12 (492230)
Investment & Securities (.5 credit) From: 10-12, To: 9-12 (492270)
Lodging Management I (1 credit) From: 10-12, To: 9-12 (492300)
Lodging Management II (1 credit) From: 10-12, To: 9-12 (492310)
Marketing (1 credit) From: 11-12, To: 10-12 (492330)
Multimedia Applications I (.5 credit) From: 10-12, To: 9-12 (492360)
Multimedia Applications II (.5 credit) From: 10-12, To: 9-12 (492370)
Office Management (1 credit) From: 10-12, To: 9-12 (492380)
Travel Destinations (.5 credit) From: 10-12, To: 9-12 (492460)

PATHWAYS AND PROGRAMS OF STUDY BY CAREER CLUSTER:
-Deleted Programming POS – Move to STEM
-Deleted Oracle POS – Move to STEM
Summary of Changes (8/7/12)
DELETED COURSES AND CODES
-International Business (492220)
-Web Design and Multimedia Production (492540)
NEW COURSES
Small Business Operations (492700)-Licensure: 031,032,040,222,225
NAME CHANGES
From: Enterprise Management I (.5 credit) (492170) to Entrepreneurship I (.5 credit)
From: Enterprise Management II (.5 credit) (492180) to Entrepreneurship II (.5 credit)
GRADE LEVEL CHANGES
Advertising (.5 credit) From: 10-12, To: 9-12 (492010)
Banking and Finance Operations/Teller Training (.5 credit) From: 10-12, To: 9-12 (492040)
Banking and Finance Principles (.5 credit) From: 10-12, To: 9-12 (492050)
Business Communications (.5 credit) From: 10-12, To: 9-12 (492060)
Fashion Merchandising (.5 credit) From: 10-12, To: 9-12 (492190)
Introduction to Hospitality (.5 credit) From: 10-12, To: 9-12 (492250)
Introduction to Travel and Tourism (.5 credit) From: 10-12, To: 9-12 (492260)
Management From: 11-12, To: 10-12 (492320)
Office Management From: 11-12, To: 10-12 (492380)
Retailing (.5 credit) From: 10-12, To: 9-12 (492430)
Salesmanship (.5 credit) From: 10-12, To: 9-12 (492440)
Summary of Changes (2/10/12)
COURSE DESCRIPTIONS AND CODES:
-Changed Advertising (492010) grade level to 9-12
-Changed Banking & Finance Operations/Teller Training (492040) grade level to 9-12
-Changed Banking & Finance Principles (492050) grade level to 9-12
-Changed Business Communications (492060) grade level to 9-12
-Changed Desktop Publishing (492150) to Digital Communications I – Digital Layout & Design
-Changed Digital Communications I – Digital Layout & Design (492150) grade level to 9-12
-Changed Desktop Publishing (492160) to Digital Communications II – Digital Imaging
-Changed Digital Communications II – Digital Imaging (492160) grade level to 9-12
-Changed Fashion Merchandising (492190) grade level o 9-12
-Changed Enterprise Management I (492170) to Entrepreneurship I
-Changed Enterprise Management II (492180) to Entrepreneurship II
-Deleted International Business (492220)
-Changed Introduction to Hospitality (492250) grade level to 9-12
-Changed Introduction to Travel and Tourism (492260) grade level to 9-12
-Changed Management (492320) grade level to 9-12
-Changed Marketing Apprenticeship/Work-Based Learning (492340) course credit to .5 – 2
-Changed Multimedia Applications I (492360) to Digital Communications III – Digital Media
-Changed Digital Communications III – Digital Media (492360) grade level to 9-12.
-Changed Multimedia Applications II (492370) to Digital Communications IV – Digital Audio/Video Productions
-Changed to Digital Communications IV – Digital Audio/Video Productions (492370) grade level to 9-12
-Changed Office Management (492380) grade level to 10-12

-Changed Retailing (492430) grade level to 9-12
-Changed Salesmanship (492440) grade level to 9-12
-Deleted Web Design and Multimedia Productions (492540)
-Added New Course Small Business Operations (492700)
Summary of Changes (2/14/11)
COURSE DESCRIPTIONS AND CODES:
-Deleted Advanced to Database Applications (492140)
-Added Licensure Codes 040 & 222 – Business Communications
-Added Licensure Codes 040 & 222 – Business Law I
-Added Licensure Codes 040 & 222 – Business Law II
-Added Licensure Codes 040 & 222 – Management
-Added Licensure Codes 040 & 222 – Office Management
-Added New Course Descriptions and Codes – Digital Communications I-IV
-Deleted Rapid Writing I
-Deleted Rapid Writing II
TECHNOLOGY STANDARDS:
-Deleted Technology Standards from Operational Guide
PATHWAYS AND PROGRAMS OF STUDY BY CAREER CLUSTER:
-Changed Digital Communications POS to Reflect the New POS Summary of Changes and New Courses
ACE Prior Approval Middle School Courses:
-Corrected grade level for Information Technology: Fundamentals
BUSINESS AND MARKETING COURSES:
-Deleted Advanced Database and Spreadsheets
-Delete Rapid Writing I and II
-Added DC I-IV
MINIMUM INSTRUCTIONAL EQUIPMENT AND SOFTWARE:
-Changed Student Posture Chairs Requirements to 25 Percent
-Removed Teacher Laser Printer

CAREER CLUSTER PATHWAY – PROGRAM OF STUDY CROSSWALK	
Cluster: BUSINESS, MANAGEMENT & ADMINISTRATION	
Pathway	**Program of Study**
General Management	Management
Administrative Services	Office Administration

CAREER CLUSTER PATHWAY – PROGRAM OF STUDY CROSSWALK	
Cluster: FINANCE	
Pathway	**Program of Study**
Banking Services	Banking
Business Finance	Business Finance
Accounting	Accounting
Insurance	Insurance and Risk Management
Securities and Investments	Securities and Investments

CAREER CLUSTER PATHWAY – PROGRAM OF STUDY CROSSWALK	
Cluster: HOSPITALITY AND TOURISM	
Pathway	**Program of Study**
Travel & Tourism	Hospitality
Lodging	Lodging Management

CAREER CLUSTER PATHWAY – PROGRAM OF STUDY CROSSWALK	
Cluster: INFORMATION TECHNOLOGY	
Pathway	**Program of Study**
Web Design and Digital Communications	Digital Communications (DTP & MM) Web Design (CIW
Programming and Software Development	Programming
Information Support and Services	Oracle Academy

CAREER CLUSTER PATHWAY – PROGRAM OF STUDY CROSSWALK	
Cluster: MARKETING, SALES, & SERVICE	
Pathway	**Program of Study**
Marketing Research (Marketing Information Management and Research)	Marketing Technology and Research
Marketing Management	Entrepreneurship

460100 Technology Design and Applications
Credit: 1 Grade Levels: 9-12
This course is designed to prepare students for the transition from school to work. This course was developed to advance and strengthen the skills mastered in the middle-level grades. It includes project based learning in areas of word processing, spreadsheets, database, and presentations. The students will apply tool software skills to business projects and use projects to develop competencies for national certification. The course is designed to provide opportunities for independent and collaborative work. It is a year-long course.
Does course count in required 38 units and, if yes, how: Yes Career & Technical
Does course count in the 22 units required for graduation: Yes
Licensure required to teach this course:
031 Business Education (Secretarial)
032 Business Education
034 Data Processing/Computer Permit
037 Computer Tech Permit
225 Business Technology
250 Business Technology

492450 Advanced Spreadsheet Applications
Credit: .5 Grade Levels: 10-12
Advanced Spreadsheet Applications is a one-semester course in which students use computer programs to analyze quantitative data. Emphasis is placed on the role and value of spreadsheets, financial reporting, budgeting, planning, and forecasting.
Does course count in required 38 units and, if yes, how: Yes Career & Technical
Does course count in the 22 units required for graduation: Yes
Licensure required to teach this course:
031 Business Education (Secretarial)
032 Business Education
034 Data Processing/Computer Permit
037 Computer Tech Permit
225 Business Technology
250 Business Technology

492010 Advertising
Credit: .5 Grade Levels: 9-12
Advertising is a one-semester course designed to focus on the competencies needed for the planning and implementation of a successful advertising program. Students are exposed to media, methods of research, budgets, and evaluations that are used to sell a product, service, or business. Hands-on experience is given in copywriting, layout, and production in various media. Desktop publishing should be introduced.
Does course count in required 38 units and, if yes, how: Yes Career & Technical
Does course count in the 22 units required for graduation: Yes
Licensure required to teach this course:
031 Business Education (Secretarial)
032 Business Education
040 Marketing Education
222 Marketing Technology
225 Business Technology
250 Business Technology

492020 Banking & Finance Consumer Lending
Credit: .5 Grade Levels: 9-12
Banking and Finance Consumer Lending is a one-semester course that focuses on the insider's view of consumer lending and covers essential information about the maze of regulations covering credit practices and reviews loan processing, cross-selling and collections. The targeted audience includes consumer lenders, consumer credit personnel, and bank employees who need to understand consumer credit.
Does course count in required 38 units and, if yes, how: Yes Career & Technical
Does course count in the 22 units required for graduation: Yes
Licensure required to teach this course:
031 Business Education (Secretarial)
032 Business Education
040 Marketing Education
222 Marketing Technology
225 Business Technology
250 Business Technology

492030 Banking & Finance Law
Credit: .5 Grade Levels: 9-12
Banking and Finance Law is a one-semester course that assists the student in understanding the legal environment in which depository institutions exist. Students study basic concepts in business law in the areas of contract law, agency law, property law, commercial paper law, and credit law. This curriculum is adopted from Wisconsin Finance Youth Apprenticeship, Wisconsin Department of Industry, Labor, and Human Relations, Bureau of Apprenticeship Standards, Office for Workforce Excellence.
Does course count in required 38 units and, if yes, how: Yes Career & Technical
Does course count in the 22 units required for graduation: Yes
Licensure required to teach this course: 031 Business Education (Secretarial)
032 Business Education
040 Marketing Education
222 Marketing Technology
225 Business Technology
250 Business Technology

492040 Banking & Finance Operations/Teller Training
Credit: .5 Grade Levels: 9-12
Banking and Finance Operations is a one-semester course that assists the student in understanding the United States payment system and daily operations of depository institutions. Students study regulatory framework, the U.S. payment system, the check collection system, money creation, internal controls, financial statements, and risks. This curriculum is adapted from Wisconsin Finance Youth Apprenticeship, Wisconsin Department of Industry, Labor, and Human Relations, Bureau of Apprenticeship Standards, Office for Workforce Excellence.
Does course count in required 38 units and, if yes, how: Yes Career & Technical
Does course count in the 22 units required for graduation: Yes
Licensure required to teach this course: 031 Business Education (Secretarial)
032 Business Education
040 Marketing Education
222 Marketing Technology
225 Business Technology
250 Business Technology

492050 Banking & Finance Principles
Credit: .5 Grade Levels: 9-12
Banking and Finance Principles is a one-semester course that assists the students in understanding the American banking system. Students study the Federal Reserve System, banking and the economy, functions of depository institutions, and daily transactions of depository institutions. This curriculum is adopted from Wisconsin Finance Youth Apprenticeship, Wisconsin Department of Industry, Labor, and Human Relations, Bureau of Apprenticeship Standards, Office for Workforce Excellence.
Does course count in required 38 units and, if yes, how: Yes Career & Technical
Does course count in the 22 units required for graduation: Yes
Licensure required to teach this course: 031 Business Education (Secretarial)
032 Business Education
040 Marketing Education
222 Marketing Technology
225 Business Technology
250 Business Technology

492060 Business Communications
Credit: .5 Grade Levels: 9-12
Business Communications is a one-semester course designed to provide students with the communication skills needed in business careers. The course includes both written and oral communications relating to business activities and is directed toward understanding the language of nonverbal communication and improved listening skills, reading, voice usage, and writing skills. Emphasis is given to developing competencies in fundamentals, such as spelling, punctuation, grammar, vocabulary, sentence and paragraph structure, English usage, and proofreading. Applications in writing all types of business documents are valuable components of the course. Students gain competencies in writing, thinking logically, organizing ideas, writing clearly and concisely, and displaying tact and courtesy in writing. Technological advancements relating to information, communication, and telecommunications are given emphasis.
Does course count in required 38 units and, if yes, how: Yes Career & Technical
Does course count in the 22 units required for graduation: Yes
Licensure required to teach this course: 031 Business Education (Secretarial)
032 Business Education
040 Marketing Education
222 Marketing Technology
225 Business Technology
250 Business Technology

492070 Business Law I
Credit: .5 Grade Levels: 10-12
Business Law I is a one-semester course designed to acquaint the student with some of the legal problems and rights encountered in business transactions. This course will include law and the judicial system; laws relating to minors, consumers, and the business firm; elements of contracts; credit; sales contracts; employment laws; commercial paper; insurance; and property rights.
Does course count in required 38 units and, if yes, how: Yes Career & Technical
Does course count in the 22 units required for graduation: Yes
Licensure required to teach this course:
031 Business Education (Secretarial)
032 Business Education
040 Marketing Education
222 Marketing Technology
225 Business Technology
250 Business Technology

492080 Business Law II
Credit: .5 Grade Levels: 10-12
Business Law II is a one-semester course designed to acquaint the student with some of the legal problems and rights encountered in business transactions. This course will include law and the judicial system; laws relating to minors, consumers, and the business firm; elements of contracts; credit; sales contracts; employment laws; commercial paper; insurance; and property rights.
Does course count in required 38 units and, if yes, how: Yes Career & Technical
Does course count in the 22 units required for graduation: Yes
Licensure required to teach this course:
031 Business Education (Secretarial)
032 Business Education
040 Marketing Education
222 Marketing Technology
225 Business Technology
250 Business Technology

492100 Computerized Accounting I
Credit: 1 Grade Levels: 10-12
Computerized Accounting I is a two-semester course with emphasis on basic accounting principles as they relate to both manual and computerized financial systems. Instruction is on an integrated basis using computers and electronic calculators as the relationships and processes of manual and computerized accounting are presented. Entry-level skills in the accounting occupations can be attained.
Does course count in required 38 units and, if yes, how: Yes Career & Technical
Does course count in the 22 units required for graduation: Yes
Licensure required to teach this course:
031 Business Education (Secretarial)
032 Business Education
225 Business Technology
250 Business Technology

492110 Computerized Accounting II
Credit: 1 Grade Levels: 10-12
Computerized Accounting II is a two-semester course designed to provide students with the knowledge, understanding, and skill necessary for successful careers in accounting. Partnership as well as departmental, corporate, and cost accounting systems are components of the course. Emphasis is given to the computerized/automated functions in accounting.
Does course count in required 38 units and, if yes, how: Yes Career & Technical
Does course count in the 22 units required for graduation: Yes
Licensure required to teach this course:
031 Business Education (Secretarial)
032 Business Education
225 Business Technology
250 Business Technology

492120 Computerized Business Applications
Credit: 1 Grade Levels: 9-12
Computerized Business Applications is a two-semester course designed to prepare students with an introduction to business applications that are necessary to live and work in a technological society. Emphasis is given to hardware, concepts, and business uses of applications. The business applications covered are word processing, database, spreadsheet, telecommunications, presentation, and Web page design. This course will also meet the one unit required in the Standards for Computer Applications.
Does course count in required 38 units and, if yes, how: Yes Career & Technical
Does course count in the 22 units required for graduation: Yes
Licensure required to teach this course: 031 Business Education (Secretarial)
032 Business Education
034 Data Processing/Computer Permit
037 Computer Tech Permit
225 Business Technology
250 Business Technology

492140 Advanced Database Applications
Credit: .5 Grade Levels: 10-12
Advanced Database Applications is a one-semester course in which students learn to organize data; create, search, and query databases; and use integrated software to combine database with word processing and mail merge.
Does course count in required 38 units and, if yes, how: Yes Career & Technical
Does course count in the 22 units required for graduation: Yes
Licensure required to teach this course: 031 Business Education (Secretarial)
032 Business Education
034 Data Processing/Computer Permit
037 Computer Tech Permit
225 Business Technology
250 Business Technology

492560 Database Fundamentals – Oracle Internet Academy
Credit: .5 Grade Levels: 10-12
The data modeling course is largely conceptual in that students are challenged to identify patterns or connections between information that is not obviously related and to identify key or underlying issues in complex situations. Student activities are designed to include using creative, conceptual, and inductive reasoning. Students learn how to transform business information needs into entity relationship diagrams and, later, into a relational database.
Does course count in required 38 units and, if yes, how: Yes Career & Technical
Does course count in the 22 units required for graduation: Yes
Licensure required to teach this course: 031 Business Education (Secretarial)
032 Business Education
034 Data Processing/Computer Permit
037 Computer Tech Permit
225 Business Technology

492570 Database Programming – Oracle Internet Academy
Credit: .5 Grade Levels: 10-12
This course enables users to build data warehouses and data marts; perform an array of integrated reporting; conduct ad-hoc querying and sophisticated analysis, including database optimization and maintenance, forecasting and trending, and market analysis; provide extended database support for online analytical processing, data-mining, and extraction; and perform transformation and loading operations.
Does course count in required 38 units and, if yes, how: Yes Career & Technical
Does course count in the 22 units required for graduation: Yes
Licensure required to teach this course: 031 Business Education (Secretarial)
032 Business Education
034 Data Processing/Computer Permit
037 Computer Tech Permit
225 Business Technology

492150 Digital Communications I – Layout and Design
Credit: .5 Grade Levels: 9-12
Digital Communications I is a one-semester course that combines the versatility of the microcomputer with page design software, enabling students to produce materials of near photo quality. The course includes page composition, layout, design, editing functions, and a variety of printing options.
Does course count in required 38 units and, if yes, how: Yes Career & Technical
Does course count in the 22 units required for graduation: Yes
Licensure required to teach this course: 031 Business Education (Secretarial)
032 Business Education
037 Computer Tech Permit
225 Business Technology
250 Business Technology

492160 Digital Communications II – Imaging
Credit: .5 Grade Levels: 9-12
Digital Communications II is a one-semester course designed to study the process of analyzing information and audience and choosing the appropriate visual signals to communicate the desired message effectively. Applied principles are used to analyze and organize information, set up a design structure, and produce special visual expressions.
Does course count in required 38 units and, if yes, how: Yes Career & Technical
Does course count in the 22 units required for graduation: Yes
Licensure required to teach this course: 031 Business Education (Secretarial)
032 Business Education
037 Computer Tech Permit
225 Business Technology
250 Business Technology

492360 Digital Communications III – Digital Media
Credit: .5 Grade Levels: 9-12
Digital Communications III is a one-semester course giving students experience in using multimedia to merge text, graphics, video, and sound. Applied principles are used to analyze and organize information, set up a design structure, and produce special visual expressions.
Does course count in required 38 units and, if yes, how: Yes Career & Technical
Does course count in the 22 units required for graduation: Yes
Licensure required to teach this course: 031 Business Education (Secretarial)
032 Business Education
037 Computer Tech Permit
225 Business Technology
250 Business Technology

492370 Digital Communications IV – Audio/Video Productions
Credit: .5 Grade Levels: 9-12
Digital Communications IV is a one-semester course giving students advanced experience in using multimedia to merge text, graphics, video, and sound. Applied principles are used to analyze and organize information, set up a design structure, and produce special visual expressions.
Does course count in required 38 units and, if yes, how: Yes Career & Technical
Does course count in the 22 units required for graduation: Yes
Licensure required to teach this course: 031 Business Education (Secretarial)
032 Business Education
037 Computer Tech Permit
225 Business Technology
250 Business Technology

492280 Economics
Credit: .5 Grade Levels: 9-12
Economics is a one-semester course that emphasizes economic fundamentals, microeconomics, macroeconomics, and personal financial management. Students will explore the interrelationships among the roles played by consumers, producers, capital, land, and labor as well as the interrelationships among economic, political, and social lives. Additionally, students will examine the relationship between individual choices and the direct influence of these choices on occupational goals and future earnings potential. Economics stresses application, problem-solving, higher-order thinking skills, and use of classroom performance-based, open-ended assessments with rubrics. Economics is required by the Standards for Accreditation and does not require Arkansas Department of Education approval.

Licensure required to teach this course:		Secondary Social Studies
	031	Business Education (Secretarial)
	032	Business Education
	040	Marketing Education
	222	Marketing Technology
	225	Business Technology
	250	Business Technology

492170 Entrepreneurship I
Credit: .5 Grade Levels: 9-12
Enterprise Management I is a one-semester course designed to offer an overview of the American business enterprise system. It provides a study of various forms of ownership, internal organization, management functions, and financing as they relate to business. The course content focuses on the concepts and practices of small business ownership and management. The student should be introduced to microcomputer software that is used as a tool for management functions.

Does course count in required 38 units and, if yes, how:	Yes	Career & Technical
Does course count in the 22 units required for graduation:	Yes	
Licensure required to teach this course:	031	Business Education (Secretarial)
	032	Business Education
	040	Marketing Education
	222	Marketing Technology
	225	Business Technology
	250	Business Technology

492180 Entrepreneurship II
Credit: .5 Grade Levels: 9-12
Enterprise Management II is a one-semester course that incorporates applied economics with emphasis on current applications of economic theory, international economics, and small business economic applications. It is recommended that Economics at Work – developed by the Agency for Instructional Technology, the National Council on Economic Education, and a consortium of state education agencies – be utilized in the second semester as a contextual, multimedia approach designed around five major economic activities, including producing, exchanging, consuming, saving, and investing.

Does course count in required 38 units and, if yes, how:	Yes	Career & Technical
Does course count in the 22 units required for graduation:	Yes	
Licensure required to teach this course:	031	Business Education (Secretarial)
	032	Business Education
	040	Marketing Education
	222	Marketing Technology
	225	Business Technology
	250	Business Technology

492190 Fashion Merchandising
Credit: .5 Grade Levels: 9-12
Fashion Merchandising is a one-semester course designed to offer an overview of the fashion industry. It provides the foundation in preparing students for a wide range of careers available in the different levels of the fashion industry. Emphasis is given to historical development, textiles, manufacturers, merchandising, domestic and foreign markets, accessories, and retailing.

Does course count in required 38 units and, if yes, how:	Yes	Career & Technical
Does course count in the 22 units required for graduation:	Yes	
Licensure required to teach this course:	031	Business Education (Secretarial)
	032	Business Education
	040	Marketing Education
	222	Marketing Technology
	225	Business Technology
	250	Business Technology

492210 Insurance & Risk Management
Credit: .5 Grade Levels: 9-12
Insurance & Risk Management provides an overview of the insurance industry, including various types of insurance, rates and claims, and career opportunities. Included are activities that help the student to better understand the importance of insurance and how it affects them both today and through their retirement years.
Does course count in required 38 units and, if yes, how: Yes Career & Technical
Does course count in the 22 units required for graduation: Yes
Licensure required to teach this course: 031 Business Education (Secretarial)
032 Business Education
040 Marketing Education
222 Marketing Technology
225 Business Technology
250 Business Technology

492230 International Travel
Credit: .5 Grade Levels: 9-12
International Travel is a one-semester course that provides detailed coverage of international air travel; geography; international airfares and ticketing procedures; travel requirements; travel in Europe, Russia, Asia, and the Pacific; ecotourism analysis; and broadening of global horizons to maximize cultural understanding.
Does course count in required 38 units and, if yes, how: Yes Career & Technical
Does course count in the 22 units required for graduation: Yes
Licensure required to teach this course: 031 Business Education (Secretarial)
032 Business Education
040 Marketing Education
222 Marketing Technology
225 Business Technology
250 Business Technology

492240 Introduction to Finance
Credit: .5 Grade Levels: 9-12
Introduction to Finance focuses on the individual's role and financial responsibilities as a student, citizen, consumer, and an active participant in the business world. It informs students of their various financial responsibilities.
Does course count in required 38 units and, if yes, how: Yes Career & Technical
Does course count in the 22 units required for graduation: Yes
Licensure required to teach this course: 031 Business Education (Secretarial)
032 Business Education
040 Marketing Education
222 Marketing Technology
225 Business Technology
250 Business Technology

492250 Introduction to Hospitality
Credit: .5 Grade Levels: 9-12
Introduction to Hospitality is a one-semester course that provides students with an overview of the hospitality industry and career opportunities within the industry. Students learn operation procedures in front office operations, guest services, marketing and sales, bank office functions, ownership and management, food, beverages, and housekeeping management.
Does course count in required 38 units and, if yes, how: Yes Career & Technical
Does course count in the 22 units required for graduation: Yes
Licensure required to teach this course: 031 Business Education (Secretarial)
032 Business Education
040 Marketing Education
222 Marketing Technology
225 Business Technology
250 Business Technology

492580 Introduction to Java - Oracle Internet Academy
Credit: .5 Grade Levels: 10-12
The goal of this course is to teach the fundamentals of the language. Before a student can create applets and other Net-based applications with Java, he/she must understand the basic elements of the language. It includes object-oriented programming; essential concepts, syntax, and programming constructs of the Java language; introduction to classes, objects, and methods; college application process, and IT career research.
Does course count in required 38 units and, if yes, how: Yes Career & Technical
Does course count in the 22 units required for graduation: Yes
Licensure required to teach this course:
031 Business Education (Secretarial)
032 Business Education
034 Data Processing/Computer Permit
037 Computer Tech Permit
225 Business Technology

492220 International Business
Credit: .5 Grade Levels 9-12
International Business is a one-semester course pursuing the study of economics, competition, politics, and social activities across national boundaries. Students are taught to think in global terms concerning their legal, cultural, economic, and political environments.
Does course count in required 38 units and if yes, how: Yes Career & Technical
Does course count in the 22 units required for graduation: Yes
Licensure required to teach this course:
031 Business Education (Secretarial)
032 Business Education
040 Marketing Education
222 Marketing Technology
225 Business Technology
250 Business Technology

492630 Introduction to Marketing
Credit: .5 Grade Levels: 9-10
Introduction to Marketing is a one-semester course designed to provide students with a basic understanding of marketing and its role in society. Instruction will focus on how marketing impacts businesses, helps people, and benefits society. Students will examine career opportunities in marketing and explore the interpersonal and communication skills needed for success in marketing careers. The course will include the history and development of marketing in a global economy. Students enrolled in the Introduction to Marketing class will have access to the student organization known as DECA: An Association of Marketing Students.
Does course count in required 38 units and, if yes, how: Yes Career & Technical
Does course count in the 22 units required for graduation: Yes
Licensure required to teach this course:
222 Marketing Technology
040 Marketing Education

492260 Introduction to Travel & Tourism
Credit: .5 Grade Levels: 9-12
Introduction to Travel and Tourism is a one-semester in-depth study of worldwide travel, transportation, and tourism. Students are introduced to the industry as a whole and the job opportunities that are available. The course covers resource allocation, technology, and social, organizational, and technological systems.
Does course count in required 38 units and if yes, how: Yes Career & Technical
Does course count in the 22 units required for graduation: Yes
Licensure required to teach this course:
031 Business Education (Secretarial)
032 Business Education
040 Marketing Education
222 Marketing Technology
225 Business Technology
250 Business Technology

492270 Investments & Securities
Credit: .5 Grade Levels: 9-12
Introduction to Investments & Securities teaches students every step of the way toward smart saving and investing. Topics include how to invest in everything from certificates of deposit to mutual funds and stocks. The course will teach students how to research stocks and make informed decisions by using NAIC's Stock Selection Guide.
Does course count in required 38 units and, if yes, how: Yes Career & Technical
Does course count in the 22 units required for graduation: Yes
Licensure required to teach this course:
031 Business Education (Secretarial)
032 Business Education
040 Marketing Education
222 Marketing Technology
225 Business Technology
250 Business Technology

492590 Java Programming - Oracle Internet Academy
Credit: .5 Grade Levels: 10-12
By the end of this course, the students will have a solid foundation that will enable them to start writing their own programs and applets using Java. This includes examining packages and interfaces, review for the Advanced Placement Computer Science Exam (APCS), Introduction to Integrated Design Environment (IDE), JDeveloper, applications, applets and UI components, and resume/portfolio building.
Does course count in required 38 units and, if yes, how: Yes Career & Technical
Does course count in the 22 units required for graduation: Yes
Licensure required to teach this course:
031 Business Education (Secretarial)
032 Business Education
034 Data Processing/Computer Permit
037 Computer Tech Permit
225 Business Technology

690050 Keyboarding (9-12)
Credit: .5 Grade Levels: 9-12
Keyboarding is a one-semester course designed to help students develop speed and accuracy by learning the touch operation of alphanumeric/keyboard characters. Emphasis is placed on the following: mastery of the keyboard with desirable keyboarding techniques; development of speed and accuracy; basic problem-solving applications of centering and arranging reports, letters, and tables; proofreading; formatting; and proper care of the equipment. Keyboarding is a foundation for developing entry-level skills for business careers. Only students who failed or did not take Keyboarding in the seventh or eighth grade are to be enrolled in this course.
Does course count in required 38 units and, if yes, how: No
Does course count in the 22 units required for graduation: No
Licensure required to teach this course:
031 Business Education (Secretarial)
032 Business Education
033 Middle School Business
224 Business Technology
225 Business Technology
250 Business Technology

690060 Keyboarding Applications (9-12)
Credit: .5 Grade Levels: 9-12
Keyboarding Applications is a one-semester course designed to further develop keyboarding skills. Emphasis is placed on the following: increasing speed and accuracy; proofreading; producing mailable copy from rough draft; producing handwritten and statistical documents; and improving production of various types of business communications. Keyboarding Applications provides the skills and knowledge necessary for entry-level employment for business careers. Only students who failed or did not take Keyboarding Applications in the seventh or eighth grade are to be enrolled in this course.
Does course count in required 38 units and, if yes, how: No
Does course count in the 22 units required for graduation: No
Licensure required to teach this course:
031 Business Education (Secretarial)
032 Business Education
033 Middle School Business
224 Business Technology
225 Business Technology
250 Business Technology

492300 Lodging Management I (Business)
Credit: 1 Grade Levels: 9-12
Lodging Management I has everything a student needs to get started in a hospitality career, with the classroom lessons and activities that teach valuable lodging skills and knowledge. This two-semester course is offered to 10th through 12th-grade students with an opportunity upon graduation to be tested for industry-recognized certification.
Does course count in required 38 units and, if yes, how: Yes Career & Technical
Does course count in the 22 units required for graduation: Yes
Licensure required to teach this course:
031 Business Education (Secretarial)
032 Business Education
040 Marketing Education
222 Marketing Technology
225 Business Technology
250 Business Technology

492310 Lodging Management II (Business)
Credit: 1 Grade Levels: 9-12
Tools are provided to aid the student in finding hospitality internships (jobs) under the supervision of work-site mentors so students can apply what they learn. When students graduate, they are ready to begin hospitality careers or continue their education at a college or university. This two-semester course is offered to 10th through 12th-grade students with an opportunity upon graduation to be tested for industry-recognized certification.
Does course count in required 38 units and, if yes, how: Yes Career & Technical
Does course count in the 22 units required for graduation: Yes
Licensure required to teach this course: 031 Business Education (Secretarial)
032 Business Education
040 Marketing Education
222 Marketing Technology
225 Business Technology
250 Business Technology

492320 Management
Credit: 1 Grade Levels: 10-12
Management is a two-semester course that assists the student in understanding basic management functions. Students study the management process, decision making, environmental factors, basic ethics, and social responsibility. Planning, organizing, leading, and controlling are emphasized as well as basic concepts of staffing, leadership, communications, entrepreneurship, and international management.
Does course count in required 38 units and, if yes, how: Yes Career & Technical
Does course count in the 22 units required for graduation: Yes
Licensure required to teach this course: 031 Business Education (Secretarial)
032 Business Education
040 Marketing Education
222 Marketing Technology
225 Business Technology
250 Business Technology

492330 Marketing
Credit: 1 Grade Levels: 11-12
Marketing is a two-semester course designed to provide students with the fundamental concepts, principles, skills, and attitudes common to the field of marketing. Instruction focuses on market types, market analysis, consumer types, planning, promotion, buying, pricing, distribution, finance, trends, and careers. Although not mandatory, many students can benefit from the on-the-job training component (cooperative education) of this course. The student's job must relate to his/her career objective.
Does course count in required 38 units and, if yes, how: Yes Career & Technical
Does course count in the 22 units required for graduation: Yes
Licensure required to teach this course: 040 Marketing Education
222 Marketing Technology

492350 Marketing Management
Credit: 1 Grade Levels: 10-12
Marketing Management is a two-semester course designed to develop decision-making skill through the application of marketing and management principles. Competencies will be accomplished by utilizing various instructional methods, resources, and direct involvement with marketing businesses. The course will focus on organization, finance, risks, credit, technology, and social aspects. Although not mandatory, many students can benefit from the on-the-job training component (cooperative education) of this course. The student's job must relate to his/her career objective.
Does course count in required 38 units and, if yes, how: Yes Career & Technical
Does course count in the 22 units required for graduation: Yes
Licensure required to teach this course: 040 Marketing Education
222 Marketing Technology

492340 Marketing Apprenticeship/Work-Based Learning
Credit: .5-2 Grade Levels: 11-12
Although not mandatory, many students can benefit from the on-the-job training component (cooperative education) of Marketing and Marketing Management. The student's job must relate to his/her career objective, and the work-site trainer must develop a list of competencies to be taught on the job that coordinate with classroom competencies and career objectives. All aspects of the industry must be taught. Students attend school part of the day and work in a marketing position for the remainder. A minimum of 135 hours during each semester on the job is required for the work experience credit of .5.
Does course count in required 38 units and, if yes, how: Yes Career & Technical
Does course count in the 22 units required for graduation: Yes
Licensure required to teach this course: 040 Marketing Education
222 Marketing Technology

492690 Medical Office Procedures
Credit: 1 Grade Levels: 11-12
Medical Office Procedures is a two-semester course focusing on management and supervision in the Health Informatics office environment. The course covers basic skills in word processing, database, spreadsheet, presentation, desktop publishing, 10-key calculating, record keeping, communicating and transcribing, as well as decision making, critical thinking, teamwork and ethics.
Does course count in required 38 units and, if yes, how: Yes Career & Technical
Does course count in the 22 units required for graduation: Yes
Licensure required to teach this course:
031 Business Education (Secretarial)
032 Business Education
225 Business Technology
040 Marketing Education
222 Marketing Technology

492130 Office Education Cooperative
Credit: 1 Grade Levels: 11-12
Office Education Cooperative is a two-semester course designed for junior and senior business students. This course covers such topics as use of current technology and communications, ergonomics, human relations, records management, and the basics of management and supervision. A supervised learning experience is required. This experience is for advanced business education students who attend school part of the day and work in a business office for the remainder.
Does course count in required 38 units and, if yes, how: Yes Career & Technical
Does course count in the 22 units required for graduation: Yes
Licensure required to teach this course:
031 Business Education (Secretarial)
032 Business Education
034 Data Processing/Computer Permit
037 Computer Tech Permit
225 Business Technology
250 Business Technology

492620 Office Education Work-Based Learning
Credit: 1 Grade Levels: 11-12
The student's job must relate to his/her career objective and the work-site trainer must develop a list of competencies to be taught on the job relating to classroom competencies and career objectives. All aspects of the industry must be taught. A minimum of 135 hours during each semester on the job is required for the work experience credit of .5.
Does course count in required 38 units and, if yes, how: Yes Career & Technical
Does course count in the 22 units required for graduation: Yes
Licensure required to teach this course:
031 Business Education (Secretarial)
032 Business Education
034 Data Processing/Computer Permit
037 Computer Tech Permit
225 Business Technology

492380 Office Management
Credit: 1 Grade Levels: 10-12
Office Management is a two-semester course focusing on management and supervision in the office environment. The course covers basic skills, such as word processing, records management, and communications, as well as decision making, critical thinking, teamwork, and ethics.
Does course count in required 38 units and, if yes, how: Yes Career & Technical
Does course count in the 22 units required for graduation: Yes
Licensure required to teach this course:
031 Business Education (Secretarial)
032 Business Education
040 Marketing Education
222 Marketing Technology
225 Business Technology
250 Business Technology

492390 Programming I
Credit: .5 Grade Levels: 9-12
Programming I is a one-semester course in any modern, high-level, structured language. Concepts should be taught in the context of practical applications.
Does course count in required 38 units and, if yes, how: Yes Career & Technical
Does course count in the 22 units required for graduation: Yes
Licensure required to teach this course:
031 Business Education (Secretarial)
032 Business Education
034 Data Processing/Computer Permit
037 Computer Tech Permit
225 Business Technology

492400 Programming II
Credit: .5 Grade Levels: 9-12
Programming II is a one-semester course that is a continuation of the study of the language taught in Programming I.
Does course count in required 38 units and, if yes, how: Yes Career & Technical
Does course count in the 22 units required for graduation: Yes
Licensure required to teach this course: 031 Business Education (Secretarial)
032 Business Education
034 Data Processing/Computer Permit
037 Computer Tech Permit
225 Business Technology

492430 Retailing
Credit: .5 Grade Levels: 9-12
Retailing is a one-semester course designed to offer an overview of the retailing industry in the United States. A study is made of the types of retail marketing, organization, personnel, merchandising, promotion, selling, operations, and control. The course focuses on the concepts and practices of retail business operations.
Does course count in required 38 units and, if yes, how: Yes Career & Technical
Does course count in the 22 units required for graduation: Yes
Licensure required to teach this course: 031 Business Education (Secretarial)
032 Business Education
040 Marketing Education
222 Marketing Technology
225 Business Technology
250 Business Technology

492440 Salesmanship
Credit: .5 Grade Levels: 9-12
Salesmanship is a one-semester course designed to inform students about specific selling techniques and attitudes necessary to become a successful salesperson. The course focuses on serving customers and helping them make wise buying decisions. Emphasis is placed on the importance of human relations in selling, the functions performed by salespeople, development of personality traits needed by salespeople, and the buying/selling process.
Does course count in required 38 units and, if yes, how: Yes Career & Technical
Does course count in the 22 units required for graduation: Yes
Licensure required to teach this course: 031 Business Education (Secretarial)
032 Business Education
040 Marketing Education
222 Marketing Technology
225 Business Technology
250 Business Technology

492700 Small Business Operations
Credit: 1 Grade Levels: 10-12
Small Business Operations is a two-semester course designed for students interested in learning how to manage a small business. Students will be required to participate in laboratory work. The lab experience will consist of operating a School Based Enterprise. IN addition to the lab work, students will also complete a series of lessons designed to prepare them for the transition to higher education and/or an entrepreneurial career. Although it is not mandatory, many students can benefit from the on-the-job training component (cooperative education) of this course. The student's job must relate to his/her career objective.
Does course count in required 38 units and, if yes, how: Yes Career & Technical
Does course count in the 22 units required for graduation: Yes
Licensure required to teach this course: 031 Business Education (Secretarial)
032 Business Education
040 Marketing Education
222 Marketing Technology
225 Business Technology

492640 Sports and Entertainment Marketing
Credit: .5 Grade Levels: 9-12
Sports and Entertainment Marketing is a one-semester course designed to provide students with an understanding of marketing concepts, foundations, and functions as they relate to career opportunities in the growing area of sports and entertainment. Instruction will focus on public relations and publicity, event planning and marketing, sponsorship, venue design, concessions, risk management, product planning, licensing, ticket sales, and distribution.
Does course count in required 38 units and, if yes, how: Yes Career & Technical
Does course count in the 22 units required for graduation: Yes
Licensure required to teach this course: 222 Marketing Technology
225 Business Technology
040 Marketing Education
250 Business Technology

492460 Travel Destinations
Credit: .5 Grade Levels: 9-12
Travel Destinations is a one-semester course that provides a working knowledge of the geography of the earth as it relates to travel and tourism. Focus is on the attractions of place, patterns and processes of World Tourism, Geography and Travel and tourism in North America, Mexico, Central America, The Caribbean, South America, Europe, The Middle East, Africa, Asia, Australia, New Zealand and the South Pacific.
Does course count in required 38 units and, if yes, how: Yes Career & Technical
Does course count in the 22 units required for graduation: Yes
Licensure required to teach this course: 031 Business Education (Secretarial)
032 Business Education
040 Marketing Education
222 Marketing Technology
225 Business Technology
250 Business Technology

492470 Word Processing I
Credit: .5 Grade Levels: 9-12
Word Processing I is a one-semester course designed to provide students with entry-level skills in word processing concepts, operations, text manipulations, and production of business documents using an intermediate or advanced level software program. In addition, training in basic word vocabulary skills, mechanics of punctuation and grammar, format, and style, proofreading, editing, and reviewing business documents are included in the course.
Does course count in required 38 units and, if yes, how: Yes Career & Technical
Does course count in the 22 units required for graduation: Yes
Licensure required to teach this course: 031 Business Education (Secretarial)
032 Business Education
037 Computer Tech Permit
225 Business Technology
250 Business Technology

492480 Word Processing II
Credit: .5 Grade Levels: 9-12
Word Processing II is a one-semester course designed to provide students with competencies in word processing concepts. Emphasis is on production of business documents and applications, including formats, creating and maintaining files, repetitive documents, revising, and printing.
Does course count in required 38 units and, if yes, how: Yes Career & Technical
Does course count in the 22 units required for graduation: Yes
Licensure required to teach this course: 031 Business Education (Secretarial)
032 Business Education
037 Computer Tech Permit
225 Business Technology
250 Business Technology

ACE Prior Approval Business/Marketing Courses

492600 ACE-Approved Business Education
Credit: 1 Grade Levels: 9-12
This is an individually approved course in business education submitted by the district.
Does course count in required 38 units and, if yes, how: Yes Career & Technical
Does course count in the 22 units required for graduation: Yes
Licensure required to teach this course:
031 Business Education (Secretarial)
032 Business Education
034 Data Processing/Computer Permit
037 Computer Tech Permit
225 Business Technology
250 Business Technology

590070 ACE-Approved Business Education
Credit: 1 Grade Levels: 9-12
This is an individually approved course in business education submitted by the district.
Does course count in required 38 units and, if yes, how: No
Does course count in the 22 units required for graduation: Yes
Licensure required to teach this course:
031 Business Education (Secretarial)
032 Business Education
034 Data Processing/Computer Permit
037 Computer Tech Permit
225 Business Technology
250 Business Technology

492490 ACE-Approved Computer Applications I (9-12)
Credit: .5 Grade Levels: 9-12
Computer Applications I is a half-unit course designed to provide students with the fundamental computer skills necessary to do well in high school and in virtually all jobs today. In the area of word processing, students will learn the fundamental skills necessary to create and edit the most widely used documents and use the most commonly used features of a word processor, such as bullets, numbered lists, special characters, borders and shading, fonts, and paragraph and line searching. The fundamentals in use of scanners, graphics, and Word Art are applied to documents. Internet searching skills and citing Internet sources are stressed with these applied to a simple PowerPoint presentation. In the area of spreadsheets, students will be expected to create and edit simple spreadsheets using basic formulas and functions and create a simple graph or chart. Districts desiring to implement this course should request approval from the Business/ Marketing Education Office.
Does course count in required 38 units and, if yes, how: Yes Career & Technical
Does course count in the 22 units required for graduation: Yes
Licensure required to teach this course:
031 Business Education (Secretarial)
032 Business Education
034 Data Processing/Computer Permit
037 Computer Tech Permit
225 Business Technology
250 Business Technology

492500 ACE-Approved Computer Applications II
Credit: .5 Grade Levels: 9-12
Computer Applications II is a half-unit course designed to provide students with the intermediate computer skills necessary to do well in high school and in virtually all jobs today. Students will learn techniques that will allow them to create fairly complex word processing and spreadsheet documents. They will continue their Internet research, applying it to spreadsheets, charts and graphs, and Web pages. Districts desiring to implement this course should request approval from the Business/Marketing Education Office.
Does course count in required 38 units and, if yes, how: Yes Career & Technical
Does course count in the 22 units required for graduation: Yes
Licensure required to teach this course:
031 Business Education (Secretarial)
032 Business Education
034 Data Processing/Computer Permit
037 Computer Tech Permit
225 Business Technology
250 Business Technology

492510 ACE-Approved Computer Applications III
Credit: .5 Grade Levels: 9-12
Computer Applications III is a half-unit course designed to provide students with the computer skills necessary to do well in college and needed in most jobs today. Students will learn techniques that will allow them to create simple to intermediate desktop publishing documents; create, access, and edit databases; use e-mail efficiently and ethically; create advanced electronic presentations; and create Web pages using Web-page design software. They will continue their Internet research, applying it to advanced electronic presentations and the Web pages they create. Districts desiring to implement this course should request approval from the Business/Marketing Education Office.
Does course count in required 38 units and, if yes, how: Yes Career & Technical
Does course count in the 22 units required for graduation: Yes
Licensure required to teach this course: 031 Business Education (Secretarial)
032 Business Education
034 Data Processing/Computer Permit
037 Computer Tech Permit
225 Business Technology
250 Business Technology

590080 ACE-Approved Marketing Education
Credit: 1 Grade Levels: 9-12
This is an individually approved course in marketing education submitted by the district.
Does course count in required 38 units and, if yes, how: No
Does course count in the 22 units required for graduation: Yes
Licensure required to teach this course: 040 Marketing Education
222 Marketing Technology

492610 ACE-Approved Marketing Education
Credit: 1 Grade Levels: 9-12
This is an individually approved course in marketing education submitted by the district.
Does course count in required 38 units and, if yes, how: Yes Career & Technical
Does course count in the 22 units required for graduation: Yes
Licensure required to teach this course: 040 Marketing Education
222 Marketing Technology

492520 ACE-Approved Programming III
Credit: .5 Grade Levels: 10-12
Programming III is a half-unit course that is a continuation of the study of the language taught in Programming II. Districts desiring to implement this course should request approval from the Business/Marketing Education Office.
Does course count in required 38 units and, if yes, how: Yes Career & Technical
Does course count in the 22 units required for graduation: Yes
Licensure required to teach this course: 031 Business Education (Secretarial)
032 Business Education
034 Data Processing/Computer Permit
037 Computer Tech Permit
225 Business Technology

492550 ACE-Approved Senior Technology Seminar
Credit: 1 Grade Levels: 12
In this project-based course, students are assigned actual computer projects from the school district and local businesses. The projects may include creating presentations to be used at meetings and seminars, creating advanced databases, maintaining Web pages, customizing database reports and screens, maintaining computers, etc. Districts desiring to implement this course should request approval from the Business/Marketing Education Office.
Does course count in required 38 units and, if yes, how: Yes Career & Technical
Does course count in the 22 units required for graduation: Yes
Licensure required to teach this course: 031 Business Education (Secretarial)
032 Business Education
037 Computer Tech Permit
225 Business Technology
250 Business Technology

492650 ACE Approved Web Page Design I – Associate Design Specialist
Credit: 1 Grade Levels: 10-12
Web Design I – Foundations is the first level of Web Page Design, and it prepares students with work-related skills for advancement into postsecondary education or industry. Course content includes exposure to basic Web design and the dynamics of networking/internetworking, Web hosting and Web design in e-commerce. The course content provides students the opportunity to acquire fundamental skills in both theory and practical application of Web design and of leadership and interpersonal skill development. Laboratory facilities and experiences simulate those found in the Web Page Design and construction industry. Further, this course provides for and directly maps to the Certified Internet Webmaster "Foundations" national certification examination.

Does course count in required 38 units and, if yes, how: Yes Career & Technical
Does course count in the 22 units required for graduation: Yes
Licensure required to teach this course:
032 Business Education
034 Data Processing/Computer Permit
037 Computer Tech Permit
225 Business Technology
031 Business Education (Secretarial)
250 Business Technology

492660 ACE Approved Web Page Design II – Internet Business Foundations/Network Technology Foundations
Credit: 1 Grade Levels: 10-12
Web Page Design II – Site Designer is the second level of Web Page Design concentration, and it prepares students with work-related skills for advancement into postsecondary education or industry. Course content includes exposure to basic and advanced Web design, pixilated and vector-based Web graphics, Web animations, dynamics of Web hosting, and Web design in eCommerce. The course content provides students the opportunity to acquire fundamental skills in both theory and practical application of Web design and of leadership and interpersonal skill development. Laboratory facilities and experiences simulate those found in the Web page design and Web page construction industry. Further, this course provides for and directly maps to the Certified Internet Webmaster "Site Designer" national certification examination.

Does course count in required 38 units and, if yes, how: Yes Career & Technical
Does course count in the 22 units required for graduation: Yes
Licensure required to teach this course:
032 Business Education
034 Data Processing/Computer Permit
037 Computer Tech Permit
225 Business Technology
031 Business Education (Secretarial)
250 Business Technology

492670 Web Technologies
Credit: 1 Grade Levels: 10-12
This course is an exploration of all of the elements of good web page design. Students will begin by creating web pages using HTML, XHTML and CSS. Students will investigate several Adobe software packages to enhance web sites such as: PhotoShop to create and edit graphics; Flash to create animations and web banners. Fireworks to create and optimize images for the web; and Premiere or other video/audio software to create and edit videos and audio. Students will focus on how to use web design software such as Dreamweaver to create websites. Students will also use multimedia equipment such as digital cameras and camcorders to add this rich media to websites. Students will complete several real-world applications such as Flash videos and web pages for the school or other organizations or businesses. Web Communication using Adobe Dreamweaver® (Associate) certification is encouraged.

Does course count in required 38 units and, if yes, how: Yes Career & Technical
Does course count in the 22 units required for graduation: Yes
Licensure required to teach this course:
031 Business Education (Secretarial)
032 Business Education
034 Data Processing/Computer Permit
037 Computer Tech Permit
225 Business Technology
250 Business Technology

Middle School Courses

355910 Input Technologies
Credit: Grade Levels: 5
Input Technologies is a course designed to provide students with the necessary foundation skills to be successful in a technology enriched world. The minimum required amount of time to teach this course is forty minutes per week or its equivalent during the school year.
Does course count in required 38 units and, if yes, how: No
Does course count in the 21 units required for graduation: No
Licensure required to teach this course:

033	Middle School Business
224	Business Technology
250	Business Technology
419	Business Technology

366910 Technology Communications
Credit: Grade Levels: 6
Technology Communications is a that continues to develop the technology skills learned in the 5th grade. Word processing skills will be expanded as well as the introduction to basic spreadsheet functions and manipulation. The minimum required amount of time to teach this course is forty minutes per week or its equivalent during the school year.
Does course count in required 38 units and, if yes, how: No
Does course count in the 21 units required for graduation: No
Licensure required to teach this course:

033	Middle School Business
224	Business Technology
250	Business Technology
419	Business Technology

378910 Information and Communications Technology
Credit: Grade Levels: 7-8
This course is designed to prepare students for the transition into 9th grade. This course is the culmination of skills mastered beginning in the 5th grade, while adding database and electronic presentation skills. The minimum required amount of time to teach this course is sixty clock hours or one semester.
Does course count in required 38 units and, if yes, how: No
Does course count in the 21 units required for graduation: No
Licensure required to teach this course:

031	Business Education (Secretarial)
032	Business Education
033	Middle School Business
034	Data Processing/Computer Permit
037	Computer Tech Permit
224	Business Technology
225	Business Technology
250	Business Technology

378920 Introduction to Business Communications and Technology
Credit: Grade Levels: 7-8
Introduction to Business Communications and Technology is the first semester of a two-semester foundation sequence designed to provide students with the necessary foundation skills to be successful in a technology enriched world. Word processing skills will be expanded as well as the introduction to basic spreadsheet functions and manipulation. The minimum required amount of time to teach this course is sixty clock hours or one semester.
Does course count in required 38 units and, if yes, how: No
Does course count in the 21 units required for graduation: No
Licensure required to teach this course:

031	Business Education (Secretarial)
032	Business Education
033	Middle School Business
034	Data Processing/Computer Permit
037	Computer Tech Permit
224	Business Technology
225	Business Technology
250	Business Technology

399040 Computer Technology: Introduction
Credit: Grade Levels: 7-8

Computer Technology: Introduction is a one-semester course designed to prepare seventh- and eighth-grade students with an introduction to computers and business applications that are necessary to live and work in a technological society. Emphasis is given to data entry, computer concepts and operations, programming and design, computer software, implications of technology in society, and ethics. The course is designed to provide students with an understanding of the business, industrial, and scientific areas in which the computer is used.

Does course count in required 38 units and, if yes, how: No
Does course count in the 22 units required for graduation: No
Licensure required to teach this course:

031	Business Education (Secretarial)
032	Business Education
033	Middle School Business
034	Data Processing/Computer Permit
037	Computer Tech Permit
224	Business Technology
225	Business Technology
250	Business Technology

399050 Keyboarding (grades 7-8)
Credit: Grade Levels: 7-8

Keyboarding is a one-semester course designed to help students develop speed and accuracy by learning the touch operation of alphanumeric/keyboard characters. Emphasis is placed on the following: mastery of the keyboard with desirable keyboarding techniques; development of speed and accuracy; basic problem-solving applications of centering and arranging reports, letters, and tables; proofreading; formatting; and proper care of the equipment. Keyboarding is a foundation for developing entry-level skills for business careers.

Does course count in required 38 units and, if yes, how: No
Does course count in the 22 units required for graduation: No
Licensure required to teach this course:

031	Business Education (Secretarial)
032	Business Education
033	Middle School Business
034	Data Processing/Computer Permit
224	Business Technology
225	Business Technology
250	Business Technology

399060 Keyboarding Applications (grades 7-8)
Credit: Grade Levels: 7-8

Keyboarding Applications is a one-semester course designed to further develop keyboarding skills. Emphasis is placed on the following: developing speed and accuracy; proofreading; producing mailable copy from rough drafts; preparing handwritten and statistical documents; and improving production of various types of business communications. Keyboarding Applications provides the skills and knowledge necessary for entry-level employment for business careers.

Does course count in required 38 units and, if yes, how: No
Does course count in the 22 units required for graduation: No
Licensure required to teach this course:

031	Business Education (Secretarial)
032	Business Education
033	Middle School Business
034	Data Processing/Computer Permit
224	Business Technology
225	Business Technology
250	Business Technology

ACE Prior Approval Middle School Courses

399020 ACE-Approved Computer Applications I (grade 8)
Credit: Grade Levels: 8
Computer Applications I is a half-unit course designed to provide students with the fundamental computer skills necessary to do well in high school and in virtually all jobs today. In the area of word processing, students will learn the fundamental skills necessary to create and edit the most widely used documents and use the most commonly used features of a word processor, such as bullets, numbered lists, special characters, borders and shading, fonts, and paragraph and line searching. The fundamentals in use of scanners, graphics, and Word Art are applied to documents. Internet searching skills and citing Internet sources are stressed with these applied to a simple PowerPoint presentation. In the area of spreadsheets, students will be expected to create and edit simple spreadsheets, using basic formulas and functions, and create a simple graph or chart. Districts desiring to implement this course should request approval from the Business/Marketing Education Office.
Does course count in required 38 units and, if yes, how: No
Does course count in the 22 units required for graduation: No
Licensure required to teach this course:
031 Business Education (Secretarial)
032 Business Education
034 Data Processing/Computer Permit
037 Computer Tech Permit
224 Business Technology
225 Business Technology
250 Business Technology

399010 ACE-Approved Information Technology: Fundamentals
Credit: Grade Levels: 8
Information Technology: Fundamentals will provide students with the opportunity to learn about computer and networking information and to practice these basic technological concepts. This is not an industry-level certified course but rather an opportunity to assist in making immediate course selections and future career choices and gaining an exposure to technical life skills.
Does course count in required 38 units and, if yes, how: No
Does course count in the 22 units required for graduation: No
Licensure required to teach this course:
031 Business Education (Secretarial)
032 Business Education
033 Middle School Business
034 Data Processing/Computer Permit
037 Computer Tech Permit
224 Business Technology
225 Business Technology
250 Business Technology

399230 ACE-Approved Keyboarding (grades 5-6)
Credit: Grade Levels: 5-6
Keyboarding is a nine-week course designed to help students develop speed and accuracy by learning the touch operation of alphanumeric/keyboard characters. Emphasis is placed on the following: mastery of the keyboard with desirable keyboarding techniques; development of speed and accuracy; and proper care of the equipment. Keyboarding is foundation for developing entry-level skills for business careers.
Does course count in required 38 units and, if yes, how: No
Does course count in the 22 units required for graduation: No
Licensure required to teach this course:
033 Middle School Business
224 Business Technology
250 Business Technology
419 Business Technology

399240 ACE-Approved Keyboarding Connections (grades 7-8)
Credit: Grade Levels: 7-8
While improving keyboarding skills, students will improve their writing and literacy skills by composing and typing business documents such as letters and memos. Students will compose and type reports and will be introduced to basic word processing skills. This class is designed to help prepare students for the state benchmark test as students will compose their own response to written work and learn to organize their thoughts by using graphic organizers. (ACE approval needed.)
Does course count in required 38 units and, if yes, how: No
Does course count in the 22 units required for graduation: No
Licensure required to teach this course:
031 Business Education (Secretarial)
032 Business Education
033 Middle School Business
034 Data Processing/Computer Permit
224 Business Technology
225 Business Technology
250 Business Technology

CAREER CLUSTERS: BUSINESS, MANAGEMENT, AND ADMINISTRATION; FINANCE; HOSPITALITY AND TOURISM; AND INFORMATION TECHNOLOGY

BUSINESS TECHNOLOGY

Program Description

Business technology programs are designed to prepare individuals to perform managerial, research, and technical support functions related to production and buying as well as selling goods and services.

Technical support functions include word processing and data-entry skills, use of the latest in modern business equipment, communication, and accounting skills. Business information processing includes the skills to process and retrieve internal business information and respond to external data requests. Enterprise management prepares individuals to develop, own, and operate businesses, including the applications of doing business in international markets and finance.

Occupational Program

Business technology has four career clusters from which students may choose. Specific courses are required for each of the programs of study (pathways); in addition, various options may be selected to complete the required curriculum.

Career Focuses

The program framework for secondary education and training is designed for linkage/ articulation to postsecondary programs of study. All curriculums adhere to the workforce training requirements for increased levels of technical skills and stronger foundations in applied academics. Program offerings in each school must include a minimum of one career focus/program of study in three (3) different occupational clusters (offered annually).

Length of Courses and Eligibility of Students

Length of courses and eligibility of students are shown on the Business/Marketing Technology Program framework and course offerings immediately following.

Student Organizations

The career and technical student organization Future Business Leaders of America (FBLA) shall be an integral part of the business technology instructional program and shall follow the guidelines, goals, objectives, and shall participate in activities of the state and national organization.

CAREER CLUSTER: MARKETING, SALES, AND SERVICE

MARKETING TECHNOLOGY

Planning, managing, and performing marketing activities to reach organizational objectives

Program Description

Marketing technology provides instruction that prepares individuals to plan and execute, at the operational or direct sales level, the promotion and distribution of ideas, goods, and services to create exchanges that satisfy individual and organizational objectives. Marketing tasks will include segments of the apparel and fashion industry, retailing of food, real estate, tourism, vehicle and petroleum operations, as well as developing business enterprises.

Occupational Program

One career focus program of study (pathway) is provided for students in this cluster, but several options are available as individual drawing boards are developed. The two two-semester capstone courses are Marketing and Marketing Management. In addition to the core marketing courses, related classes may be selected from those listed below in Optional Courses.

The career focus program of study for marketing technology is based on three broad competency areas that are essential for success in any marketing occupation—economic fundamentals of marketing; human resource foundation; marketing and business foundations.

Program Framework

The two sequential courses, Marketing and Marketing Management, are designed to give a good foundation for all students to explore and gain skills and knowledge in the occupational field of marketing and management. School-based instruction is provided for all students. For those students who desire work experience as a part of their educational program, a cooperative component is available. It is not required for all students but is desirable for many of them.

Cooperative education combines classroom instruction with alternating periods of on-the-job training in marketing occupations related to the student's career goal. Training sponsors are selected to coordinate the learning experiences provided on the job. Training plans are developed cooperatively by the teacher/coordinator and the training sponsor to ensure the development of required competencies.

Optional Courses

Courses such as advertising, desktop publishing, enterprise management, fashion merchandising, introduction to marketing, sports and entertainment marketing, international business, retailing, salesmanship, hospitality and tourism, or lodging management may be offered in any marketing education program. Courses may combine classroom instruction with supervised laboratory activities designed to help the student achieve his or her career goal. The laboratory experiences may include marketing simulations, operation of a school store, motel, boutique, parts warehouse, or a student bank within the educational institution.

Length of Program

1. Marketing and Marketing Management shall both be one-year courses.

2. Optional courses may be offered on a one- or two-semester basis.

Eligibility of Students

1. Marketing is available for grades 11-12.

2. Marketing Management is available for grades 11-12. Students on block schedule can take Marketing Management in the 11th grade if they take Marketing first term and Marketing Management second term.

3. Optional courses are available for grades 10-12.

4. Cooperative students must be 16 years of age to meet labor law requirements.

5. Students must have an occupational objective in the field of marketing.

6. If possible, cooperative students should be placed in an approved marketing technology training station before school starts.

Student Organization

The student organization DECA, an association of marketing students, shall be an integral part of the marketing technology program and shall follow the same guidelines, goals, objectives, and shall participate in activities of the Arkansas association and the national DECA organization.

Pathways and Programs of Study by Career Cluster

***A four-year transition period will be given to implement the new program of study changes. These changes will need to be in place for the 2012 – 2013 school year.**

****Digital Communications POS will replace Desktop Publishing POS and Multimedia POS in 2013-2014. This is a four-year transition period to modify course offerings.**

Business, Management, and Administration Cluster

Business, management, and administration careers encompass planning, organizing, directing, and evaluating business functions essential to efficient and productive business operations. Business, management, and administration career opportunities are available in every sector of the economy.

General Management Pathway
Management Program of Study

Course Code	Core Requirements	Units of Credit	7th	8th	9th	10th	11th	12th
492120	Computerized Business Applications	1			X	X	X	X
492100	Computerized Accounting I	1				X	X	X
492320	Management	1			X	X	X	X
OR								
492490	Computer Applications I	.5			X	X	X	X
492500	Computer Applications II	.5			X	X	X	X
492100	Computerized Accounting I	1				X	X	X
492320	Management	1					X	X

Administrative Services *
Office Administration Program of Study

Course Code	Core Requirements	Units of Credit	7th	8th	9th	10th	11th	12th
492120	Computerized Business Applications	1			X	X	X	X
492100	Computerized Accounting I	1				X	X	X
492380	Office Management	1			X	X	X	X
OR								
492490	Computer Applications I	.5			X	X	X	X
492500	Computer Applications II	.5			X	X	X	X
492100	Computerized Accounting I	1				X	X	X
492380	Office Management	1			X	X	X	X
OR								
492120	Computerized Business Applications	1			X	X	X	X
492100	Computerized Accounting I	1				X	X	X
492130	Office Education Cooperative	1					X	X

OR								
492490	Computer Applications I	.5			X	X	X	X
492500	Computer Applications II	.5			X	X	X	X
492100	Computerized Accounting I	1				X	X	X
492130	Office Education Cooperative	1					X	X

Finance Cluster

Planning, services for financial and investment planning, banking, insurance, and business financial management.

Accounting Pathway
Accounting Program of Study

Course Code	Core Requirements	Units of Credit	7th	8th	9th	10th	11th	12th
492120	Computerized Business Applications	1			X	X	X	X
492100	Computerized Accounting I	1				X	X	X
492110	Computerized Accounting II	1				X	X	X
OR								
492490	Computer Applications I	.5			X	X	X	X
492500	Computer Applications II	.5			X	X	X	X
492100	Computerized Accounting I	1				X	X	X
492110	Computerized Accounting II	1				X	X	X

Business Finance Pathway *
Business Finance Program of Study

Course Code	Core Requirements	Units of Credit	7th	8th	9th	10th	11th	12th
492120	Computerized Business Applications	1			X	X	X	X
492100	Computerized Accounting I	1				X	X	X
492140	Database Applications	.5				X	X	X
492450	Advanced Spreadsheet Applications	.5				X	X	X
OR								
492490	Computer Applications I	.5			X	X	X	X
492500	Computer Applications II	.5			X	X	X	X
492100	Computerized Accounting I	1				X	X	X
492140	Database Applications	.5				X	X	X
492450	Advanced Spreadsheet Applications	.5				X	X	X

Securities and Investments Pathway *
Securities and Investments Program of Study

Course Code	Core Requirements	Units of Credit	7th	8th	9th	10th	11th	12th
492120	Computerized Business Applications	1			X	X	X	X
492100	Computerized Accounting I	1				X	X	X
492240	Introduction to Finance	.5			X	X	X	X
492270	Investments & Securities	.5			X	X	X	X
OR								
492490	Computer Applications I	.5			X	X	X	X
492500	Computer Applications II	.5			X	X	X	X
492100	Computerized Accounting I	1				X	X	X
492240	Introduction to Finance	.5			X	X	X	X
492270	Investments & Securities	.5			X	X	X	X

Insurance Pathway *
Insurance & Risk Management Program of Study

Course Code	Core Requirements	Units of Credit	7th	8th	9th	10th	11th	12th
492120	Computerized Business Applications	1			X	X	X	X
492100	Computerized Accounting I	1				X	X	X
492240	Introduction to Finance	.5			X	X	X	X
492210	Insurance and Risk Management	.5			X	X	X	X
OR								
492490	Computer Applications I	.5			X	X	X	X
492500	Computer Applications II	.5			X	X	X	X
492100	Computerized Accounting I	1				X	X	X
492240	Introduction to Finance	.5			X	X	X	X
492210	Insurance and Risk Management	.5			X	X	X	X

Banking Services Pathway
Banking Program of Study

Course Code	Core Requirements	Units of Credit	7th	8th	9th	10th	11th	12th
492120	Computerized Business Applications	1			X	X	X	X
492100	Computerized Accounting I	1				X	X	X
492050	Banking & Finance Principles	.5			X	X	X	X
492040 492020 492030	And ONE of the following courses: B&F Operations/Teller Training B&F Consumer Lending B&F Law	.5				X	X	X

OR								
492490	Computer Applications I	.5			X	X	X	X
492500	Computer Applications II	.5			X	X	X	X
492100	Computerized Accounting I	1				X	X	X
492050	Banking & Finance Principles	.5				X	X	X
492040 492020 492030	And ONE of the following courses: B&F Operations/Teller Training B&F Consumer Lending B&F Law	.5				X	X	X

Hospitality and Tourism Cluster

Hospitality & Tourism encompasses the management, marketing, and operations of restaurants and other food services, lodging, attractions, recreation events, and travel-related services.

Travel and Tourism Pathway
Hospitality Program of Study

Course Code	Core Requirements	Units of Credit	7th	8th	9th	10th	11th	12th
492120	Computerized Business Applications	1			X	X	X	X
492260	Introduction to Travel & Tourism	.5			X	X	X	X
492250	Introduction to Hospitality	.5			X	X	X	X
492460	Travel Destinations	.5			X	X	X	X
492230	International Travel	.5			X	X	X	X
OR								
492490	Computer Applications I	.5			X	X	X	X
492500	Computer Applications II	.5			X	X	X	X
492260	Introduction to Travel & Tourism	.5			X	X	X	X
492250	Introduction to Hospitality	.5			X	X	X	X
492460	Travel Destinations	.5			X	X	X	X
492230	International Travel	.5			X	X	X	X
OR								
492120	Computerized Business Applications	1			X	X	X	X
492260	Introduction to Travel & Tourism	.5			X	X	X	X
492250	Introduction to Hospitality	.5			X	X	X	X
492300	Lodging Management I	1			X	X	X	X
OR								
492490	Computer Applications I	.5			X	X	X	X
492500	Computer Applications II	.5			X	X	X	X
492260	Introduction to Travel & Tourism	.5			X	X	X	X
492250	Introduction to Hospitality	.5			X	X	X	X
492300	Lodging Management I	.5			X	X	X	X

Lodging Pathway
Lodging Management Program of Study

Course Code	Core Requirements	Units of Credit	7th	8th	9th	10th	11th	12th
492120	Computerized Business Applications	1			X	X	X	X
492300	Lodging Management I	1			X	X	X	X
492310	Lodging Management II	1			X	X	X	X
OR								
492490	Computer Applications I	.5			X	X	X	X
492500	Computer Applications II	.5			X	X	X	X
492300	Lodging Management I	1			X	X	X	X
492310	Lodging Management II	1			X	X	X	X

Information Technology Cluster

Building linkages in IT occupations framework: for entry level, technical, and professional careers related to the design, development, support, and management of hardware, software, multimedia, and systems integration services.

Web Design & Digital Communications Pathway
Digital Communications Program of Study **

Course Code	Core Requirements	Units of Credit	7th	8th	9th	10th	11th	12th
492120	Computerized Business Applications	1			X	X	X	X
492150	DC I-Digital Layout and Design	.5			X	X	X	X
492160	DC II-Digital Imaging	.5			X	X	X	X
492360	DC III-Digital Media	.5			X	X	X	X
492370	DC IV-Digital Audio/Video Productions	.5			X	X	X	X
OR								
492490	Computer Applications I	.5			X	X	X	X
492500	Computer Applications II	.5			X	X	X	X
492150	DC I-Digital Layout and Design	.5			X	X	X	X
492160	DC II-Digital Imaging	.5			X	X	X	X
492360	DC III-Digital Media	.5			X	X	X	X
492370	DC IV-Digital Audio/Video Productions	.5			X	X	X	X

Web Design Program of Study

Course Code	Core Requirements	Units of Credit	7th	8th	9th	10th	11th	12th
Seek ACE prior approval before implementation								
A student may be added to Web Design by Teacher Recommendation								
492120	Computerized Business Applications	1			X	X	X	X
492650	Web Page Design I-Associate Design Specialist	1				X	X	X
492660	Web Page Design II- Internet Business Foundations/Network Technology Foundations	1				X	X	X
OR								
492490	Computer Applications I	.5			X	X	X	X
492500	Computer Applications II	.5			X	X	X	X

492650	Web Page Design I- Associate Design Specialist	1				X	X	X
492660	Web Page Design II-Internet Business Foundations/Network Technology Foundations	1				X	X	X
OR								
492650	Web Page Design I-Associate Design Specialist	1				X	X	X
492660	Web Page Design II-Internet Business Foundations/Network Technology Foundations	1				X	X	X
	Elective(s)	1						

Programming/Software Engineering Pathway *
Programming Program of Study

Course Code	Core Requirements	Units of Credit	7th	8th	9th	10th	11th	12th
492120	Computerized Business Applications	1			X	X	X	X
492390	Programming I	.5			X	X	X	X
492400	Programming II	.5			X	X	X	X
492140	Database Applications	.5				X	X	X
492450	Advanced Spreadsheet Applications	.5				X	X	X
OR								
492490	Computer Applications I	.5			X	X	X	X
492500	Computer Applications II	.5			X	X	X	X
492390	Programming I	.5			X	X	X	X
492400	Programming II	.5			X	X	X	X
492140	Database Applications	.5				X	X	X
492450	Advanced Spreadsheet Applications	.5				X	X	X

Information Support and Services Pathway
Oracle Program of Study

Course Code	Core Requirements	Units of Credit	7th	8th	9th	10th	11th	12th
492120	Computerized Business Applications	1			X	X	X	X
492960	Database Fundamentals	.5				X	X	X
492570	Database Programming	.5				X	X	X
492580	Introduction to Java	.5				X	X	X
492590	Java Programming	.5				X	X	X
OR								
492490	Computer Applications I	.5			X	X	X	X
492500	Computer Applications II	.5			X	X	X	X
492960	Database Fundamentals	.5				X	X	X
492570	Database Programming	.5				X	X	X
492580	Introduction to Java	.5				X	X	X
492590	Java Programming	.5				X	X	X

Marketing, Sales, and Service Cluster

Planning, managing, and performing marketing activities to reach organizational objectives.

Marketing Research (Management and Research) Pathway *
Marketing Technology and Research Program of Study

Course Code	Core Requirements	Units of Credit	7th	8th	9th	10th	11th	12th
*** Must have A.Y.A. Marketing License to teach these courses**								
492120	Computerized Business Applications	1			X	X	X	X
492330	Marketing *	1					X	X
492350	Marketing Management *	1					X	X
OR								
492490	Computer Applications I	.5			X	X	X	X
492500	Computer Applications II	.5			X	X	X	X
492330	Marketing *	1					X	X
492350	Marketing Management *	1					X	X
OR								
492120	Computerized Business Applications	1			X	X	X	X
492330	Marketing *	1					X	X
492340	Marketing Apprenticeship/Work-Based Learning*	.5 – 2					X	X
OR								
492490	Computer Applications I	.5			X	X	X	X
492500	Computer Applications II	.5			X	X	X	X
492330	Marketing *	1					X	X
492340	Marketing Apprenticeship/ Work-Based Learning*	.5 – 2					X	X
OPTIONAL ELECTIVE								
492700	Small Business Operations	1				X	X	X

Marketing Management Pathway *
Entrepreneurship Program of Study

Course Code	Core Requirements	Units of Credit	7th	8th	9th	10th	11th	12th
492120	Computerized Business Applications	1			X	X	X	X
492200	Computerized Accounting I	1				X	X	X
492170	Entrepreneurship I	.5			X	X	X	X
492180	Entrepreneurship II	.5			X	X	X	X
OR								
492490	Computer Applications I	.5			X	X	X	X
492500	Computer Applications II	.5			X	X	X	X
492100	Computerized Accounting I	1				X	X	X
492170	Entrepreneurship I	.5			X	X	X	X
492180	Entrepreneurship II	.5			X	X	X	X
OPTIONAL ELECTIVE								
492700	Small Business Operations	1				X	X	X

BUSINESS AND MARKETING TECHNOLOGY COURSES:

Course Code	Courses	Units of Credit	7th	8th	9th	10th	11th	12th
*** Must have A.Y.A. Marketing License to teach these courses**								
460100	Technology Design and Applications	1			X	X	X	X
492010	Advertising	.5			X	X	X	X
492020	Banking & Finance Consumer Lending	.5			X	X	X	X
492030	Banking & Finance Law	.5			X	X	X	X
492040	Banking & Finance Operations/Teller Training	.5			X	X	X	X
492050	Banking & Finance Principles	.5			X	X	X	X
492060	Business Communications	.5			X	X	X	X
492070	Business Law I	.5			X	X	X	X
492080	Business Law II	.5			X	X	X	X
492100	Computerized Accounting I	1				X	X	X
492110	Computerized Accounting II	1				X	X	X
492120	Computerized Business Applications	1			X	X	X	X
492140	Advanced Database Applications	.5				X	X	X
492150	DC I-Digital Layout and Design	.5			X	X	X	X
492160	DC II-Digital Imaging	.5			X	X	X	X
492170	Entrepreneurship I	.5			X	X	X	X
492180	Entrepreneurship II	.5			X	X	X	X
492190	Fashion Merchandising	.5			X	X	X	X
492210	Insurance & Risk Management	.5			X	X	X	X
492220	International Business	.5			X	X	X	X
492230	International Travel	.5			X	X	X	X
492230	Office Education Cooperative	1					X	X
492240	Introduction to Finance	.5			X	X	X	X
492250	Introduction to Hospitality	.5			X	X	X	X
492260	Introduction to Travel & Tourism	.5			X	X	X	X
492270	Investments & Securities	.5			X	X	X	X
492300	Lodging Management I (Business)	1			X	X	X	X
492310	Lodging Management II (Business)	1			X	X	X	X
492320	Management	1			X	X	X	X
492330	Marketing *	1				X	X	X
492340	Marketing Apprenticeship/Work Based Learning*	1					X	X
492350	Marketing Management *	1					X	X
492360	DC III-Digital Media	.5			X	X	X	X
492370	DC IV-Digital Audio/Video Productions	.5			X	X	X	X
492380	Office Management	1			X		X	X
492430	Retailing	.5			X	X	X	X
492440	Salesmanship	.5			X	X	X	X
492450	Advanced Spreadsheet Applications	.5				X	X	X
492460	Travel Destinations	.5			X	X	X	X
492470	Word Processing I	.5			X	X	X	X
492480	Word Processing II	.5			X	X	X	X
492620	Office Education Work Based Learning	1					X	X
492630	Introduction to Marketing	.5			X	X		
492640	Sports and Entertainment Marketing	.5			X	X	X	X

Course Code	Courses	Units of Credit	7th	8th	9th	10th	11th	12th
*** Must have A.Y.A. Marketing License to teach these courses**								
492670	Web Technologies	1				X	X	X
492700	Small Business Operations					X	X	X
690050	Keyboarding (Local Credit Only)	.5			X	X	X	X
690060	Keyboarding Application (Local Credit Only)	.5			X	X	X	X

Course Code	ACE Prior Approval Business/Marketing Courses	Units of Credit	7th	8th	9th	10th	11th	12th
Seek ACE prior approval before implementation								
492600	Business Education	1			X	X	X	X
590070	Business Education	1			X	X	X	X
492490	Computer Applications I	.5			X	X	X	X
492500	Computer Applications II	.5			X	X	X	X
492510	Computer Applications III	.5			X	X	X	X
492610	Marketing Education	1			X	X	X	X
590080	Marketing Education	1			X	X	X	X
492520	Programming III	.5				X	X	X
492550	Senior Technology Seminar	1						X
492650	Web Page Design I-Associate Design Specialist	1				X	X	X
492660	Web Page Design II- Internet Business Foundations/Network Technology Foundations	1				X	X	X

Course Code	Middle School Courses	Units of Credit	7th	8th	9th	10th	11th	12th
399040	Computer Technology: Introduction		X	X				
399050	Keyboarding		X	X				
399060	Keyboarding Applications		X	X				

Course Code	ACE Prior Approval Middle School Courses	Units of Credit	5th	6th	7th	8th	9th	10th	11th	12th
Seek ACE prior approval before implementation										
355910	Input Technologies		X							
366910	Technology Communications			X						
378910	Information and Communications Technology				X	X				
378920	Introduction to Business Communications and Technology				X	X				
399020	Computer Applications I					X				
399230	ACE Approved Keyboarding (5-6)		X	X						
399010	Information Tech: Fundamentals				X	X				
399240	Keyboarding Connections				X	X				

BUSINESS/MARKETING TECHNOLOGY

MINIMUM INSTRUCTIONAL EQUIPMENT AND SOFTWARE

Clusters: All
Pathways: All
Programs of Study: All*

Item Name	Count 15 Students	Count 25 Students	Count 25 Students	Specification/ Description
Student Computer System	15	20	25	See ACE Technology Standards – Level 1
Student Computer Stations	15	20	25	Minimum of 30" x 43" per station, keyboard height 26"-28"
Student posture chairs	4	5	6	Ergonomically designed w/strong back support, must be adjustable (25% of class enrollment)
Presentation Equipment	1	1	1	LCD Projector (Mounting Recommended) Teacher Laptop (See ACE Technology Standards) Computerized Presentation Board
Teacher computer station	1	1	1	Minimum of 30" x 43" per station, keyboard height 26"-28"
Teacher posture chair	1	1	1	Ergonomically designed w/strong back support, must be adjustable
Digital camera	1	1	1	
Filing cabinets	2	2	2	4-drawer, lockable
Laser printer	1	1	1	
Media cart (Unless LCD projector is ceiling mounted)	1	1	1	
Scanner	1	1	1	

*Including Marketing Research (Marketing Information Management And Research) and Marketing Management

Cluster: Information Technology
Pathway: Web Design and Digital Communications
Program of Study: Digital Communications (Desktop Publishing, Multimedia, and Web Design)

Item Name	Count 15 Students	Count 20 Students	Count 25 Students	Specification/ Description
Student Computer System	3	4	5	See ACE Technology Standards – Level II
Digital camera	3	4	5	Minimum 8.2 megapixels – Multimedia & Desktop Publishing
Digital video camcorder w/remote microphone and tripod w/hybrid storage capability.	2	2	3	Multimedia
Printer, color laser	1	1	1	Desktop Publishing & Multimedia – color laser or printer/fax/copier/scanner combination

Item Name	Count 15 Students	Count 20 Students	Count 25 Students	Specification/ Description
Software (not included in equipment total) – latest version, appropriate to courses being taught (cost varies w/computer lab size & configuration)				Desktop Publishing: Microsoft Office, Corel WordPerfect Office, Illustrator, Adobe InDesign, Adobe PhotoShop; Adobe CS3, or equivalents Multimedia: Dreamweaver, Flash, FrontPage, Studio 8, Animation software, Morphing software, Adobe Premiere, or equivalents Web Design: Expression Web, CS3, Firefox, Internet Explorer, Fireworks

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Summary of Changes (2/10/12)
Equipment:
Made equipment changes to Theatre program of study

Summary of Changes (2/02/2011)
Course Codes:
Transitioning from Career Communication program of study across all Pathways to: Journalism in the Journalism & Broadcasting Pathway A/V Tech & Film in the Audio-Video Technology and Film Pathway Dance Technique in the Performing Arts Pathway Dance 1 counts as Fine Arts credit for graduation Theatre Performance in the Performing Arts Pathway Introduction to Theatre counts as Fine Arts credit for graduation Theatre Technical Design in the Performing Arts Pathway
Radio/Television has been separated into separate Programs of study Radio Broadcasting Television Production
Advertising Design is changing to Advertising and Graphic Design
Course code numbers changed for Graphics Communications
Visual Arts, Commercial Photography is changing to Photography
Workplace Readiness/Career Readiness changed from grade levels 10-12 to 11-12 with the option of a one- or two-semester course.
Keystone for grades 7-8 removed
Course number for Keystone for grade levels 09-10 is changing to meet graduation requirements
JAG removed from this Operational Guide
EAST/WFT changed from grade levels 9-12 to 11-12
CT Intro Based Career Orientation can be used as an alternate course to satisfy the requirements for Career Orientation and Computer Tech Intro.
Minor changes for clarity in some descriptions

CAREER CLUSTER PATHWAY – PROGRAM OF STUDY CROSSWALK	
Cluster: ARTS, AUDIO/VIDEO TECHNOLOGY, & COMMUNICATIONS	
Pathway	**Program of Study**
Visual Arts	Advertising and Graphic Design
Visual Arts	Career Communications
Visual Arts	Photography
Printing Technology	Career Communications
Printing Technology	Graphic Communications
Journalism & Broadcasting	Journalism
Journalism & Broadcasting	Radio Broadcasting
Journalism & Broadcasting	Television Production
Audio-Video Technology & Film	A/V Tech & Film
Performing Arts	Dance Technique
Performing Arts	Theatre Performance
Performing Arts	Theatre Technical Design

CLUSTER: ARTS, A/V TECHNOLOGY & COMMUNICATIONS

The Career Communications Program of Study may be used in any of the Arts A/V Technology and Communications pathways.

Arts A/V Tech and Film Pathway – Students in this program will learn the basics of film and television production as well as other forms of audio-video communication such as animation, graphics, and sound production for video. They will also study the history of audio-video technology and film as well as career development and employment in this pathway.

Journalism and Broadcasting Pathway – Schools may develop a program with the focus on Journalism, Radio, or Television. The journalism program will demonstrate writing processes used for various media to build a base of skills for careers in journalism. Courses will examine ethical and legal issues, content, programming, production, distribution, and opportunities for career development.

Performing Arts Pathway – This program of study focuses on the arts that are primarily performed before an audience, such as dance and both performance and technical theatre. All aspects of dance and theatre are covered, leading the serious performing arts student towards employment opportunities in this field.

Visual Arts Pathway – Visual artists create art to communicate ideas, thoughts, or feelings using a variety of methods—painting, sculpting, or illustrating—to obtain realistic or abstract expressions. Graphic designers use their artistic and technical skills for advertising, designing, and publishing for commercial retailers and advertising agencies. Students will review the overall scope, knowledge and skills of the pathway and opportunities for careers in the field.

Career Communications Program of Study

493720 Introduction to Career Communications
Credit: .5 Grade Levels:9-12
This is a core course for a program of study in the Arts, Audio-Video Technology, and Communications cluster. It is a one-semester course that addresses the foundation skills required of all careers classified under the Arts AV Technology and Communications Cluster, including pathways in Audio-Video Technology and Film; Printing Technology; Visual Arts; Performing Arts; Telecommunications; and Journalism and Broadcasting. It can be used as an elective for any Arts A/V program of study.

Does course count in required 38 units and, if yes, how: Yes Career & Technical
Does course count in the 22 units required for graduation: Yes
Licensure required to teach this course:

020	Art K-12
032	Business Education
036	Business Education (Voc Fund)
124	Vocal K-12
125	Instrumental K-12
166	English/Language Arts
202	Art
208	Drama/Speech
225	Business Technology
613	Performing Arts Permit
618	Communication

493730 ACE-Approved Career Communications I
Credit: 1 Grade Levels:10 -12

This is a core course for a career major in the program of study called career communications. It is a yearlong course that will cover topics addressed as the basic knowledge and skills areas in the AAVTC career cluster. These topics include skills in academic foundations; communications; problem solving and critical thinking; information technology applications; systems, safety, health, and environmental issues; leadership and teamwork; ethics and legal responsibilities; and employability and career development. When students complete this course, they will have the necessary knowledge and skills to function in leadership roles in the production of local media releases, including videos, papers, magazines, and annuals.

Does course count in required 38 units and, if yes, how: Yes Career & Technical
Does course count in the 22 units required for graduation: Yes
Licensure required to teach this course:
020 Art K-12
032 Business Education
036 Business Education (Voc Fund)
166 English/Language Arts
202 Art
208 Drama/Speech
225 Business Technology
618 Communication

493740 ACE-Approved Career Communications II
Credit: 1 Grade Levels: 11 -12

This is a core course for a career major in the program of study called career communications. It is a yearlong course that will cover topics addressed as the knowledge and skills areas in the journalism pathway of the AAVTC career cluster. Instruction will build upon the knowledge and skills learned in Career Communications I. When students complete this course, they will have the necessary knowledge and skills to participate local community internship positions in the areas related to print and/or broadcast media productions.

Does course count in required 38 units and, if yes, how: Yes Career & Technical
Does course count in the 22 units required for graduation: Yes
Licensure required to teach this course:
020 Art K-12
032 Business Education
036 Business Education (Voc Fund)
166 English/Language Arts
202 Art
208 Drama/Speech
225 Business Technology
618 Communication

590130 ACE -Approved Career Communications Lab
Credit: 1 Grade Levels:11-12

The Career Communications Lab is project-based instruction and is an extension of the career communications program of study. It provides classroom training and instruction for the advanced student that is over and above the basic course requirement. The content builds on the knowledge, skills, and abilities taught in Career Communications I and II. The Career Communications Lab may be used in order for students to achieve completer status (as a substitute for an internship or senior seminar experience) when these courses are not available.

Does course count in required 38 units and, if yes, how: No
Does course count in the 22 units required for graduation: Yes
Licensure required to teach this course:
020 Art K-12
032 Business Education
036 Business Education (Voc Fund)
166 English/Language Arts
202 Art
208 Drama/Speech
225 Business Technology
618 Communication

Audio/Video Technology and Film Pathway

A/V Tech & Film Program of Study

Students are involved in the presentation of sound, video, and data in various public venues. Students will employ oral and written communication skills in creating, expressing and interpreting information and ideas through the use of audio and video technology. Students in this program will learn the basics of film and television production as well as other forms of audio-video communication such as animation, graphics, and sound production for video. They will also study the history of audio-video technology and film as well as career development and employment in this pathway.

493640 Fundamentals of A/V Tech & Film
Credit: 1 Grade Levels: 9-12
Students in this core program will learn the basics of film and television production as well as other forms of audio-video communication such as animation, graphics, and sound production for video. They will also study the history of audio-video technology and film as well as career development and employment in this pathway.
Does course count in required 38 units and, if yes, how: Yes Career & Technical
Does course count in the 22 units required for graduation: Yes
Licensure required to teach this course: 108 Journalism
202 Art
225 Business Technology
591 Radio
595 Television
618 Communication

493650 Intermediate A/V Tech & Film
Credit: 1 Grade Levels: 10-12
This core program is designed to develop high level technical skills in preparation for a career in Audio/Video and Film production.
Does course count in required 38 units and, if yes, how: Yes Career & Technical
Does course count in the 22 units required for graduation: Yes
Licensure required to teach this course: 108 Journalism
202 Art
225 Business Technology
591 Radio
595 Television
618 Communication

493660 Advanced A/V Tech & Film
Credit: 1 Grade Levels: 11-12
This independent production based program is designed to allow mastery of the knowledge and skills needed to begin a successful Audio/Video or Film career.
Does course count in required 38 units and, if yes, how: Yes Career & Technical
Does course count in the 22 units required for graduation: Yes
Licensure required to teach this course: 108 Journalism
202 Art
225 Business Technology
591 Radio
595 Television
618 Communication

493670 A/V Tech & Film Lab
Credit: 1 Grade Levels: 10-12
This production-based program is designed to allow the audio/video student studio time for the development of skills needed to execute a comprehensive media career.
Does course count in required 38 units and, if yes, how: Yes Career & Technical
Does course count in the 22 units required for graduation: Yes
Licensure required to teach this course: 108 Journalism
202 Art
225 Business Technology
591 Radio
595 Television
618 Communication

Journalism and Broadcasting Pathway

Radio Broadcasting Program of Study

493380 Fundamentals of Radio
Credit: 1 Grade Levels: 9-12
This core program is designed to give practical knowledge in preparation for the pursuit of a career in broadcasting.
Does course count in required 38 units and, if yes, how: Yes Career & Technical
Does course count in the 22 units required for graduation: Yes
Licensure required to teach this course: 591 Radio

493390 Intermediate Radio
Credit: 1 Grade Levels: 10-12
This core program is designed to develop high level technical skills in preparation for a career in radio broadcasting.
Does course count in required 38 units and, if yes, how: Yes Career & Technical
Does course count in the 22 units required for graduation: Yes
Licensure required to teach this course: 591 Radio

493400 Advanced Radio
Credit: 1 Grade Levels: 11-12
This independent production based program is designed to allow mastery of the knowledge and skills needed to begin
a successful radio broadcasting career.
Does course count in required 38 units and, if yes, how: Yes Career & Technical
Does course count in the 22 units required for graduation: Yes
Licensure required to teach this course: 591 Radio

493410 Radio Lab
Credit: 1 Grade Levels: 10-12
This production-based program is designed to allow the broadcasting student studio time for the development of skills
needed to execute a comprehensive radio career.
Does course count in required 38 units and, if yes, how: Yes Career & Technical
Does course count in the 22 units required for graduation: Yes
Licensure required to teach this course: 591 Radio

Television Production Program of Study

493420 Fundamentals of Television
Credit: 1 Grade Levels: 9-12
The core program is designed to give practical knowledge in preparation for the pursuit of a career in television.
Does course count in required 38 units and, if yes, how: Yes Career & Technical
Does course count in the 22 units required for graduation: Yes
Licensure required to teach this course: 595 Television

493430 Intermediate Television
Credit: 1 Grade Levels: 10-12
The core course will provide an understanding of production principles and experience with the video camera, lighting instruments and techniques, microphones, script creation, and editing. Students will perform assignments
on camera as well as studio and control room duties.
Does course count in required 38 units and, if yes, how: Yes Career & Technical
Does course count in the 22 units required for graduation: Yes
Licensure required to teach this course: 595 Television

493440 Advanced Television
Credit: 1 Grade Levels: 11-12
This independent production-based program is designed to allow the student to master the knowledge and skills needed to begin a successful television career.
Does course count in required 38 units and, if yes, how: Yes Career & Technical
Does course count in the 22 units required for graduation: Yes
Licensure required to teach this course: 595 Television

493450 Television Lab
Credit: 1 Grade Levels: 10-12
This production-based program is designed to allow the television student studio time for the development of skills
needed to execute a comprehensive TV career.
Does course count in required 38 units and, if yes, how: Yes Career & Technical
Does course count in the 22 units required for graduation: Yes
Licensure required to teach this course: 595 Television

Journalism Program of Study

493680 Fundamentals of Journalism
Credit: 1 Grade Levels: 9-12
This core Journalism introductory program will develop writing processes used for various media to build a base of skills for careers in journalism. The course will examine ethical and legal issues, content, programming, production, distribution, and opportunities for career development.
Does course count in required 38 units and, if yes, how: Yes Career & Technical
Does course count in the 22 units required for graduation: Yes
Licensure required to teach this course: 054 Journalism
108 Journalism
166 English/Language Arts
591 Radio
595 Television
618 Communication

493690 Intermediate Journalism
Credit: 1 Grade Levels: 10-12
This core program is designed to develop high level technical skills in preparation for a career in journalism.
Does course count in required 38 units and, if yes, how: Yes Career & Technical
Does course count in the 22 units required for graduation: Yes
Licensure required to teach this course: 054 Journalism
108 Journalism
166 English/Language Arts
591 Radio
595 Television
618 Communication

493700 Advanced Journalism
Credit: 1 Grade Levels: 11-12
This independent project-based program is designed to allow the student to master the knowledge and skills needed to begin a successful journalism career.
Does course count in required 38 units and, if yes, how: Yes Career & Technical
Does course count in the 22 units required for graduation: Yes
Licensure required to teach this course: 054 Journalism
108 Journalism
166 English/Language Arts
591 Radio
595 Television
618 Communication

493710 Journalism Lab
Credit: 1 Grade Levels: 10-12
This production-based program is designed to allow the journalism student time for the development of skills needed to execute a comprehensive journalism career.
Does course count in required 38 units and, if yes, how: Yes Career & Technical
Does course count in the 22 units required for graduation: Yes
Licensure required to teach this course: 054 Journalism
108 Journalism
166 English/Language Arts
591 Radio
595 Television
618 Communication

Performing Arts Pathway

Dance Technique Program of Study

The Performing Arts Dance Technique program focuses on technique in various cultures to build an understanding of the nature and scope of performing arts in society. Performance skills will be developed as well as knowledge of production, presentation, principles and processes of the industry. **Dance Technique I will count as a Fine Arts credit for graduation.**

559210 Dance Technique I
Credit: 1 Grade Levels: 9-12
This course is designed to teach students interested in pursuing careers in the performing arts with an emphasis on dance technique. Dance Technique I demonstrates basic dance techniques of various styles utilizing basic steps, positions, and patterns with the use of basic meters and rhythms; limited ranges. This is one of the core courses for a career major in the program of study called Dance. It is a year-long course that will introduce students to the elements of ballet, jazz, modern, and ethnic dance as the vehicle to the development of movement skills required of dancers as performing artists. Students will also develop the knowledge and strategies needed for incorporating a dancer's lifestyle.
Does course count in required 38 units and, if yes, how: No Career & Technical
Does course count in the 22 units required for graduation: Yes
Licensure required to teach this course: 613 Performing Arts Permit

493500 Dance Technique II
Credit: 1 Grade Levels: 9-12
This level of dance demonstrates basic to intermediate technique of various styles utilizing basic to intermediate steps, positions, and patterns with the use of basic to intermediate meters and rhythms, which may include changes of tempo; modest ranges. This is one of the core courses for a career major in the program of study called Dance. It is a year-long course that will introduce students to the elements of ballet, jazz, modern, and ethnic as the vehicle to the development of movement skills required of dancers as performing artists. Students will also develop knowledge and strategies for incorporating a dancer's lifestyle.
Does course count in required 38 units and, if yes, how: Yes Career & Technical
Does course count in the 22 units required for graduation: Yes
Licensure required to teach this course: 613 Performing Arts Permit

493510 Dance Technique III
Credit: 1 Grade Levels: 9-12
Dance Technique III features intermediate to advanced technical demands, expanded ranges, and varied interpretive requirements with the introduction of artistry. This is one of the core courses for a career major in the program of study called Dance. It is a year-long course that will introduce students to the elements of ballet, jazz, modern, and ethnic dance as the vehicle to the development of movement skills required of dancers as performing artists.
Does course count in required 38 units and, if yes, how: Yes Career & Technical
Does course count in the 22 units required for graduation: Yes
Licensure required to teach this course: 613 Performing Arts Permit

493520 Dance Technique IV
Credit: 1 Grade Levels: 9-12
Dance Technique IV is an advanced level requiring well-developed technical skills, attention to phrasing with artistic expression, and demonstrating advanced levels of clarity, musicality, rhythmic acuity, projection, stylistic nuances, and interpretation. It is a year-long course that will introduce students to the elements of ballet, jazz, modern, and ethnic as the vehicle to the development of movement skills required of dancers as performing artists.
Does course count in required 38 units and, if yes, how: Yes Career & Technical
Does course count in the 22 units required for graduation: Yes
Licensure required to teach this course: 613 Performing Arts Permit

590120 ACE-Approved Performing Arts Lab
Credit: 1 Grade Levels: 10-12
This course is designed to allow serious students' time to develop their skills in performing arts. The lab will be used for advanced academic and performance skills training in the designated topic. Students will demonstrate advanced ability and understanding of the skills and academic requirements needed for a career in their chosen area of the performing arts. Course approval will be given for: dance, music, theater and playwriting, or technical design and production.
Does course count in required 38 units and, if yes, how: No
Does course count in the 22 units required for graduation: Yes
Licensure required to teach this course: 208 Drama/Speech
613 Performing Arts Permit

Theatre Performance Program of Study

The Performing Arts Theatre program focuses on performance and technical skills to build an understanding of the nature and scope of performing arts in society and prepare for a career in theatre. Performance and technical skills will be developed as well as knowledge of production, presentation, principles and processes of the industry. **Introduction to Theatre will count as a Fine Arts credit for graduation.**

559200 Introduction to Theatre
Credit: 1 Grade Levels: 9-12
This course is designed to teach students interested in pursuing careers in the performing arts with an emphasis on performance and technical design. Students will be taught basic academic, performance and technical skills related to theatre and demonstrate the ability and understanding of the skills and academic requirements needed for a career. This course is a prerequisite for Theatre Performance and Technical Design programs of study. Drama can be used in lieu of Performing Arts Intro.
Does course count in required 38 units and, if yes, how: No Career & Technical
Does course count in the 22 units required for graduation: Yes
Licensure required to teach this course: 208 Drama/Speech
613 Performing Arts Permit

493540 Theatre Performance I
Credit: 1 Grade Levels: 10-12
This course is designed to teach students interested in pursuing careers in the performing arts with an emphasis on stage performance. Students will be taught basic academic and performance skills related to characterization, script analysis, genre study, and performance projects. This is a core course required for completion for programs of study in Performance Theatre.
Does course count in required 38 units and, if yes, how: Yes Career & Technical
Does course count in the 22 units required for graduation: Yes
Licensure required to teach this course: 208 Drama/Speech
613 Performing Arts Permit

493550 Theatre Performance II
Credit: 1 Grade Levels: 11-12
This course is designed to teach students interested in pursuing careers in the performing arts with an emphasis on stage performance. Students will be taught advanced academic and performance skills related to characterization, script analysis, genre study, and performance projects. This is an advanced elective course.
Does course count in required 38 units and, if yes, how: Yes Career & Technical
Does course count in the 22 units required for graduation: Yes
Licensure required to teach this course: 208 Drama/Speech
613 Performing Arts Permit

Theatre Technical Design Program of Study

559200 Introduction to Theatre
Credit: 1 Grade Levels: 9-12
This course is designed to teach students interested in pursuing careers in the performing arts with an emphasis on performance and technical design. Students will be taught basic academic, performance and technical skills related to theatre and demonstrate the ability and understanding of the skills and academic requirements needed for a career. This course is a prerequisite for Theatre Performance and Technical Design programs of study. Drama can be used in lieu of Performing Arts Intro.
Does course count in required 38 units and, if yes, how: No Career & Technical
Does course count in the 22 units required for graduation: Yes
Licensure required to teach this course: 208 Drama/Speech
613 Performing Arts Permit

493570 Theatre Technical Design I
Credit: 1 Grade Levels: 10-12
This course is designed to teach students interested in pursuing careers in the performing arts with an emphasis on stagecraft. Students will be taught basic academic and technical skills related to technical design, production, construction, set design, lighting, sound, costuming and make-up. This is a core course required for completion for programs of study in technical theatre.
Does course count in required 38 units and, if yes, how: Yes Career & Technical
Does course count in the 22 units required for graduation: Yes
Licensure required to teach this course: 208 Drama/Speech
613 Performing Arts Permit

493580 Theatre Technical Design II
Credit: 1 Grade Levels: 11-12
This course is designed to teach students interested in pursuing careers in the performing arts with an emphasis on stagecraft. Students will be taught advanced academic and technical skills related to technical design, production, construction, set design, lighting, sound, costuming and make-up. This is an advanced elective course.
Does course count in required 38 units and, if yes, how: Yes Career & Technical
Does course count in the 22 units required for graduation: Yes
Licensure required to teach this course: 208 Drama/Speech
613 Performing Arts Permit

493590 Advanced Theatre Seminar
Credit: 1 Grade Levels: 11-12
Course Description: This independent production based program is designed to provide the advanced theater student with practical knowledge and highly advanced skills for a comprehensive career in theatre.
Does course count in required 38 units and, if yes, how: Yes Career & Technical
Does course count in the 22 units required for graduation: Yes
Licensure required to teach this course: 208 Drama/Speech
613 Performing Arts Permit

Printing Technology Pathway

Graphic Communications Program of Study

Printing process has three stages—pre-press, press, and binding or post-press. This program employs processes to build understanding of print technologies from customer needs in sales and service to image retrieval, page assembly and typeset plate-making for printed products, finishing and distribution.

493600 Fundamentals of Graphic Communications
Credit: 1 Grade Levels: 9-12
This course provides an overview of the printing industry, its basic operations, and career opportunities.
Does course count in required 38 units and, if yes, how: Yes Career & Technical
Does course count in the 22 units required for graduation: Yes
Licensure required to teach this course: 582 Graphic Communications

493610 Intermediate Graphic Communications
Credit: 1 Grade Levels: 10-12
This course provides an overview of basic typography, layout design, desktop publishing, and operating. It requires production of visuals using electronic illustrations and text of the printing industry, its basic operations, and career opportunities.
Does course count in required 38 units and, if yes, how: Yes Career & Technical
Does course count in the 22 units required for graduation: Yes
Licensure required to teach this course: 582 Graphic Communications

493630 Advanced Graphic Communications
Credit: 1 Grade Levels: 11-12
Advanced digital imaging, as well as image assembly and construction, platemaking techniques, and finishing and binding are presented in this course. This course is directed at building advance-level skills and preparing for the workforce.
Does course count in required 38 units and, if yes, how: Yes Career & Technical
Does course count in the 22 units required for graduation: Yes
Licensure required to teach this course: 582 Graphic Communications

493620 Graphic Communications Lab
Credit: 1 Grade Levels: 11-12
This production based course provides the advanced graphic communications students' time to build skills and knowledge of reproduction through a series of progressive exercises that cover the basics of camera and darkroom operations. Learning activities include film exposure of processing techniques, materials, operations, and safety practices of offset duplicator operation through a series of tasks and simulations.
Does course count in required 38 units and, if yes, how: Yes Career & Technical
Does course count in the 22 units required for graduation: Yes
Licensure required to teach this course: 582 Graphic Communications

Visual Arts Pathway

Advertising and Graphic Design will use computer hardware and software multimedia to create two-three dimensional images for the purposes of visual communication in various media. The Photography program of study will use traditional film and/or digital photographic media to communicate thoughts, feelings, or ideas.

Advertising and Graphic Design Program of Study

494150 Fundamentals of Advertising and Graphic Design
Credit: 1 Grade Levels: 9-12
This instructional program in the applied visual arts is a core course and prepares individuals to use artistic techniques to effectively communicate ideas and information to business and consumer audiences via illustrations and other forms of printed media.
Does course count in required 38 units and, if yes, how: Yes Career & Technical
Does course count in the 22 units required for graduation: Yes
Licensure required to teach this course: 571 Advertising Design

494170 Intermediate Advertising and Graphic Design
Credit: 1 Grade Levels: 10-12
This is a core course emphasizing the integration of computer skills and knowledge of software used in the market place.
Does course count in required 38 units and, if yes, how: Yes Career & Technical
Does course count in the 22 units required for graduation: Yes
Licensure required to teach this course: 571 Advertising Design

494130 Advanced Advertising and Graphic Design
Credit: 1 Grade Levels: 11-12
Advanced Advertising and Graphic Design takes the best, most important and relevant components of Advertising and Graphic Design Introduction and Intermediate courses, and expands them for the serious third year student. Each component is flexible and can be implemented throughout the school year, fulfilling the 120 credit hours of instruction. Each component is essentially intertwined with each other and may be implemented simultaneously.
Does course count in required 38 units and, if yes, how: Yes Career & Technical
Does course count in the 22 units required for graduation: Yes
Licensure required to teach this course: 571 Advertising Design

494160 Advertising and Graphic Design Lab
Credit: 1 Grade Levels: 10-12
This production-based program is designed to allow the serious advertising design students' time for the development of skills and knowledge needed to execute a comprehensive advertising design product.
Does course count in required 38 units and, if yes, how: Yes Career & Technical
Does course count in the 22 units required for graduation: Yes
Licensure required to teach this course: 571 Advertising Design

Photography Program of Study

494350 Fundamentals of Photography
Credit: 1 Grade Levels: 9-12
This core instructional program prepares individuals to effectively communicate ideas and information to business and consumer audiences and record events and people via film, still or video photography.
Does course count in required 38 units and, if yes, how: Yes Career & Technical
Does course count in the 22 units required for graduation: Yes
Licensure required to teach this course: 602 Photography

494370 Intermediate Photography
Credit: 1 Grade Levels: 10-12
This core production based instructional program allows the photography student to implement artistic techniques to effectively communicate ideas and information to business and consumer audiences and record events and people via film, still or video photography.
Does course count in required 38 units and, if yes, how: Yes Career & Technical
Does course count in the 22 units required for graduation: Yes
Licensure required to teach this course: 602 Photography

494380 Advanced Photography
Credit: 1 Grade Levels: 11-12
This independent production based program is designed to provide the advanced photography student with knowledge and highly advanced skills for a comprehensive career in photography.
Does course count in required 38 units and, if yes, how: Yes Career & Technical
Does course count in the 22 units required for graduation: Yes
Licensure required to teach this course: 602 Photography

494390 ACE-Approved Photojournalism
Credit: 1 Grade Levels: 10-12
The course will focus on teaching basic skills and knowledge needed by photojournalists in either a Photography or Career Communications Program of Study.
Does course count in required 38 units and, if yes, how: Yes Career & Technical
Does course count in the 22 units required for graduation: Yes
Licensure required to teach this course: 602 Photography

494360 Photography Lab
Credit: 1 Grade Levels: 10-12
This production-based program will allow the serious photography student time for the development of skills and knowledge needed to produce comprehensive photography products.
Does course count in required 38 units and, if yes, how: Yes Career & Technical
Does course count in the 22 units required for graduation: Yes
Licensure required to teach this course: 602 Photography

Arts, Audio/Video Technology and Communications Elective Course

493870 ACE-Approved Arts, Audio/Video Technology and Communications Elective Course
Credit: 1 Grade Levels: 9-12
This course is a related elective for Radio, TV, Film, Photography, Advertising & Graphic Design, Theatre and Graphic Communication Programs of Study in the AAVTC career cluster.
ACE approval must be obtained before implementation.
Does course count in required 38 units and, if yes, how: Yes Career & Technical
Does course count in the 22 units required for graduation: Yes
Licensure required to teach this course:
571 Advertising & Graphic Design
582 Graphic Communications
591 Radio Broadcasting
595 Television Production
602 Photography
618 Communications

Middle School Arts A/V Courses

399210 ACE-Approved Performing Arts Awareness
Credit: Grade Levels: 6-8
This course is designed to teach students basic skills and provide them with information about requirements for successful employment in one or more of the performing arts career areas. Students will be taught the basic academic and performance skills related to the topics of dance, music, theater/playwriting, or technical design and production. Students will be expected to demonstrate an understanding of basic skills and communicate orally their knowledge of careers in the specified area of performing arts. Based on the individual school request and submission of ACE approvable frameworks, course approval will be given for instruction in one or more of the following topics: dance, music, theatre and playwriting, or technical design and production.
Does course count in required 38 units and, if yes, how: No
Does course count in the 22 units required for graduation: No
Licensure required to teach this course:
055 Speech
113 Drama
115 Drama Endorsement
208 Speech/Drama
4060 Approved Drama
613 Performing Arts Permit

399220 ACE-Approved Performing Arts Exploration
Credit: Grade Levels: 6-8
This course is designed to teach students basic skills and provide them with experiences that increase their knowledge about careers in the performing arts. Students will be taught the basic academic and performance skills related to the topics of dance, music, theater/playwriting, or technical design and production. Students will be expected to demonstrate an understanding of basic skills and communicate their knowledge of careers in the specified area of performing arts. Based on the individual school request and submission of ACE approvable frameworks, course approval will be given for instruction in one or more of the following topics: dance, music, theatre and playwriting, or technical design and production.
Does course count in required 38 units and, if yes, how: No
Does course count in the 22 units required for graduation: No
Licensure required to teach this course: 055 Speech
113 Drama
115 Drama Endorsement
208 Speech/Drama
4060 Approved Drama
613 Performing Arts Permit

399270 ACE-Approved Arts, Audio/Video Technology & Communications Exploration Course
Credit: Grade levels: 6-8
This one-semester class can include any course that will serve as a foundation for a program of study in the Arts A/V Technology and Communications Career Cluster.
ACE approval must be obtained before implementation.
Does course count in required 38 units and, if yes, how: No
Does course count in the 22 units required for graduation: No
Licensure required to teach this course: Any 4-8 or 7-12 license

CTE Support and Work-Based Learning Courses

Career Guidance Electives

493850 ACE-Approved Keystone (9-10)
Credit: .5 Grade Levels: 9-10
This program is designed to help first-year high school students (9th-10th grade) make smooth transitions to high school. The program is customized by faculty members to meet the needs of individual project sites. The purpose of the program is to decrease the number of disciplinary referrals, lower drop-out rates, raise test scores, increase student involvement in school activities, and promote sound career development planning. Although keystone programs originated as orientation programs for schools implementing academies, they may be adapted for use in the regular school environment.
Does course count in required 38 units and, if yes, how: Yes Career & Technical
Does course count in the 22 units required for graduation: Yes
Licensure required to teach this course: 410 Career Academy Endorsement

493860 Internship
Credit: 1 Grade Levels: 11-12
This is a practical and supervised job experience designed to assist students to successfully transition from school-to-work or successfully continue their education in a chosen program of study or career focus area. Internships are individualized and competency-based. It focuses on the SCANS competencies with emphasis on problem solving, teamwork, communication skills, applied math, literacy, and technology. It counts as one unit of credit toward completer status in any of the career and technical programs of study. Interns may receive 1 unit of credit for completing a minimum of 180 hours of internship and 18 hours of coordinator contact. Interns shall be limited to 4 credits for completing at least 720 hours of internship credit and 72 hours of coordinator contact within a consecutive two-year period.
Does course count in required 38 units and, if yes, how: Yes Career & Technical
Does course count in the 22 units required for graduation: Yes
Licensure required to teach this course: 412 Career Preparation

493880 Workplace Readiness
Credit: .5 Grade Levels: 11-12
This one semester course is an instruction-based course designed to help students transition from school to work or the next level of education and training. It focuses on the SCANS competencies with emphasis on problem solving, teamwork, communication skills, interpersonal skills, employability skills, self-management, applied math, literacy, locating information and career readiness. It counts as one-half unit of credit and can be used as an elective toward completer status in any of the career and technical programs of study. Students may earn the Arkansas Career Readiness Certificate upon completion by taking the ACT WorkKeys assessments in Reading for Information, Applied Math, and Locating Information.
Does course count in required 38 units and, if yes, how: Yes Career & Technical
Does course count in the 22 units required for graduation: Yes
Licensure required to teach this course: 412 Career Preparation

493900 Career Readiness
Credit: 1 Grade Levels: 11-12
This two-semester course is an alternative for Workplace Readiness. Applied Technology is taught in addition to the knowledge and skills competencies taught in Work place Readiness. It counts as one credit and can be used as an elective toward completer status in any of the career and technical programs of study. The on-line computer- based KeyTrain curriculum is required to help students prepare for the ACT WorkKeys assessments to earn the Arkansas Career Readiness Certificate.
Does course count in required 38 units and, if yes, how: Yes Career & Technical
Does course count in the 22 units required for graduation: Yes
Licensure required to teach this course: 412 Career Preparation

460010, 560020, 560030, 560040 EAST/Workforce Technology
Credit: 1 Grade Levels: 11-12
This one year EAST experience is designed to help students transition from school to work. It focuses on the SCANS competencies with emphasis on problem solving, teamwork, communications skills, interpersonal skills, employability skills, self-management, applied math, and literacy with the use of technology. Workforce Technology counts as one unit of credit toward completer status in any of the career and technical programs of study.
Does course count in required 38 units and, if yes, how: Yes ADE/Career & Technical
Does course count in the 22 units required for graduation: Yes
Licensure required to teach this course: 412 Career Preparation

493890 ACE-Approved Career Cluster Senior Seminar
Credit: .5 Grade Levels: 12th
This class will enhance existing programs of study by offering students opportunities for program of study technical research, academic integration, business and industry interaction, oral presentation, and demonstration of learned skills. This class should allow students to synthesize learned information through the use of career scenarios. It focuses on the SCANS competencies with emphasis on problem solving, teamwork, communication skills, applied math, literacy, and technology. This class may be offered for one or two semesters with .5 credit per semester.
Does course count in required 38 units and, if yes, how: Yes Career & Technical
Does course count in the 22 units required for graduation: Yes
Licensure required to teach this course: 412 Career Preparation

CAREER CLUSTER: ARTS, A/V TECHNOLOGY, AND COMMUNICATIONS

Designing, producing, exhibiting, performing, writing, and publishing multimedia content, including visual and performing arts and design, journalism, and entertainment services

Students shall complete a minimum of three Carnegie units within one of the AAVTC career focus areas in order to receive completer status. However, certain electives may count toward the three required to achieve completer status. These common electives are Workforce Technology (1), Workplace Readiness (.5), ACE-Approved Career Cluster Senior Seminar (.5), or JAG (1).

Note: In some cases, a common elective may be completed several times, but it shall only be counted once for a maximum of one unit of credit toward completer status. In addition, only one of the common electives may be counted toward completer status. A combination of the common electives does not assist in achieving completer status above the designated one unit of credit.

Pathways within the Cluster

Specific pathways within the cluster are designed for high school students who have demonstrated a career interest in one of the areas. Each pathway focuses on preparing students for employment and continuing education in a particular field. The sequence of courses focuses on instruction particular to the duties and tasks performed by professionals in an area of audio-visual technology and film, printing technology, visual arts, performing arts, or journalism and broadcasting.

Business Industry Partnerships

Districts shall form partnerships with business/industry professionals representing the pathways offered within this cluster. Semi-annual meetings are required for the purpose of guiding and advising the teacher and administration on issues involving course content and resources for program improvement.

Student Organizations

Districts shall offer students access to leadership training through the SkillsUSA student organization.

Pathways and Programs of Study by Career Cluster

Audio/Video Technology & Film Pathway

A/V Tech & Film Program of Study

Course Code	Courses	Units of Credit	7th	8th	9th	10th	11th	12th
493640	Fundamentals of Audio/Video Tech & Film*	1			X	X	X	X
493650	Intermediate Audio/Video Tech & Film*	1				X	X	X
493660	Advanced Audio/Video Tech & Film	1					X	X
493670	Audio/Video Tech & Film Lab	1				X	X	X

Visual Arts Pathway

Advertising and Graphic Design Program of Study

Course Code	Courses	Units of Credit	7th	8th	9th	10th	11th	12th
494150	Fundamentals of Advertising and Graphic Design *	1			X	X	X	X
494170	Intermediate Advertising and Graphic Design *	1				X	X	X
494130	Advanced Advertising and Graphic Design	1					X	X
494160	Advertising and Graphic Design Lab	1				X	X	X

Photography Program of Study

Course Code	Courses	Units of Credit	7th	8th	9th	10th	11th	12th
494350	Fundamentals of Photography *	1			X	X	X	X
494370	Intermediate Photography *	1				X	X	X
494380	Advanced Photography	1					X	X
494360	Photography Lab	1				X	X	X
494390	ACE- Approved Photojournalism	1				X	X	X

Printing Technology Pathway

Graphic Communication Program of Study

Course Code	Courses (2009-2010)	Units of Credit	7th	8th	9th	10th	11th	12th
493600	Fundamentals of Graphic Communications *	1			X	X	X	X
493610	Intermediate Graphic Communications *	1				X	X	X
493630	Advanced Graphic Communications	1					X	X
493620	Graphic Communications Lab	1				X	X	X

*** Core Course within Program of Study**

Journalism & Broadcasting Pathway

Radio Broadcasting Program of Study

Course Code	Courses	Units of Credit	7th	8th	9th	10th	11th	12th
Seek ACE prior approval before implementation.								
493380	Fundamentals of Radio *	1			X	X	X	X
493390	Intermediate Radio *	1				X	X	X
493400	Advanced Radio	1					X	X
493410	Radio Lab	1				X	X	X

*** A Core Course in Television may serve as an elective in Radio**

Television Production Program of Study

Course Code	Courses	Units of Credit	7th	8th	9th	10th	11th	12th
Seek ACE prior approval before implementation.								
493420	Fundamentals of TV *	1			X	X	X	X
493430	Intermediate TV *	1				X	X	X
493440	Advanced TV	1					X	X
493450	TV Lab	1				X	X	X

*** A Core Course in Radio may serve as an elective in Television**

Journalism Program of Study

Course Code	Courses	Units of Credit	7th	8th	9th	10th	11th	12th
Seek ACE prior approval before implementation.								
493680	Fundamentals of Journalism *	1			X	X	X	X
493690	Intermediate Journalism *	1				X	X	X
493700	Advanced Journalism	1					X	X
493710	Journalism Lab	1				X	X	X

*** Core Course within Program of Study**

Performing Arts Pathway

Course Code	ACE Middle School Electives	Units of Credit	6th	7th	8th			
Seek ACE prior approval before implementation.								
399210	Performing Arts Awareness	.5	X	X	X			
399220	Performing Arts Exploration	.5	X	X	X			
399270	ACE-Approved Arts A/V Exploration	.5	X	X	X			

Dance Program of Study

Course Code	Special Courses	Units of Credit	7th	8th	9th	10th	11th	12th
Seek ACE prior approval before implementation.								
559210	Dance Technique I *	1			X	X	X	X
493500	Dance Technique II *	1			X	X	X	X
493510	Dance Technique III *	1			X	X	X	X
493520	Dance Technique IV	1			X	X	X	X
590120	Performing Arts Lab	1			X	X	X	X

Theatre Performance Program of Study

Course Code	Special Courses	Units of Credit	7th	8th	9th	10th	11th	12th
Seek ACE prior approval before implementation.								
559200	Introduction to Theatre *	1			X	X	X	X
493540	Theatre Performance I *	1				X	X	X
493550	Theatre Performance II *	1					X	X
493590	Advanced Theatre Seminar	1					X	X

Theatre Technical Design Program of Study

Course Code	Special Courses	Units of Credit	7th	8th	9th	10th	11th	12th
Seek ACE prior approval before implementation.								
559200	Introduction to Theatre *	1			X	X	X	X
493570	Theatre Technical Design I *	1				X	X	X
493580	Theatre Technical Design II *	1					X	X
493590	Advanced Theatre Seminar	1					X	X

*** Core Course within Program of Study**

CAREER COMMUNICATIONS

Course Description

The career communications program is designed for students in grades 9-12 who have identified an interest in a career pathways classified within the AAVTC career cluster. The program of study is beneficial to students who expect to begin their careers immediately upon high school graduation as well as those who need to complete postsecondary training prior to starting a career.

The career communications program of study is flexible and can easily be designed to provide instruction in one or more of the AAVTC pathways. The program of study uniquely integrates existing academic and career and technical coursework to provide students with practical curriculum and specialized study that reflects their career interests.

School districts may submit requests to offer a program of study in career communications that has more than one pathway for completers. To receive ACE approval for career communications, a district must submit a detailed grant request using the standardized ACE application form.

The application must describe how requirements will be met and provide information regarding the credentials of the staff who will be teaching the course work. Minimum equipment and end-of-course testing requirements must be met. The program will be monitored on a regular basis.

Foundation Courses

- Career Orientation
- Computer Technology or approved alternate
- Keyboarding

Core Courses (for all Career Communications pathways):

- ACE-Approved Introduction to Career Communications (493720)
- ACE-Approved Career Communications I (493730) or ADE-approved course
- ACE-Approved Career Communications II (493740) or ADE-approved course

Career Communications Pathways

Audio-Video Technology & Film	Printing Technology	Visual Arts	Performing Arts	Journalism & Broadcasting
Credit: 2 units – Approved courses that fulfill the KSAs for this pathway	Credit: 2 units – Approved courses that fulfill the KSAs for this pathway	Credit: 2 units – Approved courses that fulfill the KSAs for this pathway	Credit: 2 units – Approved courses that fulfill the KSAs for this pathway (Pathway topics include dance, music, theatre & playwriting, or technical design & production)	Credit: 2 units – Approved courses that fulfill the KSAs for this pathway

Instructional Course Work

Course Type

1. Introduction to Career Communications (493720) is one semester in length.
   The course offers study in the broad aspects of careers within the AAVTC Career Cluster.
2. ACE-Approved Career Communications I is a yearlong course.
   The course focuses on basic knowledge and skills in a specific career pathway within the AAVTC Career Cluster.
3. ACE-Approved Career Communications II is a yearlong course.
   The course focuses on building upon the knowledge and skills taught in Career Communications I
4. ACE-Approved Career Communications Lab is a yearlong course.
   The course allows advanced students to develop their knowledge and skills in the Career Communications program of study.
5. Career Cluster Senior Seminar or Internship (optional)
   Credit: Between .5 unit and 4 units (.5 to 1 unit to complete a program of study)
   Grade level: 11-12
6. This is a practical and supervised job experience designed to assist students with successful transition from school to work or to further education in a chosen career program of study or career focus. Senior Seminar (Capstone) or Internship experiences are individualized and competency-based. (For more detailed information, please refer to sections describing career cluster senior seminars [capstone] and internship.)

Curriculum/Content Framework

Instruction in the introduction and internship or Career Cluster Senior Seminar/Capstone courses follow specific pre-approved frameworks. Frameworks for ACE Career Communications I and ACE Career Communications II can be tailored to meet the needs of the local school but must be submitted and approved by ACE prior to implementation of the program.

Student Organization

Although a specific student organization does not exist for career communications students, it is expected that they will participate in the student organization that best represents their area of study. In most cases, SkillsUSA can accommodate the students. The career communications program provides leadership instruction and training and may assist students in preparing for competitions and activities associated with their participation in a student organization.

CAREER GUIDANCE, EXPLORATION, AND PREPARATION

MINIMUM INSTRUCTIONAL EQUIPMENT AND SOFTWARE

Cluster: Arts, A/V Technology, and Communications
Pathway: Journalism and Broadcasting
Program of Study: Journalism

Item Name	Count 15 Students	Count 20 Students	Count 25 Students	Description/ Specification
Presentation Equipment	1	1	1	LCD Projector (Mounting Recommended) Teacher Laptop (See ACE Technology Standards) Computerized Presentation Board
Computer scanner	1	1	1	
Student Computer System	15	20	25	See ACE Technology Standards Level 1
Student work stations	15	20	25	48" wide x 30" deep, desk height
Digital camera	3	4	5	6 mega pixel or higher
Copier	1	1	1	Black & duplexing
Computer printer	1	1	1	Photo quality, 1280 x 1064 resolution
Color laser printer	1	1	1	
Paper folding machine	1	1	1	
Electric stapler	1	1	1	
Paper cutter	1	1	1	

Cluster: Arts, A/V Technology, and Communications
Pathway: Audio/Video Technology and Film
Program Of Study: A/V Tech and Film

Item Name	Count 15 Students	Count 20 Students	Count 25 Students	Description/ Specification
Presentation Equipment	1	1	1	LCD Projector (Mounting Recommended) Teacher Laptop (See ACE Technology Standards) Computerized Presentation Board
Student Computer System	5	7	10	See ACE Technical Standards
Computer Printer	1	1	1	Photo quality, 1280 x 1064 resol
Computer Scanner	1	1	1	See ACE Technical Standards
Digital Camera	2	2	3	5 mp, w/manual features

Item Name	Count 15 Students	Count 20 Students	Count 25 Students	Description/ Specification
3-CCD Video Cameras	2	2	3	Broadcast Quality
Consumer Camcorders	3	4	5	Manual features
DVD Recorder/Player	2	2	3	
Audio Cassette Player/Recorder	2	2	2	Stereo, dual cassette, headphone jack
Audio Mixer	2	2	2	Minimum: 4 XLR inputs, 4 quarter inch inputs
Video Mixer	1	1	1	A/V Mixer, non-linear, 4 S-Video or composite inputs
Video Monitor	2	2	2	
Headphones	6	8	10	Stereo
Video Camera Tripod	4	5	7	For studio/field use with video ca fluid head, w/dolly
Microphone	4	5	6	Lavaliere, miniature, clip-on, 6' c
Microphone	2	3	4	Omni-directional, dynamic, handheld
Microphone, Wireless	2	3	4	Lavaliere, VHF, microphone, wireless transmitter and receiver
Light Kit	1	1	1	3 spot lights (300 watts), 3 light p carry case
Non-Linear Editing System	2	3	4	Self-contained, with monitor, DVD recorder, & A/V Editing Software
A/V Work Stations	2	3	4	60" x 30", desk height

Cluster: Arts, A/V Technology, and Communications
Pathway: Performing Arts
Program of Study: Dance

Item Name	Count 15 Students	Count 20 Students	Count 25 Students	Description/ Specification
Presentation Equipment	1	1	1	LCD Projector (Mounting Recommended) Teacher Laptop (See ACE Technology Standards) Computerized Presentation Board
CD/CS Deck	1	1	1	
Digital Camera	1	1	1	
Camcorder	1	1	1	
Audio mixer/amp	1	1	1	
RC-41 Remote	1	1	1	
Loudspeakers	1	1	1	
Wireless microphone	1	1	1	
Computer scanner	1	1	1	

Item Name	Count 15 Students	Count 20 Students	Count 25 Students	Description/ Specification
Room Requirements				**Equipment Requirements**
Floor space must be minimum 28' x 36' per 25 students. Ceiling height must be 12' minimum. Wood or Marley must be suspended (sprung or floating).				Ballet barre must be free standing, 10 ft double (1 per 6 students) OR secured to the wall opposite mirrors. Wall mirror must be 8 ft high by the length of the room.

Cluster: Arts, A/V Technology, and Communications
Pathway: Performing Arts
Program of Study: Theatre

Item Name	Count 15 Students	Count 20 Students	Count 25 Students	Description/ Specification
Presentation Equipment	1	1	1	LCD Projector (Mounting Recommended) Teacher Laptop (See ACE Technology Standards) Computerized Presentation Board
Video Monitor/DVD	1	1	1	
Digital video camera	1	1	1	Flip USB Port
Student Computers	1	3	5	Refer to current tech and professional education technology standards
8 or 16 Channel Audio Mixer	1	1	1	Minimum: 4XLR inputs, 4 quarter inch inputs, 2 audio outputs
Wireless Microphones	3	6	6	Stage mics Appropriate length
Mic Stands	3	6	6	
Follow Spot	1	1	1	With stand
Audio CD Player/Recorder	1	1	1	
Head Phones	3	3	3	Stereo – For audio equipment
Portable Dimmer	1	1	1	
Intercom Headsets	4	4	4	
DVD/CD Duplicator	1	1	1	Career Development
Commercial Sewing Machine	1	1	1	Portable with protective case
Iron, Ironing Board or Steamer	1	1	1	

Item Name	Count 15 Students	Count 20 Students	Count 25 Students	Description/ Specification
Recommended Equipment for Theatre				
Serger	1	1	1	Differential feed, free arm, 3-5 thread
Washer	1	1	1	Multi Cycles & Installation
Dryer	1	1	1	Multi Cycles & Installation

Cluster: Arts, A/V Technology, and Communications
Pathway: Visual Arts
Program of Study: Advertising and Graphic Design

Item Name	Count 15 Students	Count 20 Students	Count 25 Students	Specification/ Description
Presentation Equipment	1	1	1	LCD Projector (Mounting Recommended) Teacher Laptop (See ACE Technology Standards) Computerized Presentation Board
Student Computer System	15	20	25	See ACE Technology Standards Level 1
Computer printer	1	1	1	
Computer scanner	1	1	1	
Computer workstation	15	20	25	
Large format scanner	1	1	1	
Large format printer	1	1	1	
Digital Camera	1	1	1	
Digital Video Camera	1	1	1	
Rotary trimmer	1	1	1	30" x 14"
Software: Creative, Animation, Word, Multi-Media, Web-design, etc.	15	20	25	Industry standard specifically related to commercial art program area
Tables, drawing	2	3	4	24” x 36” drawing surface
Digital Drawing Tablet	15	20	25	

Cluster: Arts, A/V Technology, and Communications
Pathway: Visual Arts
Program of Study: Photography

Item Name	Count 15 Students	Count 20 Students	Count 25 Students	Description/ Specification
Presentation Equipment	1	1	1	LCD Projector (Mounting Recommended) Teacher Laptop (See ACE Technology Standards) Computerized Presentation Board
Student Computer System	7	10	12	Refer to current Education Technology Standards
Computer Printer	1	2	2	Photo quality, 1280 x 1064 resolution
Work Tables	2	2	2	

Item Name	Count 15 Students	Count 20 Students	Count 25 Students	Description/ Specification
Digital Imaging Software	7	10	12	
SLR Digital Cameras	7	10	12	With accessories
Matte Cutter	1	2	3	
Camera Bags	7	10	12	
Strobe Flash System	1	1	1	3-Strobe w/umbrellas
Wide Angle Zoom Lenses	7	10	12	
Tripods	2	3	4	
Backdrop	1	1	1	W/Stands

Cluster: Arts, A/V Technology, and Communications
Pathway: Printing Technology
Program of Study: Graphic Communications

Item Name	Count 15 Students	Count 20 Students	Count 25 Students	Description/ Specification
Presentation Equipment	1	1	1	LCD Projector (Mounting Recommended) Teacher Laptop (See ACE Technology Standards) Computerized Presentation Board
Binding Machine	1	1	1	Plastic comb binder
Compressor, Air	1	1	1	2 HP
Computer	4	6	8	See Technical and Professional Education Technology Standards
Computer Printer, Laser	1	1	1	See Technical and Professional Education Technology Standards
Computer Printer, Color	1	1	1	See Technical and Professional Education Technology Standards
Computer Scanner	1	1	1	See Technical and Professional Education Technology Standards
Copier	1	1	1	See Technical and Professional Education Technology Standards
Cutter, Paper	1	1	1	24" hydraulic, to meet OSHA safety requirements
Drill, Punch	1	1	1	W/round cornering attachment
Folder, Paper	1	1	1	Electronic feed control, table top model, 4x6 to 12x24 capacity, automatic feed
Jogger, Paper	1	1	1	17" X 2"
Plate Maker	1	1	1	Flip-top, 17" X 22"
Press, Offset	2	3	4	11" X 17", two color, chain delivery, independent control water and ink, variable speed, register bar, double sheet detector, vacuum feed
Press, Padding	1	2	3	
Software, Publishing	4	4	4	
Stairs, Safety	1	1	1	40"H X 24"W, hand rails
Stapler, Floor Model	1	1	1	Single head 1/2" minimum capability side or saddle w/round or flatware

Item Name	Count 15 Students	Count 20 Students	Count 25 Students	Description/ Specification
Stapler, Heavy Duty	1	1	1	25 sheets capacity
Stitcher,	1	1	1	Automatic, double head
Table, Light	4	6	8	36" X 26"
Table, Work	4	5	6	Plastic laminated top, 3' X 6'
Wrapping Machine, Shrink	1	1	1	
Recommended Equipment				
Tool Set, Basic	1	2	3	To include combination wrench set, screw driver set (standard and phillips) socket set (1/4-3/8-1/2), assorted
Truck, Hand	1	1	1	
Vacuum, Shop	1	2	2	Wet or Dry

Cluster: Arts, A/V Technology, And Communications
Pathway: Journalism & Broadcasting
Program Of Study: Radio Broadcasting

Item Name	Count 15 Students	Count 20 Students	Count 25 Students	Description/ Specification
Presentation Equipment	1	1	1	LCD Projector (Mounting Recommended) Teacher Laptop (See ACE Technology Standards) Computerized Presentation Board
Student Computer System	5	7	10	Refer to current Technical and Professional Education Technology Standards
Digital Camera	1	1	1	5 mega pixel
Video Camera	1	1	1	Digital
Computer Printer	1	1	1	Photo quality, 1280 x 1064 resolution
Computer Scanner	1	1	1	Refer to current Technical and Professional Education Technology Standards
Audio Mixer	3	4	5	Minimum: 4 XLR inputs, 4 quarter inch inputs, 2 quarter inch audio outputs
Headphones	10	12	14	Stereo
Audio Recorder	3	4	5	Digital-USB
CD Player	1	2	3	Digital
Microphone	6	6	6	Studio On-air broadcast quality with studio mounts
Microphone, Wireless	2	2	2	Handheld, VHF microphone, wireless transmitter and receiver
Audio Editing System	5	7	9	Digital with industry standard software
Audio editing system	2	2	2	Laptop units for field use
Cell phone interface	1	1	1	Industry standard
Speakers	2	2	2	Audio monitors
MP3 player/recorder	2	3	4	Digital
Audio monitors	6	8	10	Broadcast Quality

Item Name	Count 15 Students	Count 20 Students	Count 25 Students	Description/ Specification
Public Address System	1	1	1	Portable, Mixer with 2 Speakers
Podcasting Station	2	3	4	Digital
USB Microphone	2	2	2	Laptop use

Cluster: Arts, A/V Technology, and Communications
Pathway: Journalism & Broadcasting
Program of Study: Television Production

Item Name	Count 15 Students	Count 20 Students	Count 25 Students	Description/ Specification
Presentation Equipment	1	1	1	LCD Projector (Mounting Recommended) Teacher Laptop (See ACE Technology Standards) Computerized Presentation Board
Student Computer System	5	7	10	Refer to current Technical and Professional Education Technology Standards
Digital Camera	1	1	1	5 mega pixel
Video Camera	1	1	1	Digital
Computer Printer	1	1	1	Photo quality, 1280 x 1064 resolution
Computer Scanner	1	1	1	Refer to current Technical and Professional Education Technology Standards
Audio Mixer	1	1	1	Minimum: 4 XLR inputs, 4 quarter inch inputs, 2 audio outputs
Character Generator	1	1	1	Capable of outline effect, superimpose over video, scroll titles, zoom titles
Headphones	6	8	10	Stereo
Video Recorder VTR	1	1	1	Digital with monitor
Video Mixer	1	1	1	A/V Mixer, 4 video inputs, 2 source synchronization
Video Monitor	5	5	5	
Communication System	1	1	1	4 person intercom system
Studio Video Camera	3	3	3	3-CCD Video Camera Broadcast quality
Field Video Camcorder	3	4	5	Consumer Camera with full manual features
Video Camera Tripod	3	3	3	Full studio size with full size studio video camcorders, fluid head, deluxe dolly
Video Camera Tripod	3	4	5	Field use video camcorders, fluid head
DVD Player/Recorder	1	2	2	Digital
Microphone	4	5	6	Lavaliere, miniature, clip-on, 6' cable
Microphone	4	5	6	Omni-directional, dynamic, handheld
Microphone, Wireless	2	3	4	Lavaliere, VHF, microphone, wireless transmitter and receiver
Light Kit, Field	2	2	2	3 spot lights (300 watts), 3 light poles (8'), carry case

Item Name	Count 15 Students	Count 20 Students	Count 25 Students	Description/ Specification
Non-linear Editing System	3	4	5	Digital monitor, DVD burner and software
Non-linear editing system	2	2	2	Laptop units for field use, with software
Teleprompter System	1	1	1	Industry standard
Speakers	2	2	2	Audio monitors

CAREER GUIDANCE

Why do career planning in your schools?

The Arkansas Department of Education Rules and Regulations Governing Public School Student Services states:

8.0 Documentation of Services

8.01 Each building based school site in all school districts shall submit annual reports indicating services provided through the Student Services Plan to the Department of Education.

8.03 Each school counselor serving students in buildings housing students in grades 8-12 shall provide a career planning process for each student. During the five-year process documentation of the information provided must be maintained as to whether the information was discussed with the student in individual or group settings. Each counselor is to develop a form to document these activities which can be used district-wide. A copy of the form and a statement of how services were provided must be submitted to the Department of Education as part of the annual report required in 8.01.

CAREER ORIENTATION

Course Description

Career Orientation is a one- or two-semester course. It may be offered in the seventh or eighth grade (eighth grade recommended) for a minimum of one semester (60 seat hours) two consecutive nine-week periods in either the first or second semester) and a maximum of two semesters. Refer to Standards.

CT Intro Based Career Orientation can be taken to satisfy the requirements for Career Orientation and Computer Tech Intro. This course must be offered in a business computer lab. to meet the requirements for introducing students to hardware and application software of a computer. All applications will be toward career planning, preparation, exploration and development. Students will be knowledgeable about the world of work, career options, and the personal skills, aptitudes, and expectations to complete the education and training requirements to enter into a future career. Instructors must have the business education licensure and the Career Orientation endorsement.

Course Type and Content

Career Orientation is an activity-based career exploration course designed to broaden students' knowledge about careers. The course will consist of instruction in the following areas: (1) self-awareness, (2) career awareness, including the 16 U.S.O.E. career clusters, (3) career planning, education and training, and (4) introduction to employability skills. Students shall receive occupational information from a balance of sources, such as audio-visual aids, computer software, resource speakers, field trips, job shadows, lectures, and applied activities. At the completion of the course, the student shall develop a tentative 6 year- plus education and training career plan.

Course Credit

One-half unit credit for a semester course and one unit credit for a two-semester course should be given Career Orientation students.

Student Organization

A career and technical student organization for Career Orientation is optional. It is recommended that Career Orientation supports existing FCCLA and/or FBLA student organization chapters.

Course Offered

Course Code	Middle School Elective	Units of Credit	7th	8th	9th	10th	11th	12th
399100	Career Orientation		X	X				
399280	CT Intro-Based Career Orientation		X	X				

CAREER GUIDANCE, EXPLORATION, AND PREPARATION

MINIMUM INSTRUCTIONAL EQUIPMENT AND SOFTWARE

Career Orientation

Item Name	Count	Specification/ Description
Presentation Equipment	1	LCD Projector (Mounting recommended) Teacher Laptop (See ACE Technology Standards) Computerized Presentation Board
Digital Video Camera	1	
Student Computer System	1 per 5 students	See ACE Technology Standards (Access to computer lab preferred)
Ink-jet printer	1	Networked
Calculators	1 per student	

Based on 15 students in class

INTERNSHIP

Course Description

The internship course is designed to assist students in their specific career focus areas and to help them successfully transition from school to career. Students who expect to begin their careers immediately upon high school graduation as well as those who need to complete post-secondary training prior to starting a career can benefit from the course. The structure includes a strong business partnership that links the course and its participants to current resources, information, and guidance from industry professionals. It provides intense, competency-based classroom and work-site instruction specifically tailored to meet the needs of individual students. It also fosters articulation of programs between high schools and post-secondary education, credit-granting institutions, and apprenticeship programs. A post-graduation monitoring system is incorporated that identifies and addresses graduates' ongoing needs as they advance toward their identified career goals.

Course Type

Internship is a course designed to serve 11th- and 12th-grade students who are in good academic standing and have completed at least two units in a chosen career focus area. The entire course, which includes both classroom and work-site instruction, helps students successfully transition from school to work.

Interns receive guided classroom and guided work-site instruction that is competency-based and

incorporates academics and applied learning activities. Each classroom and work-site competency an intern successfully completes is documented and placed in a portfolio. The intern receives the portfolio upon completion of the internship course.

Classroom Instruction

The classroom portion of the internship course focuses on teaching students the basic skills required by all employers. Interns are individually assessed, and weak areas are addressed while strong areas are reinforced. The KeyTrain curriculum is recommended to prepare students for the ACT WorkKeys assessments to help them earn the Arkansas Career Readiness Certificate.

- Basic skills in applied reading, writing, mathematics, listening, observation, speaking, and locating information.
- Interpersonal skills in self-management, creative thinking, critical thinking, decision-making and problem solving.
- Workplace skills in business etiquette, communication, work habits, work effectiveness, leadership, and business writing
- Employability skills in job search and job application

Work-site instruction – Individual work sites must be approved by the internship coordinator. Written agreements shall be established between the school and the work site that outlines appropriate course delivery prior to student placement. Work-site instruction is guided by the employer and directly relates to the student's identified career focus. Compensation is negotiated for each intern and based on fair labor standards. Non-paid internships are allowed but must be approved by program management staff.

Length of Course

1. Students shall complete between 180 hours and 720 hours of instruction.
2. Maximum length of enrollment in the internship course shall be two consecutive years.
3. Length of course shall be determined by the needs of the individual student. A specific plan shall be established for each intern that outlines the intern's planned experiences and expectations as they directly relate to his/her chosen career focus area.

Eligibility of Students

1. Students must be <u>at least</u> 16 years of age in order to meet labor law requirements.
2. Students shall apply for acceptance to the internship course. Minimum guidelines for acceptance include:

An identified career focus on file;

a. Completed at least two units of an identified career major;
b. Academic standing of at least 2.0 on a 4.0 scale;
c. Acceptable attendance record as determined by the school administration;
d. Written recommendations from a counselor, a teacher in the student's career major area, a teacher outside the student's career major, and two personal references from non-relatives;
e. Membership in a student organization that reflects intern's career goals and enhances his/her ability to excel in a chosen career focus area.

Course Credits

1. Interns should be expected to complete at least 18 hours of coordinator classroom instruction and 180 hours of work-site (work-based learning) study in order to receive one credit.
2. Interns should receive two credits with a minimum of 36 hours of classroom instruction and 360 hours of work based learning in the work site.

3. A maximum of four credits for completing 72 hours of coordinator contact and 720 hours worksite study **within a consecutive two-year period.**

Student Organization

Although a specific student organization does not exist for interns, the internship course is designed to support the guidelines, goals, and objectives of all student organizations. Interns are required to hold membership in the student organization that represents their individual career focus area, if one is available.

Course Code	Course	Units of Credit	7th	8th	9th	10th	11th	12th
493860	Internship	1					X	X

Internship

Item Name	Count	Description/ Specification
Presentation Equipment	1	LCD Projector (Mounting recommended) Teacher Laptop (See ACE Technology Standards) Computerized Presentation Board
Student Computer System	1 per student	See ACE Technology Standards
Digital Video Camera	1	
Printer (Instructor)	1	
Scanner/copier/FAX	1	
Telephone	1	
Printer		Networked

Based on 15 Students in class

KEYSTONE

Course Description

Keystone courses are designed to help ninth or tenth grade students make smooth transitions from middle school or junior high to high school. The course follows a framework that is customized by faculty members to meet the needs of individual project sites.

Although keystone courses originated as an orientation course for schools implementing career academies, they may be adapted for use in regular high school settings.

Keystone has several purposes that include:

- Decreasing the number of disciplinary referrals
- Lowering drop-out rates
- Raising test scores
- Improving career planning and development
- Increasing student involvement in school activities, clubs, and community service
- Increasing student enrollment in higher level academic coursework and/or skills attainment
- Promoting sound career development planning

Minimum required activities are

- An orientation process that introduces students to the school's offerings, faculty, activities, clubs, rules, and regulations
- Career exploration that builds on the students' Career Orientation experience and incorporates:

- Job shadowing or mentoring
- Career/college fair
- Guest speakers
- Supervised field trips to business and industry sites
- Parent/student educational/career development conferences
- Continuation of four- to six-year academic/career planning process

The plan shall be submitted to ACE and address the following topics:

- Establish the mission/goals for the course
- Establish the nonnegotiable components
- Outline the orientation course
- Outline the career exploration component
- Define the workplace skills to be taught
- Design how career planning will be incorporated
- Establish the framework
- Establish the time frame
- Select and/or design appropriate bell-to-bell activities/curriculum for the course
- Identify resources and support
- Establish monthly meeting schedule
- Establish schedule for career exploratory activities
- Establish a division of responsibilities for further curriculum/activity development
- Establish a follow-up method to record student data regarding improvement in areas of concern
- Establish a goal and method of recruiting and training teachers
- Establish a date and method for evaluating course

Curriculum/Content Framework

Each keystone course shall establish a framework as part of the plan submitted to ACE. Classroom instruction shall follow the plan submitted to ACE by the school district.

Length of Course (based on plan submitted to ACE)

Minimum length – one semester (Schools on block schedules can modify the length of time to conform to the school's schedule; modification should be reflected in the plan submitted to ACE.)

Course Credits (based on a standard schedule)

Students shall receive .5 credit for completing a full-semester keystone course.

Course Code	Course	Units of Credit	7th	8th	9th	10th	11th	12th
Seek ACE prior approval before implementation.								
493850	Keystone	.5			X	X		

Keystone

This is a suggested equipment list. The count for equipment should be adapted to meet individual program needs. Any purchase variations must first be approved by the Career Guidance, Exploration, and Preparation Education & Instruction Manager.

Item Name	Count	Description/ Specification
Presentation Equipment	1	LCD Projector (Mounting recommended) Teacher Laptop (See ACE Technology Standards) Computerized Presentation Board
Digital Video Camera	1	
Student Computer System	1 per 5 students	See ACE Technology Standards
Printer	1	
Scanner	1	

Based on 15 students in class

SENIOR SEMINAR

Course Description

Schools may apply to start ACE-Approved Career Cluster Senior Seminar (capstone courses) to support any approved career and technical area of study. Areas that have traditionally been considered academic may also be served with a senior seminar course as long as the program of study is approved by ACE. This may include coursework such as journalism, law, art, drama.

The senior seminar course is designed for seniors who are in the process of completing a program of study in any approved career and technical career area. The content is intended to facilitate the student's transition from school to work or higher education. The purpose is to strengthen skills in the areas of research, academics, SCANS skills, and oral presentation skills as they relate to the students' chosen area of study. It is also designed to enhance their ability to demonstrate learned skills. The course allows students to synthesize learned information through the use of career scenarios.

The course shall include

- Basic skills in applied reading, writing, mathematics, listening, observation, speaking, and locating information.
- Interpersonal skills in self-management, creative thinking, critical thinking, decision-making and problem solving.
- Workplace skills in business etiquette, communication, work habits, work effectiveness, leadership, and business writing
- Employability skills in job and college search and application
- A related career-based and contextual experience that reinforces SCANS skills and provides information to complete a senior project in the student's chosen career area,
- An integrative senior project and the development of a career/educational portfolio, and
- Locally preferred objectives as designed by the school. Locally preferred objectives may not supersede those aforementioned.

Curriculum/Content Framework

A framework shall be approved prior to implementing the course. The framework shall follow ACE format and contain those items outlined in the course description. Locally preferred objectives may be added at the discretion of the district, but they may not replace or supersede those required of all senior seminar courses.

Course Credits

ACE-Approved Career Cluster Senior Seminar may be offered for one or two semesters with .5 unit of credit per semester.

Student Organization

Although a specific student organization does not exist for senior seminar students, students shall participate in the student organization that best represents their area of study. The senior seminar course provides leadership instruction and training and may assist students in preparing for competitions and activities associated with their participation in a student organization.

Course Code	Electives	Units of Credit	7th	8th	9th	10th	11th	12th
Seek ACE prior approval before implementation.								
493890	Career Cluster Senior Seminar	.5						X

Senior Seminar

This is a suggested equipment list. The count for equipment should be adapted to meet individual program needs. Any purchase variations must first be approved by the Career Guidance, Exploration, and Preparation Education & Instruction Manager.

Item Name	Program	Description/ Specification
Presentation Equipment	1	LCD Projector (Mounting recommended) Teacher Laptop (See ACE Technology Standards) Computerized Presentation Board
Digital Video Camera	1	
A/V Cart/Media Storage Center	1	
Student Computer System	1 per 5 students	See ACE Technology Standards
Networked Laser Printer	1	
Recording Mic	1	
Scanner	1	

Based on 15 students in class

WORKPLACE READINESS/CAREER READINESS

Course Description

Workplace Readiness/Career Readiness is a one or two-semester course offered in grades 11-12. It focuses on career development, interpersonal skills, problem solving, teamwork, communications skills, the use of technology, and self-management. Workplace Readiness is a one-semester course and Career Readiness is a two-semester course which will include all of the KeyTrain curriculum. The on-line computer-based KeyTrain is required to prepare students for the ACT WorkKeys assessments for the Arkansas Career Readiness Certificate.

Students must be at least 17 years of age, successfully pass level four or higher in KeyTrain, and have a Social Security number to take the ACT WorkKeys assessments. The curriculum, assessments and Career Readiness Certificate are provided free of charge to the school and to the student.

Course Type

Workplace and Career Readiness is a course that teaches the skills and attributes needed to succeed in the changing workplace through video, computer, printed lessons and self-paced Internet-based applied learning.

Course Content

The course content shall reflect the Workplace Readiness framework approved by ACE.

- Basic skills in applied reading, writing, mathematics, listening, observation, speaking, and locating information.
- Interpersonal skills in self-management, creative thinking, critical thinking, decision-making and problem solving.
- Workplace skills in business etiquette, communication, work habits, work effectiveness, leadership, and business writing
- Employability skills in job search and job application
- Career portfolio development

Eligibility of Student

Students in Workplace/Career Readiness shall be in grades 11-12.

Course Credit

One-half unit credit for a semester course should be given Workplace Readiness students. One unit of credit for a two semester course should be given Career Readiness students.

Course Offered

Course Code	Course	Units of Credit	7th	8th	9th	10th	11th	12th
493880	Workplace Readiness	.5					X	X
493900	Career Readiness	1					X	X

Workplace Readiness/Career Readiness

Item Name	Count	Description/ Specification
Presentation Equipment	1	LCD Projector (Mounting recommended) Teacher Laptop (See ACE Technology Standards) Computerized Presentation Board
Student Computer System	1 per student	See ACE Technology Standards
Digital Video Camera	1	
Printer	1	Networked
Scanner/FAX/Copier	1	

Based on 15 students in class

EAST/WORKFORCE TECHNOLOGY

Course Description

EAST/Workforce Technology is a one-year course designed as an alternative for the traditional Workplace Readiness course. The course creates a link with EAST technology and methodology and focuses on teaching students the transferable technology skills they need to succeed in the changing workplace.

Course Type

1. EAST/Workforce Technology employs a problem-based, service-learning environment that encourages students to use advanced technological applications, problem solving, teamwork, communication, and critical-thinking skills. Real-world advanced application in programming, computer design, and animation are used to reinforce math skills. Oral and written communication skills are reinforced through presentations, projects, and electronic communication. Work ethics and attitudes are strengthened as students take personal ownership of the lab and are responsible for software and equipment inventory, equipment maintenance, networking issues, and system administration.
2. EAST/Workforce Technology can be utilized in any program of study as a related elective option.

Length of Course

EAST/Workforce Technology may be implemented as a one-year course.

Eligibility of Students

Students in **EAST/Workforce Technology shall meet EAST requirements**. Students in EAST/Workforce Technology shall be completing career and technical programs of study. Students shall be in grades 11-12.

Course Content

Course content shall meet EAST requirements and the framework for ACE approved Workforce Technology.

- Basic skills in applied reading, writing, mathematics, listening, observation, speaking, and locating information.
- Interpersonal skills in self-management, creative thinking, critical thinking, decision-making and problem solving.
- Workplace skills in business etiquette, communication, work habits, work effectiveness, leadership, and business writing
- Employability skills in job search and job application
- Career portfolio

Course Credits

It is recommended that the equivalent of one unit of credit be given to EAST/Workforce Technology students.

Facilities and Equipment

Facilities and equipment requirements must meet EAST standards. The Department of Career Education shall only be responsible for funding a designated portion of an EAST facility. The amount of funding shall be based on a predetermined formula. The facilities and equipment requirements must be met within the specified time for course approval.

Student Organization

Students enrolled in EAST/Workforce Technology are encouraged to hold membership in the student organization(s) that relate to their career focus area.

Course Code	Course	Units of Credit	8th	9th	10th	11th	12th
460010 560020 560030 560040	EAST/Workforce Technology	1				X	X

EAST/Workforce Technology

District must supply instructional materials such as textbooks, research materials, and videos.

Any variation or specialized equipment purchased with this funding must first be approved by the Education & Instruction Manager.

Item Name	Count	Description/ Specification
Equipment and software must meet EAST standards		Same as EAST specifications

Operational Guide for
Family and Consumer Sciences Education

Summary of Changes (9/17/13)
Food Safety course added
Course name change: Food Science to Chemistry of Food
Summary of Changes (2/1/12)
Clothing Management II course added
Consumer Services course equipment list note corrected
Dates added to all Equipment List to clarify timeframe of updates
Summary of Changes (12/1/10)
Date for computer submission of Teacher Information Added contact information for Roderic Duckworth, Associate Director Updated room number for Family & Consumer Sciences Office Updated year for course codes Deleted technology standards-to be publicized on Web Updated program approval process to include insufficient testing Updated Career Cluster Pathway – Program of Study Crosswalk Updated Career and Technical Course Codes for the Office of Family and Consumer Sciences Deleted Family & Consumer Apprenticeship/Work-Based-Learning courses Changed Managing Resources to Personal & Family Finance Changed course description for Internship Changed course description for Workplace Readiness Changed course description for EAST/Workforce Technology Explanation added for support course elective options Changed grade levels for Special Populations courses Changed Family & Work Connections to Family & Consumer Science Investigation (Family CSI) Added Exploring Personal Finance (7-8 grade) Added Consumer Services Added Customer Relations Added Entrepreneurial Experience Updated Types of Programs Updated Student Organization Added Consumer Services Pathway Updated special certification and licensure requirements Updated Middle School Elective Courses Updated equipment lists Added equipment list for Consumer Services program of study Updated Program of Study charts
Summary of Changes (7/1/07)
Teacher Licensure code changes for Family and Consumer Sciences and Food Production, Management and Services Updated information on FACS taught at the 8th grade level Technology Standards
Summary of Changes (7/1/05)
Pathways rearranged through clusters
Summary of Changes (4/1/05)
Course Codes:
Incomplete sentences in numerous course code descriptions are completed
460010 EAST/Workforce Technology added
Family and Consumer Sciences:
Leadership and Service Learning Course code 493160 is added to Options in Culinary Arts; Food Production, Management and Services; Lodging Management

CAREER CLUSTER PATHWAY – PROGRAM OF STUDY CROSSWALK	
Pathway	**Program of Study**
Cluster: EDUCATION AND TRAINING	
Teaching & Training	Education & Training
Cluster: HOSPITALITY AND TOURISM	
Restaurant & Food and Beverage Services	Culinary Arts
Restaurant & Food and Beverage Services	Food Production, Management, & Services
Lodging	Lodging Management
Cluster: HUMAN SERVICES	
Consumer Services	Consumer Services
Early Childhood Development & Services	Child Care Guidance, Management, & Services
Personal Care Services	Cosmetology
Family & Community Services	Family & Consumer Sciences Education

CAREER CLUSTER: EDUCATION; HOSPITALITY & TOURISM; HUMAN SERVICES (all pathways)

493280 ACE-Approved Family & Consumer Sciences
Credit: 1 Grade Levels: 9-12
This is an individually approved course in family & consumer sciences education submitted by the district.
Does course count in required 38 units and, if yes, how: Yes Career & Technical
Does course count in the 22 units required for graduation: Yes
Licensure required to teach this course: 090 Family & Consumer Science
091 Vocational Home Economics
215 Family & Consumer Science

590060 ACE-Approved Family & Consumer Sciences
Credit: 1 Grade Levels: 9-12
This is an individually approved course in family & consumer sciences education submitted by the district.
Does course count in required 38 units and, if yes, how: No
Does course count in the 22 units required for graduation: Yes
Licensure required to teach this course: 090 Family & Consumer Science
091 Vocational Home Economics
215 Family & Consumer Science

493020 Child Development
Credit: .5 Grade Levels: 9-12
Child Development focuses on skills needed to guide the physical, intellectual, emotional, and social development of children. Upon completion of this course, the student should be prepared to care for and guide the development of a child through all stages of growth—within a family, as child care professional, or in other experiences with children.
Does course count in required 38 units and, if yes, how: Yes Career & Technical
Does course count in the 22 units required for graduation Yes
Licensure required to teach this course: 090 Family & Consumer Science
091 Vocational Home Economics
215 Family & Consumer Science
610 Childcare

493030 Clothing Management
Credit: .5 Grade Levels: 9-12
Experiences in the Clothing Management course are designed to assist students in developing skills necessary for management of individual and family wardrobes, for decision making as a clothing consumer, and for understanding the role of the clothing and textile industry in the economy.
Does course count in required 38 units and, if yes, how: Yes Career & Technical
Does course count in the 22 units required for graduation: Yes
Licensure required to teach this course: 090 Family & Consumer Science
091 Vocational Home Economics
215 Family & Consumer Science

493060 Clothing Management II
Credit: .5 Grade Levels: 9-12
Experiences in the Clothing Management II course are designed to enhance student's skills, further develop their talents as a consumer, and for a better understanding of the clothing and textile industry role in the economy. Students will have in-depth experiences using advanced sewing techniques such as pattern alterations, exploring specialty seams and construction, use of facings and advanced hand stitching techniques, and the use of advanced technology. Upon completion of the class students should acquire knowledge and skills needed for designing and constructing projects and develop a professional portfolio.
Does course count in required 38 units and, if yes, how: Yes Career & Technical
Does course count in the 22 units required for graduation: Yes
Licensure required to teach this course: 090 Family & Consumer Science
091 Vocational Home Economics
215 Family & Consumer Sciences

493070 Food Safety
Credit: 1 Grade Levels: 10-12
Experiences in the Food Safety course focus on the development of essential food safety practices needed to select, receive, store, prepare, and serve food. Students will learn to create and implement an environment of food safety procedures based on the latest FDA Food Code and local regulations. Upon completion of this course, students should be able to apply sound sanitation practices which will have a positive effect on their health. Skills learned are applicable to the Arkansas Safe Food Handler Certification as well as the National Restaurant Association ServSafe Certification.
Does course count in required 38 units and, if yes, how: No
Does course count in the 22 units required for graduation: Yes
Licensure required to teach this course: 090 Family & Consumer Science
091 Vocational Home Economics
215 Family & Consumer Science
580 Culinary Arts & Chef Preparation
598 Food Production, Management & Services

493330 Entrepreneurial Experience
Credit: 1 Grade Levels: 10-12
The Entrepreneurial Experience is a school-based enterprise where students attain experience researching the market and identifying the need for a product or service. Students will create, produce, and market a product or service as part of the program. This program provides students the opportunity to determine the characteristics of entrepreneurs, and to track the establishment of a successful business from their inception as an entrepreneurial idea. As an enrichment activity, students are encouraged to launch their own entrepreneurial effort outside the school-based enterprise.
Does course count in required 38 units and, if yes, how: No
Does course count in the 22 units required for graduation: Yes
Licensure required to teach this course: 090 Family & Consumer Science
091 Vocational Home Economics
215 Family & Consumer Science

493080 Family & Consumer Sciences
Credit: 1 Grade Levels: 9-12
Family and Consumer Science is designed to provide students with basic information and skills needed to function effectively within the family and within a changing, complex society. Upon completion of this course, the student should have developed basic life skills that promote a positive influence on the quality of life.
Does course count in required 38 units and, if yes, how: Yes Career & Technical
Does course count in the 22 units required for graduation: Yes
Licensure required to teach this course: 090 Family & Consumer Science
091 Vocational Home Economics
215 Family & Consumer Science

493100 Family Dynamics
Credit: 1 Grade Levels: 9-12
Family Dynamics focuses on the role of the family in helping individuals develop to their highest potential, in strengthening the community, and in addressing concerns of a global society.
Does course count in required 38 units and, if yes, how: Yes Career & Technical
Does course count in the 22 units required for graduation: Yes
Licensure required to teach this course: 090 Family & Consumer Science
091 Vocational Home Economics
215 Family & Consumer Science

493110 Food & Nutrition
Credit: .5 Grade Levels: 9-12
This course focuses on the development of skills needed to select, prepare, and serve food that meets nutritional needs of individuals and families. Upon completion of this course, students should be able to apply sound nutritional practices that will have a positive effect on their health.
Does course count in required 38 units and, if yes, how: Yes Career & Technical
Does course count in the 22 units required for graduation: Yes
Licensure required to teach this course: 090 Family & Consumer Science
091 Vocational Home Economics
215 Family & Consumer Science
580 Culinary Arts & Chef Preparation
598 Food Production, Management & Services

493130 Chemistry of Food
Credit: .5 Grade Levels: 10-12
Experiences focus on the scientific method to study the various relationships between food science, nutrition, and food preparation. Laboratory skills developed in measuring, recording, and analyzing data are used to explore these relationships. Experimental methods are employed to analyze food mixtures, food microbiology, food preservations, and complex food systems.
Does course count in required 38 units and, if yes, how: Yes Career & Technical
Does course count in the 22 units required for graduation: Yes
Licensure required to teach this course: 090 Family & Consumer Science
091 Vocational Home Economics
215 Family & Consumer Science

493140 Housing & Interior Design
Credit: .5 Grade Levels: 9-12
Housing and Interior Design focuses on personal and family housing needs, options for meeting those needs, and the role of the housing industry in the economy. Upon completion of the course, a student should be prepared to make wise decisions in obtaining and maintaining personal and family shelter.
Does course count in required 38 units and, if yes, how: Yes Career & Technical
Does course count in the 22 units required for graduation: Yes
Licensure required to teach this course: 090 Family & Consumer Science
091 Vocational Home Economics
215 Family & Consumer Science

493150 Human Relations
Credit: .5 Grade Levels: 9-12
Human Relations focuses on the development of skills needed in order to build and maintain successful relationships in the home, community, and workplace. Upon completion of this course, the student should have a better understanding of self, know how to communicate effectively, and be able to establish and maintain effective relationships with family members, peers, and others.
Does course count in required 38 units and, if yes, how: Yes Career & Technical
Does course count in the 22 units required for graduation: Yes
Licensure required to teach this course: 090 Family & Consumer Science
091 Vocational Home Economics
215 Family & Consumer Science

493160 Leadership & Service Learning (9-12)
Credit: .5 Grade Levels: 9-12
Leadership and Service Learning emphasizes the importance of leadership skills, volunteerism, and professionalism in the development of personal qualities. It focuses on the benefits of community service, leadership roles, and civic responsibilities. Current technology is used to enhance communication skills and promote professionalism.
Does course count in required 38 units and, if yes, how: Yes Career & Technical
Does course count in the 22 units required for graduation: Yes
Licensure required to teach this course: 090 Family & Consumer Science
091 Vocational Home Economics
215 Family & Consumer Science

493200 Nutrition & Wellness
Credit: .5 Grade Levels: 9-12
Nutrition and Wellness emphasizes the interaction of nutrition, foods, sports, and exercise for lifelong fitness and well-being of individuals and families.
Does course count in required 38 units and, if yes, how: Yes Career & Technical
Does course count in the 22 units required for graduation: Yes
Licensure required to teach this course: 090 Family & Consumer Science
091 Vocational Home Economics
215 Family & Consumer Science

493210 Parenting
Credit: .5 Grade Levels: 9-12
Parenting is designed to assist students in developing an understanding of the parenting process and of parenting skills. Upon completion of this course, a student should possess skills necessary to provide quality care for children—as a parent, as one employed to care for children, or as one who interacts with children in other settings.
Does course count in required 38 units and, if yes, how: Yes Career & Technical
Does course count in the 22 units required for graduation: Yes
Licensure required to teach this course: 090 Family & Consumer Science
091 Vocational Home Economics
215 Family & Consumer Science
610 Child Care

493190 Personal & Family Finance
Credit: .5 Grade Levels: 9-12
Personal & Family Finance is designed to assist students in developing an understanding of resources available to individuals and families and ways to manage these resources so needs and goals are met.
Does course count in required 38 units and, if yes, how: Yes Career & Technical
Does course count in the 22 units required for graduation: Yes
Licensure required to teach this course: 090 Family & Consumer Science
091 Vocational Home Economics
215 Family & Consumer Science

EDUCATION CLUSTER

Education & Training

493240 Orientation to Teaching I
Credit: 1 Grade Levels: 10-12
This course is designed to provide students with knowledge that will help prepare them as future teachers. Upon completion of this course, a student should have a better understanding of the roles of the teacher in the profession, understand developmental characteristics of learners, identify teaching strategies, be creative in lesson delivery, and understand historical and current educational issues, policies, and practices. Districts desiring to implement this course should request approval from the Family & Consumer Sciences Office.
Does course count in required 38 units and, if yes, how: Yes Career & Technical
Does course count in the 22 units required for graduation: Yes
Licensure required to teach this course: ANY

493290 Orientation to Teaching II
Credit: 1 Grade Levels: 11-12
Orientation to Teaching II is a course designed to integrate psychological, sociological, and philosophical foundations which prepare students for positive field experiences. This course encourages prospective teachers to become responsible, professional, and ethical as they explore the teaching profession. The students will research and examine foundations within the educational system. Upon completion of this course, a student should have a working knowledge of and employability skills for the education profession. The student will have the opportunity to obtain the paraprofessional certification.
Does course count in required 38 units and, if yes, how: Yes Career & Technical
Does course count in the 22 units required for graduation: Yes
Licensure required to teach this course: ANY

HOSPITALITY AND TOURISM CLUSTER

Culinary Arts

493250 Introduction to Culinary Arts
Credit: .5 Grade Levels: 9-12
This course is designed to provide students with basic knowledge and understanding of culinary arts, covering such topics as basic cooking techniques, menu planning, basic nutrition, culinary math, safety, and sanitation. This course is a prerequisite to Culinary Arts I and Culinary Arts II.
Does course count in required 38 units and, if yes, how: Yes Career & Technical
Does course count in the 22 units required for graduation: Yes
Licensure required to teach this course:
090 Family & Consumer Science
091 Vocational Home Economics
215 Family & Consumer Science
580 Culinary Arts & Chef Preparation
598 Food Production, Management & Services

493260 Culinary Arts I
Credit: 1 Grade Levels: 10-12
This course is designed to provide students with an in-depth study of the professional kitchen and culinary applications. A prerequisite to this course is Introduction to Culinary Arts.
Does course count in required 38 units and, if yes, how: Yes Career & Technical
Does course count in the 22 units required for graduation: Yes
Licensure required to teach this course:
090 Family & Consumer Science
091 Vocational Home Economics
215 Family & Consumer Science
580 Culinary Arts & Chef Preparation
598 Food Production, Management & Services

493270 Culinary Arts II
Credit: 1 Grade Levels: 10-12
This course is designed to provide students with advanced culinary applications, service, and presentation.
Does course count in required 38 units and, if yes, how: Yes Career & Technical
Does course count in the 22 units required for graduation: Yes
Licensure required to teach this course:
090 Family & Consumer Science
091 Vocational Home Economics
215 Family & Consumer Science
580 Culinary Arts & Chef Preparation
598 Food Production, Management & Services

Food Production, Management, & Services

493120 Food Production, Management, & Services
Credit: 1 Grade Levels: 10-12
Emphasis in this course is given to the development of competencies related to employability; technology in food production, management, and services; sanitation and safety; nutrition as related to food service; serving of food; purchasing, receiving, and storing of food supplies; production and management of food; use, care, and storage of large and small commercial food service equipment; menu planning; and modified diets.
Does course count in required 38 units and, if yes, how: Yes Career & Technical
Does course count in the 22 units required for graduation: Yes
Licensure required to teach this course:
090 Family & Consumer Science
091 Vocational Home Economics
215 Family & Consumer Science
580 Culinary Arts & Chef Preparation
598 Food Production, Management & Services

493220 ProStart I
Credit: 1 Grade Levels: 11-12
ProStart I is the first part of a two-year, industry-based program that prepares students for careers in the restaurant and food service industry. After completion of ProStart I, the student has the option to take ProStart II, complete 400 hours of hospitality-related work experience, take and pass the ProStart exam, and receive national HBA/ProStart certification.
Does course count in required 38 units and if Yes, how: Yes Career & Technical
Does course count in the 22 units required for graduation: Yes
Licensure required to teach this course:
090 Family & Consumer Science
091 Vocational Home Economics
215 Family & Consumer Science
580 Culinary Arts & Chef Preparation
598 Food Production, Management & Services

493230 ProStart II
Credit: 1 Grade Levels: 11-12
ProStart II is the second part of a two-year, industry-based program that prepares students for careers in the restaurant and food service industry. Upon completion of ProStart I & II, 400 hours of hospitality-related work experience, and successfully passing the ProStart exam, the student can receive national HBA/ProStart certification.
Does course count in required 38 units and, if yes, how: Yes Career & Technical
Does course count in the 22 units required for graduation: Yes
Licensure required to teach this course:
090 Family & Consumer Science
091 Vocational Home Economics
215 Family & Consumer Science
580 Culinary Arts & Chef Preparation
598 Food Production, Management & Services

Lodging Management

493170 Lodging Management I (FACS)
Credit: 1 Grade Levels: 11-12
Lodging Management I is the first part of a two-year, industry-based program that prepares students for careers in the hotel/resort industry. Upon completion of the course, successfully passing the Lodging Management exam, and completion of a hospitality internship, the student can receive national HBA/Lodging Management certification.
Does course count in required 38 units and, if yes, how: Yes Career & Technical
Does course count in the 22 units required for graduation: Yes
Licensure required to teach this course:
090 Family & Consumer Science
091 Vocational Home Economics
215 Family & Consumer Science

493180 Lodging Management II (FACS)
Credit: 1 Grade Levels: 11-12
Lodging Management II is the second part of a two-year, industry-based program that prepares students for careers in the hotel/resort industry. Upon completion of the course, successfully passing the Lodging Management exam, and completion of a hospitality internship, the student can receive national HBA/Lodging Management certification.
Does course count in required 38 units and, if yes, how: Yes Career & Technical
Does course count in the 22 units required for graduation: Yes
Licensure required to teach this course: 090 Family & Consumer Science
091 Vocational Home Economics
215 Family & Consumer Science

HUMAN SERVICES CLUSTER

Child Care Guidance, Management, & Services

493010 Child Care Guidance, Management, & Services
Credit: 1 Grade Levels: 10-12
This course is designed to provide students with information and experiences in the occupational field of child care and guidance, management, and services. Upon completion of this course, a student should have a better understanding of children and their development and have enhanced employability skills that will be of benefit regardless of the occupation or career in which employed.
Does course count in required 38 units and, if yes, how: Yes Career & Technical
Does course count in the 22 units required for graduation: Yes
Licensure required to teach this course: 090 Family & Consumer Science
091 Vocational Home Economics
215 Family & Consumer Science
610 Child Care

Consumer Services

493310 Consumer Services
Credit: 1 Grade Levels: 11-12
Consumer Services is a project based course that introduces applications within the consumer service industry. Students will obtain a broad-based knowledge in consumer products and industry equipment. Upon completion of the course students will be able to obtain and maintain a profession in consumer services, demonstrate product/equipment features and associated uses, read and understand current research information to include in presentations to consumers, and recognize and apply current ethical and legal practices in consumer services. Course content includes using technology to manage different aspects of consumer services to meet consumer expectations and to utilize consumer information and resources.
Does course count in required 38 units and, if yes, how: Yes Career & Technical
Does course count in the 22 units required for graduation: Yes
Licensure required to teach this course: 090 Family & Consumer Science
091 Vocational Home Economics
215 Family & Consumer Science

493320 Customer Relations
Credit: .5 Grade Levels: 11-12
Through the use of technology, students will learn to evaluate information that will attract and retain customers, provide customer satisfaction, and apply principles and processes to meet customers' expectations. Students will learn to use business procedures to produce successful customer interactions and business outcomes. Emphasis will be placed on examining the uses of various types of communication skills, preparing policies and procedures and explaining processes for managing customer relations. Key ethical procedures that protect customers and company interests will be stressed. The opportunity to obtain industry certification will be offered to all students.
Does course count in required 38 units and, if yes, how: Yes Career & Technical
Does course count in the 22 units required for graduation: Yes
Licensure required to teach this course: 090 Family & Consumer Science
091 Vocational Home Economics
215 Family & Consumer Science

Cosmetology

494550 Cosmetology I
Credit: 1 Grade Levels: 11-12
This two-semester instructional program prepares the individual to begin achieving the basic competencies necessary to begin a program of study in cosmetology.
Does course count in required 38 units and, if yes, how: Yes Career & Technical
Does course count in the 22 units required for graduation: Yes
Licensure required to teach this course: 573 Cosmetology

494570 Cosmetology II
Credit: 2 Grade Levels: 11-12
The course allows the completion of the 1,500 hours of training and instruction required to be eligible for the State Board of Cosmetology licensing examination.
Does course count in required 38 units and, if yes, how: Yes Career & Technical
Does course count in the 22 units required for graduation: Yes
Licensure required to teach this course: 573 Cosmetology

494560 Cosmetology Lab
Credit: 1 Grade Levels: 11-12
This production-based program is designed to allow for the development of skills and knowledge needed to execute a comprehensive cosmetology product.
Does course count in required 38 units and, if yes, how: Yes Career & Technical
Does course count in the 22 units required for graduation: Yes
Licensure required to teach this course: 573 Cosmetology

Middle School FACS Courses

399070 Family & Consumer Sciences (8th grade)
Credit: Grade Levels: 8
Family and Consumer Sciences is designed to provide students with basic information and skills needed to function effectively within the family and within a changing, complex society. Upon completion of this course, the student should have developed basic life skills that promote a positive influence on the quality of life.
Does course count in required 38 units and, if yes, how: No
Does course count in the 22 units required for graduation: No
Licensure required to teach this course: 090 Family & Consumer Science
091 Vocational Home Economics
092 Middle School Home Economics
214 Family & Consumer Science
215 Family & Consumer Science

399080 Family & Consumer Science Investigation (Family CSI)
Credit: Grade Levels: 7-8
Family and Consumer Science Investigation is a semester course in which emphasis is placed on competencies related to Family, Career and Community Leaders of America; personal and family development; relationships; home environment; food and nutrition; wellness; resource management; responsible child care; clothing and appearance; and career preparation. Upon completion, the student will be able to see the interrelationship between work and family life and develop skills necessary to function in an ever-changing society.
Does course count in required 38 units and, if yes, how: No
Does course count in the 22 units required for graduation: No
Licensure required to teach this course: 090 Family & Consumer Science
091 Vocational Home Economics
092 Middle School Home Economics
214 Family & Consumer Science
215 Family & Consumer Science

399090 Leadership & Service Learning (7-8 grade)
Credit: Grade Levels: 7-8

Leadership and Service Learning emphasizes the importance of leadership skills, volunteerism, and professionalism in the development of personal qualities. It focuses on the benefits of community service, leadership roles, and civic responsibilities. Current technology is used to enhance communication skills and promote professionalism.

Does course count in required 38 units and, if yes, how: No
Does course count in the 22 units required for graduation: No
Licensure required to teach this course: 090 Family & Consumer Science
091 Vocational Home Economics
092 Middle School Home Economics
214 Family & Consumer Science
215 Family & Consumer Science

399260 Exploring Personal Finance (7-8 grade)
Credit: Grade Levels: 7-8

Exploring Personal Finance is designed to introduce students to the knowledge and skills required for managing their personal and family financial resources. Students learn to manage resources through hands-on applications that are relevant to their lives. Projects will require students to use academic skills in language arts, math, social sciences, and science. Emphasis is given to the development of competencies related to values, needs, and wants, goals and decision making, career exploration, understanding paychecks, spending plans, savings, electronic banking and credit, financial institutions, and checking accounts.

Does course count in required 38 units and, if yes, how: No
Does course count in the 22 units required for graduation: No
Licensure required to teach this course: 090 Family & Consumer Science
091 Vocational Home Economics
092 Middle School Home Economics
214 Family & Consumer Science
215 Family & Consumer Science

CAREER CLUSTERS: EDUCATION AND TRAINING; HOSPITALITY AND TOURISM; HUMAN SERVICES

Program Description

The mission of Family and Consumer Science (FACS) is to prepare students for family life, work life, and careers in family and consumer sciences by providing opportunities to develop the knowledge, skills, attitudes, and behaviors needed for strengthening the well-being of individuals and families across the life span; becoming responsible citizens and leaders in family, community, and work settings; promoting optimal nutrition and wellness across the life span; managing resources to meet the material needs of individuals and families; balancing personal, home, family, and work lives; using critical and creative thinking skills to address problems in diverse environments; being successful in life management; developing employment and career plans; functioning effectively as providers and consumers of goods and services; appreciating human worth; and accepting responsibility for one's actions and success in family and work life.

Types of Programs

Family and consumer sciences education consists of two types of programs

1. FACS courses that provide instructional programs, services, and activities designed to prepare youths and adults for family life and careers in family and consumer sciences.
   - Family and Consumer Sciences Education

2. Occupational FACS courses that are designed to assist students in the development of skills that will enable them to secure employment and advance in a chosen family and consumer sciences career. These include:
   - Education and Training
   - Culinary Arts
   - Food Production, Management, and Services
   - Lodging Management
   - Child Care Guidance, Management, and Services
   - Consumer Services
   - Cosmetology

All of these programs are correlated to national standards and cluster/pathway knowledge and skill statements. Students have the opportunity to obtain state and/or national certifications in all of these program areas.

Program offerings in each school must include a minimum of one program of study in three different career clusters (offered annually). A majority of schools in Arkansas offer an FACSE program of study. Those schools that offer an FACSE program of study will be able to offer additional programs of study.

Length of Courses and Eligibility of Students

A semester course shall consist of 60 hours of instruction; a year-long course shall consist of 120 hours of instruction. Length of courses and eligibility of students are shown on the FACS education framework at the end of this section.

Student Organization

The career and technical student organization (CTSO) Family, Career, and Community Leaders of America (FCCLA) shall be an integral part of the FACS instructional program at each school. All local chapters shall affiliate annually and follow the guidelines, goals, objectives, and participate in activities of the district, state, and national organization. The Education and Training program of study shall utilize FCCLA as the CTSO. A Future Educators of America (FEA) chapter may also be chartered annually. If the Education and Training program core course, Orientation to Teaching, is taught by a licensed teacher other than FACS, an FEA chapter shall be chartered annually. Cosmetology programs shall affiliate annually as part of a SkillsUSA student organization.

Pathways and Programs of Study by Career Cluster

EDUCATION AND TRAINING

Planning, managing, and providing education and training services and related support services

Teaching and Training Pathway
Education and Training Program of Study

Course Code	Core Requirements	Units of Credit	7th	8th	9th	10th	11th	12th
493020	Child Development	.5			X	X	X	X
493240	Orientation to Teaching I *	1				X	X	X
Options								
493080	Family & Consumer Sciences	1			X	X	X	X
493150	Human Relations	.5			X	X	X	X
493160	Leadership & Service Learning *	.5			X	X	X	X
493290	Orientation to Teaching II*	1					X	X
493210	Parenting	.5			X	X	X	X
ADE or other ACE courses may be used as additional options with prior approval from the FACS program manager.								

HOSPITALITY AND TOURISM

Hospitality and tourism encompasses the management, marketing, and operations of restaurants and other food services, lodging, attractions, recreation, and travel-related services

Restaurant and Food and Beverage Services Pathway
Culinary Arts Program of Study

Course Code	Core Requirements	Units of Credit	7th	8th	9th	10th	11th	12th
493250	Introduction to Culinary Arts	.5			X	X		
493260	Culinary Arts I	1				X	X	X
493270	Culinary Arts II	1				X	X	X
Options								
493080	Family & Consumer Sciences	1			X	X	X	X
493110	Food & Nutrition	.5			X	X	X	X
493160	Leadership & Service Learning *	.5			X	X	X	X
493200	Nutrition & Wellness *	.5			X	X	X	X
493220	ProStart I *	1					X	X
493230	ProStart II *	1					X	X
493130	Chemistry of Food*	.5				X	X	X
493330	Entrepreneurial Experience*	1				X	X	X
493070	Food Safety	.5			X	X	X	X

Food Production, Management, and Services Program of Study

Course Code	Core Requirements	Units of Credit	7th	8th	9th	10th	11th	12th
493110	Food & Nutrition	.5			X	X	X	X
493120	Food Production, Management, & Services	1				X	X	X
Options								
493250	Introduction to Culinary Arts	.5			X	X		
493080	Family & Consumer Sciences	1			X	X	X	X
493160	Leadership & Service Learning *	.5			X	X	X	X
493200	Nutrition & Wellness *	.5			X	X	X	X
493220	ProStart I *	1					X	X
493230	ProStart II *	1					X	X
493130	Chemistry of Food*	.5				X	X	X
493330	Entrepreneurial Experience*	1				X	X	X
493070	Food Safety	.5			X	X	X	X

Lodging Pathway
Lodging Management Program of Study

Course Code	Core Requirements	Units of Credit	7th	8th	9th	10th	11th	12th
493140	Housing & Interior Design	.5			X	X	X	X
493170	Lodging Management I	1					X	X
493180	Lodging Management II	1					X	X
Options								
493080	Family & Consumer Sciences	1			X	X	X	X
493160	Leadership & Service Learning *	.5			X	X	X	X
493190	Personal and Family Finance	.5			X	X	X	X
493330	Entrepreneurial Experience*	1				X	X	X

HUMAN SERVICES

Preparing individuals for employment in career pathways that relate to families and human needs

Consumer Services Pathway
Consumer Services Program of Study

Course Code	Core Requirements	Units of Credit	7th	8th	9th	10th	11th	12th
493190	Personal and Family Finance	.5			X	X	X	X
493320	Customer Relations*	.5					X	X
493310	Consumer Services*	1					X	X
Options								
493080	Family & Consumer Sciences	1			X	X	X	X
493140	Housing and Interior Design	.5			X	X	X	X
493150	Human Relations	.5			X	X	X	X
493160	Leadership & Service Learning *	.5			X	X	X	X
493030	Clothing Management	.5			X	X	X	X
493330	Entrepreneurial Experience*	1				X	X	X
493070	Food Safety	.5			X	X	X	X

Early Childhood Development & Services Pathway
Child Care Guidance, Management, and Services Program of Study

Course Code	Core Requirements	Units of Credit	7th	8th	9th	10th	11th	12th
493020	Child Development	.5			X	X	X	X
493210	Parenting	.5			X	X	X	X
493010	Child Care Guidance, Management, & Services	1				X	X	X
Options								
493080	Family & Consumer Sciences	1			X	X	X	X
493100	Family Dynamics	1			X	X	X	X
493150	Human Relations	.5			X	X	X	X
493160	Leadership & Service Learning *	.5			X	X	X	X
493190	Personal and Family Finance	.5			X	X	X	X
493200	Nutrition & Wellness *	.5			X	X	X	X
493070	Food Safety	.5			X	X	X	X

Family & Community Services Pathway
Family and Consumer Sciences Education Program of Study

Course Code	Core Requirements	Units of Credit	7th	8th	9th	10th	11th	12th
493080	Family & Consumer Sciences	1			X	X	X	X
Options								
493190	Personal and Family Finance	.5			X	X	X	X
493150	Human Relations	.5			X	X	X	X
493020	Child Development	.5			X	X	X	X
493210	Parenting	.5			X	X	X	X
493160	Leadership & Service Learning *	.5			X	X	X	X
493100	Family Dynamics	1			X	X	X	X
493200	Nutrition & Wellness *	.5			X	X	X	X
493030	Clothing Management	.5			X	X	X	X
493110	Food & Nutrition	.5			X	X	X	X
493130	Chemistry of Food *	.5				X	X	X
493140	Housing & Interior Design	.5			X	X	X	X
493330	Entrepreneurial Experience*	1				X	X	X
493070	Food Safety	.5			X	X	X	X

Personal Care Services Pathway
Cosmetology Program of Study

Course Code	Core Requirements	Units of Credit	7th	8th	9th	10th	11th	12th
494550	Cosmetology I	1					X	X
494570	Cosmetology II	2					X	X
Options								
494560	Cosmetology Lab	1					X	X

Special Certification and Licensure Requirements:

1. Meet the licensure requirements for career and technical permits.
2. Licensed by the Arkansas State Board of Cosmetology
3. Hold a current cosmetology instructor's license issued by the Arkansas State Board of Cosmetology

FAMILY AND CONSUMER SCIENCES COURSES:

Course Code	Elective Courses	Units of Credit	7th	8th	9th	10th	11th	12th
493020	Child Development	.5			X	X	X	X
493030	Clothing Management	.5			X	X	X	X
493080	Family & Consumer Sciences	1			X	X	X	X
493100	Family Dynamics	1			X	X	X	X
493110	Food & Nutrition	.5			X	X	X	X
493140	Housing & Interior Design	.5			X	X	X	X
493150	Human Relations	.5			X	X	X	X
493190	Personal and Family Finance	.5				X	X	X
493210	Parenting	.5			X	X	X	X
494560	Cosmetology Lab (Cosmetology programs only)	1					X	X

Course Code	Other Elective Courses	Units of Credit	7th	8th	9th	10th	11th	12th
Seek ACE prior approval before implementation.								
493280	ACE Approved Family & Consumer Sciences*	1			X	X	X	X
590060	ACE Approved Family & Consumer Sciences*	1			X	X	X	X
493130	Chemistry of Food*	.5				X	X	X
493160	Leadership & Service Learning*	.5			X	X	X	X
493200	Nutrition & Wellness*	.5			X	X	X	X
493220	ProStart I*	1					X	X
493230	ProStart II*	1					X	X
493330	Entrepreneurial Experience*	1				X	X	X
493070	Food Safety	.5			X	X	X	X

Course Code	Middle School Elective Courses	Units of Credit	7th	8th	9th	10th	11th	12th
399070	Family & Consumer Sciences (8th Grade) ***	1		X				
399080	Family & Consumer Science Investigation**	.5	X	X				
399090	Leadership & Service Learning	.5	X	X				
399260	Exploring Personal Finance	.5	X	X				

* Districts must have ACE prior approval to implement.

** FACS career focus programs of study require that this foundation course, Family and Consumer Science Investigation (Family CSI) be taught for program approval. Family and Consumer Sciences (one unit grades 9-12) may be used in substitution with prior written approval from the FACS program manager. If used as a foundation course, FACS (grades 9-12) may apply toward the three units required in the career focus program of study where allowed as an option for that career focus program of study. **Note**: A school district would not have the option to teach FACS at the 8th grade level, course code number 399070, as a core course to be counted as a completer if permission has been granted to use FACS, course code number 493080 as a substitute for Family CSI.

*** FACS at the eighth-grade level will count as the core course for the FACS program of study, but students must still complete three other Carnegie units in the FACS program of study in grades 9-12 to be counted as a completer. FACS at the eighth-grade level may not be used as an option to be counted as a completer in any program of study. If FACS is taken by a student at the eighth-grade level, that student should not be allowed to repeat the course in grades 9-12.

FAMILY AND CONSUMER SCIENCES EDUCATION

MINIMUM INSTRUCTIONAL EQUIPMENT AND SOFTWARE

Career Cluster: Human Services
Pathway: Early Childhood Development & Services
Program of Study: Child Care Guidance, Management and Services (On Site Lab)

STANDARDS FOR NEW PURCHASES (Effective 1994—Reviewed 2009)

NOTE: *This list does not include basic equipment, presumed to be in an existing FACS department. Purchases on this list are based on an existing childcare facility. Additional items from the FACS department will be used to support this program of study. For a list of these required items, refer to the Family and Consumer Sciences Education Equipment List.*

Item Name	Count 15 Students	Count 20 Students	Count 25 Students	Specifications/ Descriptions
Combination TV/VCR/DVD or TV and VCR/DVD with cart.	1	1	1	27" TV screen, either wall mounted or portable with cart, cabinet, or stand; 3 speed recording/playback, remote control.
Cassette/CD Rom Player	1	1	1	Recorder/Player
Digital Camera or Video Camera	1	1	1	Multi-function, digital or VCR tape. Case and strap.
Scanner	1	1	1	(2002)
Computer Tables	3	4	5	
Computer Chairs	3	4	5	Adjustable
Student Computer System	3	4	5	See ACE Technology Standards
Presentation Equipment	1	1	1	LCD Projector (Mounting Recommended) Teacher Laptop (See ACE Technology Standards) Computerized Presentation Board (200)
Demonstration Projector	1	1	1	Multiple settings, stable base, large platform. (2002)
Teacher Storage	1	1	1	Sturdy, locking
Laminator	1	1	1	18" - 27"
Ellison Cutter (XL)/Die Cuts	1	1	1	Assorted die cuts
Storytelling Easel	1	2	3	
Binding Machine	1	1	1	
Copier	1	1	1	Black and White, Multi-function,
Clothes Dryer	1	1	1	Multi-cycle
Washing Machine	1	1	1	Multi-cycle
NOTE: The items below are based on the number of children enrolled in the child care center, NOT high school students enrolled in the FACS program.				
Sink	1			Meets Health Department specifications
Vacuum Cleaner	1			6.5 AMP upright or 3.5 peak HP canister
Teacher Storage	1			Sturdy, locking
Fire Extinguisher	1			Dry, multipurpose
First Aid Kit	1			Locked
Microwave Oven	1			700 watts
Institutional Sink	1			Meets Health Department specifications
Garbage Disposal	1			1HP
Range	1			4-burner, self-cleaning, vented

Item Name	Count 15 Students	Count 20 Students	Count 25 Students	Specifications/ Descriptions
Refrigerator	1			Two-door refrigerator/freezer, 21 cubic foot, frost-free
Low Hand Washing Lavatory	1			One per 15 children
Low Drinking Fountain	1			One per 15 children
Tot Toilet	1			One per 15 children
Paper Towel Dispenser /Forced Air Dryer	1			One per 15 children
Children's Chair	20			One per child, tip resistant
Children's Table	5			Sturdy, lead-free finish, size adequate for each child to have work space
High Chairs	10			One per two children; sturdy construction, lead-free finish, safety strap or center pin
Changing Table & Storage Center	1			Safety rail; washable surface
Feeding Table/Play Table	1			Six-seater
Cribs	20			One per child; crib and mattress should conform to all Consumer Products Safety Commission standards, casters, full vision
Infant Swings	10			One per two children, sturdy construction
Activity Center	3			Stationary
Pre-wheel Toys	10			One per two children, (a variety) non-pedaling, safe, sturdy
Adult Rocking Chair	1			One per 6 infants, sturdy, easy to maintain
Storage for Infant/Toddler Supplies	1			Out of children's reach
Infant Mirror	1			Unbreakable
Cots (or mats) with Sheets and Storage	20			Cots-heavy duty standard, 1" 16 gauge aluminum frame, vinyl or canvas cover
Play Equipment Storage Unit	1			
Play Equipment Set (Outdoor)	1			Same as indoor set
Outside Storage	1			To accommodate outside toys
Wheeled Toys	1 set			A set includes ten of the following: pedal toys, punch-pull toys, wagon, tricycle, scooter, wheelbarrow
Covered Sand Box	1			Smooth finish, 6" deep
Rocking Toys	5			Sturdy, safe, lead-free finish
Outdoor Swings	1 set			Meet licensing standards
Outdoor Climber	1			Sturdy, safe
Sports Equipment	1 set			To include soccer, basketball, football, baseball, etc.
Coat Locker	2 (10 lockers each)			Storage with hanging space for each child
Art Center Easels and Storage	5			One per 4-6 children with shelves at child's height
Music/Listening Center and Storage	1			Rhythm musical instruments, storage space for instruments, audio tapes, sturdy, safe
Block Center and Storage	1			Storage space for assorted blocks
Home Living Center and Storage	1			Child size table with chairs, kitchen equipment, doll bed, child size rocking chair, storage

Item Name	Count 15 Students	Count 20 Students	Count 25 Students	Specifications/ Descriptions
				space for accessories. Material and design may vary.
Library Center/Bookshelves	1			Sturdy, child height to accommodate books, age appropriate books
Puppet Center	1			To include puppets, puppet theater
Math and Science Equipment Set	1			Safe, sturdy, manipulatives

Career Cluster: Human Services
Pathway: Early Childhood Development & Services
Program of Study: Child Care Guidance, Management and Services (Pre-Employment Lab)

STANDARDS FOR <u>NEW PURCHASES</u> (Effective 2002—Reviewed 2009)

NOTE: *This list does not include basic equipment, presumed to be in an existing FACS department. Purchases on this list are based on an existing child care facility. Additional items from the FACS department will be used to support this program of study. For a list of these required items, refer to the Family and Consumer Sciences Education Equipment list.*

Item Name	Count 15 Students	Count 20 Students	Count 25 Students	Specifications/ Descriptions
Combination TV/VCR/DVD or TV and VCR/DVD with cart.	1	1	1	27" TV screen, either wall mounted or portable with cart, cabinet, or stand; 3 speed recording/playback, remote control.
Cassette/CD Rom Player	1	1	1	Recorder/Player
Digital Camera or Video Camera	1	1	1	Multi-function, digital or VCR tape. Case and strap.
Scanner	1	1	1	(2002)
Computer Tables	3	4	5	
Computer Chairs	3	4	5	Adjustable
Student Computer System	3	4	5	See ACE Technology Standards
Presentation Equipment	1	1	1	LCD Projector (Mounting Recommended) Teacher Laptop (See ACE Technology Standards) Computerized Presentation Board (2002)
Demonstration Projector	1	1	1	Multiple settings, stable base, large platform (2002)
Teacher Storage	1	1	1	sturdy, locking
Laminator	1	1	1	18" – 27”
Ellison Cutter (XL)/Die Cuts	1	1	1	Assorted die cuts
Storytelling Easel	1	2	3	
Binding Machine	1	1	1	
Copier	1	1	1	Black and White, Multi-function,
Additional Instructional Equipment	1	1	1	Additional instructional items may be chosen from the FACS On-Site Child Care Equipment List as necessary. These items may not be furniture, structural, or permanently placed in the center.

Career Cluster: Human Services
Pathway: Consumer Services
Program of Study: Consumer Services

STANDARDS FOR NEW PURCHASES (Effective 2010)

NOTE: *This list does not include basic equipment, presumed to be in an existing FACS department. Additional items from the FACS department will be used to support this program of study. For a list of these required items, refer to the Family and Consumer Sciences Education Equipment List.*

Item Name	Count 15 Students	Count 20 Students	Count 25 Students	Specifications/ Descriptions
Combination TV/DVD or TV and DVD with cart.	1	1	1	27" TV screen, either wall mounted or portable with cart, cabinet, or stand; 3 speed recording/playback, remote control
Digital Camera	2	3	4	Multi-function, digital. Case and strap
Digital Video Camcorder	1	2	2	Multi-function with hard drive and 8G memory stick, tripod, case and strap
Scanner	1	1	1	
Presentation Equipment	1	1	1	LCD Projector (Mounting Recommended) Teacher Laptop (See ACE Technology Standards) Computerized Presentation Board
Teacher Printer	1	1	1	See ACE Technology Standards
Student Laptop	1	1	1	See ACE Technology Standards
Copy Machine	1	1	1	Black and White, multi-function, efficient speed
Document Camera	1	1	1	Multiple settings, stable base, large platform
Server	1	1	1	
Poster Printer	1	1	1	
Student Computer System	15	20	25	See ACE Technology Standards
Student Printer	1	1	2	See ACE Technology Standards
Filing Cabinet	2	2	2	Sturdy, lockable, 4-drawer
Media Storage Center	1	1	1	Adjustable compartments for CD, DVD
Computer Tables	15	20	25	Sturdy (If laptops are purchased current classroom furniture may be used)
Computer Chairs	4	5	6	Adjustable (If laptops are purchased current classroom furniture may be used)
Classroom Set of Financial Calculators	15	20	25	Classroom set equals 1 calculator per student
Calculator	1	2	3	With printing ability
Fax Machine	1	1	1	High resolution and quality; ink jet printing
Teacher Amplification System	1	1	1	Classroom sound system, IR speakers, student pass mike and teacher amplification microphone
Presentation Remote	1	1	1	Wireless
Cash Register	1	2	2	8 character, single line, LED display, drop-in register tape
Classroom Management Software	1	1	1	Allows teacher monitoring and administration of Student Computer System

Item Name	Count 15 Students	Count 20 Students	Count 25 Students	Specifications/ Descriptions
Headphones	15	20	25	Heavy duty, padded, adjustable
Multi-use convertor	4	5	6	Convertor jack to allow multiple users for MP3 player and mobile computerized pad
MP3 Player	1	1	1	32+G
Mobile computerized pad	4	5	6	Wi-Fi and 3G accessible; 64 GB; multifunction, interactive with protective cover
Classroom Response System	1	1	1	16 (or 32) pad response system

Career Cluster: Human Services
Pathway: Personal Care Services
Program of Study: Cosmetology

STANDARDS FOR <u>NEW PURCHASES</u> (Effective 2004—Reviewed 2010)

Item Name	Count 15 Students	Count 20 Students	Count 25 Students	Specifications/ Descriptions
Combination TV/VCR/DVD or TV and VCR/DVD with cart.	1	1	1	27" TV screen, either wall mounted or portable with cart, cabinet, or stand; 3 speed recording/playback, remote control.
Cassette/CD Rom Player	1	1	1	Recorder/Player
Digital Camera or Video Camera	1	1	1	Multi-function, digital or VCR tape. Case and strap.
Scanner	1	1	1	
Computer Tables	3	4	5	
Computer Chairs	3	4	5	Adjustable
Presentation Equipment	1	1	1	LCD Projector (Mounting Recommended) Teacher Laptop (See ACE Technology Standards) Computerized Presentation Board
Student Computer System	3	4	5	See ACE Technology Standards
Computer Printer	1	1	1	See ACE Technology Standards
Computer Software	1	1	1	Cosmetology Imaging Software with photo printer and site license.
Demonstration Projector	1	1	1	Multiple settings, stable base, large platform.
Filing Cabinet	2	2	2	Sturdy, lockable, 4-drawer.
Media Storage Center	1	1	1	Adjustable compartments for CD, DVD, VCR.
Bookcase	2	2	2	Multiple adjustable shelves, sturdy.
Storage Cabinet	6	6	6	For Chemical Storage, sturdy, lockable, adjustable shelves.
Storage Cabinet	3	3	3	Towel storage, multiple shelves
Permit Display Case	1	1	1	Wall mounted glass covered lockable case used to display permits and licensing documents.
Floor Display Case	1	1	1	1 standing product displaces case, lockable with sliding glass doors.

Item Name	Count 15 Students	Count 20 Students	Count 25 Students	Specifications/ Descriptions
Wall Display Boards	1	1	1	2 Bulletin Boards for advertisements and client information. Additional bulletin board strips for displaying style posters and salon materials.
Lockers	3	4	5	6 lockers per unit, lockable
Shampoo Bowl	3	3	3	With sprayers
Shampoo Chair	3	3	3	
Facial Chair	2	2	2	With protective covers.
Styling Chair	20	20	25	State Board requires a minimum of 20 stations for an approved site. Hydraulic lift with swivel, with protective covers.
Floor Chair Mats	20	20	25	Cushioned support while standing.
Salon Work Stations	20	20	25	State Board requires a minimum of 20 stations for an approved site. With Mirror and counter space.
Manicure Stool	5	5	5	Adjustable heights, swivel base.
Manicure Station	5	5	5	With Drawers and lamps.
Dryer Chair	10	10	10	
Dryers	10	10	10	
Marcel Stove	1	1	2	Marcel stove with tester, stand and Marcel irons in a variety of sizes.
Towels	12 dozen			15x25, 100% cotton terry cloth, various colors.
Wall Charts	1 set			Large size, full color, tear-resistant, coated paper. To cover all topics for Cosmetology, Esthetics, and Nail Technology.
Tripod Manikin Stands	2	2	2	Manikin stand for demonstrations.
Multi-Function Facial System	1	1	1	Brush, high frequency, vacuum and spray, galvanic, steamer, magnifying lamp.

Item Name	Count 15 Students	Count 20 Students	Count 25 Students	Specifications/ Descriptions
Cosmetology Kit	15	20	25	
Shears				Cutting shears, thinning shears, hair shaper with blade.
Manicure Set				Cuticle nippers, steel pusher, plastic pusher, metal file, foot file, tweezers, 2 manicure sticks, spatula, nail brush, 1 box #5 emery boards, cuticle scissors, nail clippers, manicure bowl.
Clip Sets				100 all purpose clippies, 1 box single prong clippies, 12 jaw clamps, 12 duckbill clippies.
Comb Set				12 - 7" finger wave cutting combs, 12 tail combs, 1 pintail highlighting comb, 1 dual purpose comb and lift.
Brush Set				3 round brushes in various styles, 1 nylon bristle vent brush, 1 ball tip cushion paddle brush.
Roller Set				Roller roost with 12 dozen rollers.
Blow Dryer				With cool shot.
Marcel Iron				Electric, 3/4" with rolling handle.
Tint Set				8 oz. trigger spray bottle, tint bottle with long spout, tint bowl, tint brush, detangle/tint comb, double dip plastic pick, 1 large manikin clamp, 2 pair black reusable gloves.
Capes				2 printed shampoo capes, 1 comb out cape, 1 cobbler's apron, 1 kiddie cape, 1 neutralizing bib.
Tote				1 medium shoulder type tote bag to hold all kit equipment.
Manicure/Pedicure Kit	1	1	1	
Practice Hands				25, Flexible, practice fingers with clamp
Manicure Heaters				2, for use with hot oil
Nail Polish Rack				1, floor standing or wall mounted, large capacity.
Nail Dryers				2 for check out, twin, adjustable temperature settings.
Paraffin Spa				10, variable settings
Foot Spa				10, deluxe, massaging
Mitts				Heated, 5 sets each for hands and feet.
Dispensary Equipment Kit	1	1	1	
Hand Mirrors				10 various larger sizes.
UV Lamps				Adjustable, 2 for check out.
Timers				5 bell or digital, easy to read.
Irons				Specialty styles to include flat, wave and crimping.
Perm Rod Set				Concave, straight and other varieties, tray for storage.
Facial Wax System				2 for check out
Hot Rollers				Electric, various sizes, 4 sets
Child Supplies				5 booster seats

Item Name	Count 15 Students	Count 20 Students	Count 25 Students	Specifications/ Descriptions
Instructional Manikin Set	15	20	25	Various manikins with different hair types, textures, and colors, 5 extra-long manikins for braiding and long styles. For check out from Dispensary as needed.
Cleaning Kits	1	1	1	
Mops	2			With mop buckets
Brooms				2 small brooms, 2 industrial brooms
Trash Receptacles				With lids, 2 large and 4 small
Infection Control Set	1	1	1	
Ultra Violet Sanitizer				
Sterilizer Jars				Covered, 1 for each work station (20-25)
Implement Sterilizing Tray				Covered, 1 for each manicure station (5)
Towel Receptacles				For soiled towels, covered, 2
Spray Bottles				Large, trigger spray, 12
Sanex Strip Dispenser				5
Reference Materials Set	1	1	1	Medical Dictionary, Cosmetology Dictionary, 1 copy of each textbook referenced on the Candidate Information Bulletin (CIB) provided by the National Interstate Council of State Boards of Cosmetology (NIC)
Towel Warmer	1	1	1	Temperature controlled, holds various sizes.
Washer and Dryer	1 each	1 each	1 each	Multi cycles
Cash Register	1	1	1	Digital, lockable
Reception Chairs	5	5	5	
Receptionist Desk	1	1	1	Large work space, drawer storage, lockable
Receptionist Chair	1	1	1	Adjustable, swivel, wheels
Telephone/Fax Machine	1	1	1	Touch-tone, plain paper fax, auto redial
Time Clock	1	1	1	Electric, Analog or digital

Career Cluster: Hospitality & Tourism
Pathway: Restaurant and Food & Beverage Services
Program of Study: Culinary Arts

STANDARDS FOR NEW PURCHASES (Effective 2004)

Item Name	Count 15 Students	Count 20 Students	Count 25 Students	Specifications/ Descriptions
Combination TV/VCR/DVD or TV and VCR/DVD with cart.	1	1	1	27" TV screen, either wall mounted or portable with cart, cabinet, or stand; 3 speed recording/playback, remote control.
Cassette/CD Rom Player	1	1	1	Recorder/Player
Digital Camera or Video Camera	1	1	1	Multi-function, digital or VCR tape. Case and strap.
Scanner	1	1	1	
Computer Tables	3	4	5	
Computer Chairs	3	4	5	Adjustable
Student Computer System	3	4	5	Must meet current ACE specifications.
Presentation Equipment	1	1	1	LCD Projector (Mounting Recommended) Teacher Laptop (See ACE Technology Standards) Computerized Presentation Board
Demonstration Projector	1	1	1	Multiple settings, stable base, large platform.
36" Commercial Range	1	1	1	Gas or Electric, 2 open burners, 24" griddle with standard oven base, stainless front, sides and backsplash
Convection Oven	1	1	1	Gas or Electric, Single Stack, Solid State Controls, 60/40 independent doors
Dishwasher	1	1	1	Free standing or under counter, built-in electric or gas booster, 30 racks per hour
Ice Maker	1	1	1	Free standing or under counter, built-in bin, 95 -145 lb. Production per 24 hours. Must include 32 oz. ice scoop with either free standing or wall mounted holder.
Refrigerator	1	1	1	Reach-in, self-contained, stainless steel front, standard depth, full-height door. Exterior dial type thermometer, 1/2 hp compressor, casters
Freezer	1	1	1	Reach-in, self-contained, stainless steel-front, standard depth, full-height door. Exterior dial type thermometer, 1/2 hp compressor, casters
Ventilation Exhaust and Fire Suppression	1	1	1	Stainless steel vent-a-hood, with automatic fire suppression system per local code
Sink	1	1	1	Three compartment, stainless steel with drain board
Disposal	1	1	1	Food Waste Disposal, 1 hp

Item Name	Count 15 Students	Count 20 Students	Count 25 Students	Specifications/ Descriptions
Dish tables	1	1	1	Fitted for under counter dishwasher, Stainless steel, 20"x20"x8" sink bowl, 9" H backsplash
Pre-Rinse Assembly	1	1	1	Deck or Back-splash Mount
Mixer with Stand	1	1	1	20 qt. Table-top Commercial Mixer, double hook, wire whip and flat beaters. Stainless steel stand, 30"x 36"
Cooks Tables	2	2	2	3'x5' minimum, stainless steel
Food Processor	1	1	1	Commercial, 1.75 hp, with attachments/blades
Kitchen Calculator	6	10	15	5 Hand held models for student use, 1 desk top or hand held model for teacher use. Easy to Read LCD Display, Solar or Battery operated
Food Storage				
Storage Containers	3 each			Bain-Marie Style, See-through or white, air-tight seal: 2 qt, 3 1/2 qt, 6 qt, 12 qt, 22 qt.
Ingredient Bins	3 each			Sliding hinge lid, see through lid, on casters
Dry Goods Storage	3 ea.			Air-tight seal, See-through with scoop: 4 qt, 2 qt, 1 qt
Small Equipment				
Ice Cream Machine	3			5 qt., Electric
Pasta Machine	3			Stainless Steel, adjustable settings, with cutters
Can Opener	1			Table mount, 7" plated steel base, reversible knife
Hand Mixers	2			
Portion Scales	1			Portion Scale - 1 lb. Capacity by 1/2 ounce
Balance Scales	1			Heavy duty bakers beam scale with scoop and weights
Kitchen Timers	5			Digital or Manual. 1 + hour timer with alarm.
Top-of-Range Cookware				
Stock Pots	1 ea.			Aluminum, with lids: 9 qt.,12 qt, 16 qt
Sauté Pans	1 ea.			10", 12"
Sauté Pans	3 ea.			7"
Fry Pans/Skillets	1 ea.			7", 10", 14", with lids
Sauce Pans	1 ea.			Aluminum or Stainless with lids: 1 1/2 qt, 2 qt, and 4 qt.
Cooling Racks	4 ea.			Full-pan size, stainless
Double Boiler	1 ea.			8 qt. with lid
Double Boiler	3 ea.			2 qt. with lid
Steamer	1ea.			Aluminum with lift out basket, 13" diameter with lid
Proofing/Holding Cabinet	1			Stainless Steel, Thermostatically Controlled
Kitchen Tools				
Dry Measure Cups	5 sets			Shape-retaining, stain-resistant, dishwasher safe
Liquid Measure Cups	5 ea.			1 cup, 2 cup, 1 qt., 2 qt. Temperature range, -40F to 212F

Item Name	Count 15 Students	Count 20 Students	Count 25 Students	Specifications/ Descriptions
Measure Spoons	5 sets			
Mixing Bowls	3 sets			Stainless steel: 1 qt, 2 qt, 3 qt, 5 qt, 13 qt, 20 qt.
Spoons	4 each			Commercial grade, stainless steel: solid, slotted, various lengths
Wooden Spoons	3 sets			Various lengths
Rubber Spatula	3 sets			Commercial grade, various lengths
Dough Scraper	3			Plastic
Spreaders	3			Plastic
Off-set spatulas	3			Stainless or Plastic
Rolling Pin	3			Wooden or Non-stick
Pastry Blender	3			
Wisk or French Whips	3 sets			Stainless Steel, Varying sizes and weights
Spatulas & Turners	3 sets			Professional Quality, varying sizes
Pie Server	4			
Utility Tongs	3 sets			Professional Quality, varying sizes
Fork Turners	3 sets			Professional Quality, varying sizes
Griddle Scraper	1			Professional Quality
Colander	3 sets			Stainless or Aluminum, Various sizes
Pastry Brush	3 sets			Professional Quality, various sizes
Scoops, Portion, Ingredients	4 ea.			Professional Quality, stainless steel, # 30 , # 8 and # 60
Ladles	3 ea.			Stainless Steel: 11", 13"
Pizza Cutter	3			Professional Quality
Grater	3			Stainless Steel, 4 sided
Garnishing Set	3			To include: peeler, decorating knife, fruit decorator, melon baller, zester
Vegetable Peelers	5			
Cutting Boards	3 sets			Color Coded, NSF approved, non-absorbent, stain and cut resistant
Thermometers	3 sets			Instant Read, Meat, Candy/Deep Fry
Mandolin	3			With safety guard
China Cap	3			
Strainer	3 sets			With handle, wire mesh, variety of sizes
Skimmer	3			Fine mesh
Juicer	3			
Cutlery				
Cutlery Set	3			Lockable carrying case, sharpener, KNIVES: Chef's, carving, carving fork, bread knife, meat cleaver, boning, paring, kitchen shears, utility scissors
Paring Knives	5			
Chef's Knives	5			12"
Shelving				

Item Name	Count 15 Students	Count 20 Students	Count 25 Students	Specifications/ Descriptions
Wire Shelving	2			Shelving unit, 4 shelf, chrome or epoxy coated, grate-style to allow for air-flow, rust proof.
Wall Mount Shelving	2			Chrome or epoxy coating
Dunnage Rack	1			Aluminum or polyethylene
Digital Scale	1			15-20 pound high range
Deep fat fryer	1			50 lb. capacity front mount control with filter
Plating & Presentation				
Hollowware/Serving	4 ea.			Various sizes and shapes
Buffetware Utensil Set	2 ea.			Stainless, polished finish to include: Solid spoons, slotted spoons, oval spoons, two-tine fork, meat fork, ladle, turner, cake server, serrated knife, tongs
Cake Stand	1			
Dinnerware	1			Service for 50 to include: dinner plate, salad plate, coffee cup and saucer
Flatware	1			Service for 50 to include: knife, fork, spoon
Beverageware	1			Service for 50, 16 oz, Glass or Plastic
Table Linens	5			Variety sizes, colors, easy-care fabric, stain/odor release, machine washable, fade-resistant
Bakeware				
Aluminum Sheet Pans	24 ea.			16 gauge Full
Aluminum Sheet Pans	8			16 gauge Half
Pizza Pan	3 ea.			Thin-style, Deep-dish style, 14"
Cake Pans	3 sets			8"or 9" diameter x 2" deep
Pie Pans	3 sets			8" or 9" diameter
Muffin Pans	3			24 cup
Loaf Pan	3			Professional Quality
Roast Pan	3 ea.			Aluminum or Stainless, 3 1/2 qt and 6 1/2 qt.
Hotel Pans	3 ea.			2" Full size, 2" Half Pan, 4" Half Size
Springform Pan	3			8" or 9" diameter, aluminum
Docker (Dough)	1			
Cookie Cutters	3 sets			Variety of shapes and sizes
Canape Cutters	3 sets			Variety of shapes and sizes
Pastry Bags	3 sets each			12", 14"
Decorator Tips	3 sets each			assorted styles
Couplers	3 sets each			
Dough Cutter	3			
Pastry Cutter	3			Various Edges
Dough Scraper	3			
Flexible Spatulas	3			Stainless Steel, 8" & 12"
Revolving Cake Stand	3			
Safety/Sanitation				

Item Name	Count 15 Students	Count 20 Students	Count 25 Students	Specifications/ Descriptions
Trash Can	2			55 gallon, with handles to include twist on/off dolly with swivel casters, with lids
Kitchen Brushes	3			Various sizes to include: All purpose and specific use
Kitchen Towels	3 sets			20 ea. Towels, Wash Cloths, White, Cotton, Bleachable
Aprons	30			Bib Style
Pot & Sink Gloves	3 ea.			Rubber, Medium and Large
Oven Mitts	3 ea.			Institutional Grade, Pair, Medium & Large
Pot Holder	3 sets			Institutional Grade, Steam Barrier
Cut-Resistant Glove	3 ea.			To fit either hand, machine washable, bleachable. X-SM, Med, Large
Anti-skid Kitchen Mats	3			Rubber Construction, holes for drainage, 3′ x 5′
Chemical Storage Cabinet	1			30"x24"x65" Locking Cabinet
Broom	3			Corn bristle or plastic bristle
Dust Pans	3			
Mop Bucket	1			Bucket, Wringer Combination, 35 qt. Capacity
Mop	1			Industrial Grade, Cotton
Ice Scoop with Holder	1			Free-standing or wall-mount, 32 oz.
First Aid Kit	1			Wall-Mounted, Identifiable
Glo-Germ Kit	1			
Sanitizer Test Kit	1 kit			Quaternary, Chlorine styles, with holder

Career Cluster: Education and Training
Pathway: Teaching and Training
Program of Study: Education and Training

STANDARDS FOR NEW PURCHASES (Effective 2004—Revised 2009)

Item Name	Count 15 Students	Count 20 Students	Count 25 Students	Specifications/ Descriptions
Combination TV/VCR/DVD or TV and VCR/DVD with cart.	1	1	1	27" TV screen, either wall mounted or portable with cart, cabinet, or stand; 3 speed recording/playback, remote control.
Cassette/CD Rom Player	1	1	1	Recorder/Player
Digital Camera	1	1	1	Multi-function, digital. Case and strap.
Digital Video Recorder with Tripod	1	1	1	Multi-function, digital. Case and strap.
Scanner	1	1	1	
Presentation Equipment	1	1	1	LCD Projector (Mounting Recommended) Teacher Laptop (See ACE Technology Standards) Computerized Presentation Board
Student Laptop	1	1	1	See ACE Technology Standards
Copy Machine	1	1	1	Black and White, multi-function, efficient speed.
Demonstration Projector	1	1	1	Multiple settings, stable base, large platform.
Classroom Performance System	1	1	1	System includes Software, 16 or 32 response pad system depending on enrollment, Receiver Unit, and Carrying Case. Software includes Site License.
Laminator	1	1	1	18" - 27"
Ellison Die Cutter	1	1	1	Assorted die cuts, durable, storage system for easy access and security.
Poster Printer	1	1	1	
Student Computer System	3	4	5	See ACE Technology Standards
Computer Printer	1	1	1	See ACE Technology Standards
Photo Printer				(2009)
Filing Cabinet	2	2	2	Sturdy, lockable, 4-drawer.
Media Storage Center	1	1	1	Adjustable compartments for CD, DVD, VCR.
Computer Tables	3	4	5	
Computer Chairs	3	4	5	Adjustable
Portable Easel White Board with Storage	1	2	3	Adjustable (2009)

Career Cluster: Human Services
Pathway: Family and Community Services
Program of Study: Family and Consumer Sciences Education

STANDARDS FOR NEW PURCHASES (Effective 1994—Revised 2010)

Item Name	Count 15 Students	Count 20 Students	Count 25 Students	Specifications/ Descriptions
Combination TV/VCR/DVD or TV and VCR/DVD with cart.	1	1	1	27" TV screen, either wall mounted or portable with cart, cabinet, or stand; 3 speed recording/playback, remote control.
Cassette/CD Rom Player	1	1	1	Recorder/Player
Digital Camera or Video Camera	1	1	1	Multi-function, digital or VCR tape. Case and strap.
Scanner	1	1	1	(2002)
Computer Tables	3	4	5	
Computer Chairs	3	4	5	Adjustable
Presentation Equipment	1	1	1	LCD Projector (Mounting Recommended) Teacher Laptop (See ACE Technology Standards) Computerized Presentation Board (2002)
Student Computer System	3	4	5	See ACE Technology Standards
Computer Printer	1	1	1	See ACE Technology Standards
Demonstration Projector	1	1	1	Multiple settings, stable base, large platform.
Filing Cabinet	2	2	2	Sturdy, lockable, 4-drawer.
Media Storage Center	1	1	1	Adjustable compartments for CD, DVD, VCR.
Demonstration Table	1	1	1	For clothing or foods demonstrations. Electrical outlet, overhead mirror, and casters.
Garbage Disposals	3	4	5	
Washer and Dryer	1 each	1 each	1 each	Multi cycles
Serger	1	1	2	Differential feed, free arm, 3-5 thread
Sewing Machine	8	10	13	Portable with protective case, sufficient space for setup. (Set-up Options: 1 cabinet per machine, or 1 table per 2 machines, or custom counter space of 40" per machine
Computerized Embroidery Sewing Machine	1	2	3	Built-in memory for ordinary sewing, decorative, and embroidery designs; automatic needle threader; minimum embroidery area of 5 X 7 inches; 2 embroidery hoops; embroidery card and slots; onscreen editing; design software (2010)
Stools for Sewing Machine	8	10	13	
Pressing Equipment Sets	3	4	5	
Iron				Teflon coated, steam/dry options, UL listed, automatic shut off, self cleaning
Ironing Board, Pad and Cover				Standard size board, Teflon coated cover
Dressmakers' Ham				6" X 10" L semi flat bottom, molded polyurethane filler

Item Name	Count 15 Students	Count 20 Students	Count 25 Students	Specifications/ Descriptions
Sleeve Roll				3" X 13 1/2" wool and cotton cover
Pressing Cloth				Cotton, silicone, treated or see through 14" X 24"
Cutting Equipment Sets	3	4	5	
Pinking Shears				9" length, nickel blade
Scissors & Shears				Variety of types and lengths, including left & right hand shears
Triple Mirror	1	1	1	Full Length
Special Storage Cabinet	1	1	1	Tote tray storage, hanging space, minimum 30 slots.
Cutting Tables	3	4	5	Sturdy wood or metal (folding with gravity lock slides) 36"X 72"
Ranges/Hoods *	3	4	5	Electric or gas, self cleaning or continuous cleaning
Vacuum, Upright	1	1	1	Min. 6.5 AMP. 3.5 peak HP
Refrigerators	2	2	3	19-25 Cubic feet, adjustable shelves, ice maker
Microwave Ovens *	3	4	5	1000-1500 Watts, automatic sensors, turntable, multiple power levels, minimum 1.5 cubic feet interior
Convection Oven	1	1	1	1300-1500 Watts, full range
Bread maker	1	1	1	Completely automatic, 1 1/2 pound loaf
Dishwashers *	3	4	5	Adjustable upper rack, delay start, multiple cycle, quiet
Stand Mixers	3	4	5	Heavy duty, dough hook, whip and beaters, large and small bowls
Kitchen Tools				
Measuring Equipment Sets	3	4	5	Dishwasher safe
Mixing Equipment Sets	3	4	5	Variety, dishwasher safe
Fruit/Vegetable Prep. Sets	3	4	5	Stain resistant, dishwasher safe
Timers	3	4	5	60 minute, prolonged signal
Cutlery Sets	3	4	5	Stain and rust resistant. To include Chef, Boning, Bread, Paring, Carving, etc.
Cake Decorating Sets	2	3	4	Commercial quality
Cookie/Pastry Presses	2	3	4	Heavy duty, stainless
Gelatin Mold Sets	2	3	4	Metal, variety of shapes and sizes
Mixing Bowl Sets	3	4	5	Graduated sizes, heat resistant, dishwasher safe
Canister Sets	3	4	5	Airtight, rust proof
Oven Baking Equipment				
Baking Sheets	6	8	10	Nonstick, dishwasher safe
Jellyroll Pans	6	8	10	Nonstick, dishwasher safe
Cake Pans	12	16	20	8" & 9", nonstick, dishwasher safe
Loaf Pans	6	8	10	Nonstick, dishwasher safe
Muffin Pans	6	8	10	6 cup, nonstick, dishwasher safe
Pie Pans	6	8	10	9" & 10" nonstick, dishwasher safe
Tube Pans	3	4	5	10" metal

Item Name	Count 15 Students	Count 20 Students	Count 25 Students	Specifications/ Descriptions
Oblong Pans	3	4	5	9" X 13"
Casserole Dishes	6	8	10	1 1/2 qt., 2qt., covered
Bundt Pans	3	4	5	12 cup
Springform Pans	3	4	5	
Microwave Sets	3	4	5	Several shapes and sizes
Cooling Racks	6	8	10	Metal
Pizza Pans	6	8	10	12" nonstick
Dining Sets	3	4	5	Sturdy table, six chairs scaled to floor space. Classroom table and chairs may be substituted.
Range Top Cooking Equipment				
Double Boilers	3	4	5	Heavy, 1 1/2 quart, with lid
Sauce Pans	12	16	20	3 qt., 4 qt., 6 qt., 8 qt., heavy with lids
Skillets	6	8	10	10" & 12", nonstick, with lids
Dutch Ovens	3	4	5	6 qt., heavy, with lid
Small Electrical Equipment				
Blenders	3	4	5	12 speed, open at both ends
Can Openers	3	4	5	Opens odd shaped and dented cans
Coffee/Tea Makers	2	2	3	12 cup, warming plate
Electric Knives	3	4	5	Stainless steel, removable blades
Electric Skillets	3	4	5	Immersible, with cover
Food Processors	3	4	5	Stainless steel blades
Hand Mixers	3	4	5	Stainless steel blades
Toasters	3	4	5	4 slice, automatic
Waffle Makers	3	4	5	Nonstick, automatic temperature control
Crock Pots	3	4	5	Temperature control, 6 quart removable crock
Deep Fryers	3	4	5	4 quart, automatic
Omelet Pans	3	4	5	Immersible, nonstick
Hand Vacuum	1	1	2	Wet/Dry
Kitchen Linen Sets				
Aprons	20	25	30	Wash and wear, varying sizes
Dish Cloths	36	48	60	Washable, large
Tea Towels	36	48	60	Washable, lint free
Hot Pads	12	16	20	Varying sizes
Pot Holders	18	24	30	Washable, heavy duty, large
Table Appointments				
Dinnerware Sets	3	4	5	Service for 8, dishwasher safe
Glassware Sets	3	4	5	Service for 8, dishwasher safe
Flatware Sets	3	4	5	Service for 8, dishwasher safe
Serving Accessory Sets	3	4	5	Dishwasher safe
Table Cloths	3	4	5	Washable, no iron
Place Mat Sets	3	4	5	Washable, no iron
Napkin Sets	3	4	5	Washable, no iron
Party Appointments				

Item Name	Count 15 Students	Count 20 Students	Count 25 Students	Specifications/ Descriptions
Punch Bowl	1	1	1	8 qt., cut glass
Platters	3	3	3	12" - 16" glass
Trays	3	3	3	12" - 16" glass
Bowls	2	2	2	4 qt., glass
Pitcher	1	1	1	2 qt., glass
Candy Dishes	4	4	4	6" glass
Cups	50	50	50	Glass
Plates	50	50	50	8", glass
Ladle	1	1	1	Glass
Table Cloth	2	2	2	Lace, cut-work, or quality linen.
Coffeemaker	1	1	1	Automatic, 55 cup

***One built in kitchen unit is required for every 5 students**

Career Cluster: Hospitality and Tourism
Pathway: Restaurant and Food & Beverage Services
Program of Study: Food Production, Management and Services

STANDARDS FOR <u>NEW PURCHASES</u> (Effective 1994—Reviewed 2008)

NOTE: *This list does not include basic equipment, presumed to be in an existing FACS department. Purchases on this list are based on 1 commercial kitchen. Additional items from the FACS department will be used to support this program of study. For a list of these required items, refer to the Family and Consumer Sciences Education Equipment list.*

Item Name	Count 15 Students	Count 20 Students	Count 25 Students	Specifications/ Descriptions
Combination TV/VCR/DVD or TV and VCR/DVD with cart.	1	1	1	27" TV screen, either wall mounted or portable with cart, cabinet, or stand; 3 speed recording/playback, remote control.
Cassette/CD Rom Player	1	1	1	Recorder/Player
Digital Camera or Video Camera	1	1	1	Multi-function, digital or VCR tape. Case and strap.
Scanner	1	1	1	
Computer Tables	3	4	5	
Computer Chairs	3	4	5	Adjustable
Student Computer System	3	4	5	See ACE Technology Standards
Presentation Equipment	1	1	1	LCD Projector (Mounting Recommended) Teacher Laptop (See ACE Technology Standards) Computerized Presentation Board
Demonstration Projector	1	1	1	Multiple settings, stable base, large platform.
36" Commercial Range	1	1	1	Gas or Electric, 2 open burners, 24" griddle with standard oven base, stainless front, sides and backsplash
Convection Oven	1	1	1	Gas or Electric, Single Stack, Solid State Controls, 60/40 independent doors
Dishwasher	1	1	1	Free standing or under counter, built-in electric booster, 30 racks per hour

Item Name	Count 15 Students	Count 20 Students	Count 25 Students	Specifications/ Descriptions
Ice Maker	1	1	1	Free standing or under counter, built-in bin, 95-145 lb. Production per 24 hours
Refrigerator	1	1	1	Reach-in, two section, self-contained, stainless steel front, standard depth, full-height door. Exterior dial type thermometer, 1/2 h.p. compressor, casters
Freezer	1	1	1	Reach-in, one-section, self-contained, stainless steel-front, standard depth, full-height door. Exterior dial type thermometer, 1/2 h.p. compressor, casters
Ventilation Exhaust and Fire Suppression	1	1	1	Stainless steel vent-a-hood, 48"x192"x 30" with fire suppression system per local code
Sink	1	1	1	Three compartment, stainless steel with right drain board, 20" front to back x 16" wide compartment, 14" deep with 10" high splash, 24" drain board.
Disposal	1	1	1	Food Waste Disposal, 1 h.p.
Dish tables	1	1	1	Fitted for under counter dishwasher, Stainless steel, 20"x20"x8" sink bowl, 9" H backsplash
Pre-Rinse Assembly	1	1	1	Deck or Back-splash Mount
Mixer with Stand	1	1	1	12-20 qt. Table-top Commercial Mixer, double hook, wire whip and flat beaters. Stainless steel stand, 30"x 36"
Cooks Tables	2	2	2	3'x5' minimum, stainless steel
Hot Food Table	1	1	1	Electric, 120 V. Portable, 58"x22"x34", 4 openings
Cold Food Bar	1	1	1	4', polyethylene construction, insulated with drain plug. Table-top model with Sneeze Guard
Food Processor	1	1	1	Commercial, 1.75 h.p., with attachments/blades
Commercial Food Slicer	1	1	1	1.7 h.p., industry standard on safety, sturdy
Food Storage				
Storage Containers	3 each			Bain-Marie Style, See-through or white, air-tight seal: 2 qt, 3 1/2 qt, 6 qt, 12 qt, 22 qt.
Dry Goods Storage	3 each			Air-tight seal, See-through with scoop: 4 qt, 2 qt, 1 qt
Small Equipment				
Crock Pots	4			
Electric Knife	1			
Food Processor	1			
Can Opener	1			
Hand Mixers	2			
Portion Scales	1			Portion Scale - 1 lb. Capacity by 1/2 ounce
Utility Scales	1			Utility Scale - up to 60 lb. Capacity
Kitchen Timers	2			Digital or Manual. 1 + hour timer with alarm.
Top of Range Cookware				

Item Name	Count 15 Students	Count 20 Students	Count 25 Students	Specifications/ Descriptions
Stock Pots	1 each			Aluminum, with lids: 9 qt.,12 qt, 16 qt
Sauté Pans	1 each			With Lids: 10", 12"
Fry Pans/Skillets	1 each			One each of: 7", 10", 14"
Sauce Pans	1 each			Aluminum or Stainless with lids: 1 1/2 qt, 2 qt, 4 qt.
Cooling Racks	4 each			Half-pan size, stainless
Kitchen Tools				
Dry Measure Cups	2 sets			Shape-retaining, stain-resistant, dishwasher safe
Liquid Measure Cups	1 each			1 cup, 2 cup, 1 qt., 2 qt. Temperature range, -40F to 212F
Measure Spoons	2 sets			
Mixing Bowls	2 each			Stainless steel: 1 qt, 2 qt, 3 qt, 5 qt, 13 qt, 20 qt.
Spoons	4 of each			Commercial, stainless steel, solid, slotted, various lengths
Wooden Spoons	1 set			Various lengths
Rubber Spatula	1 set			Commercial grade, various lengths
Dough Scraper	2			plastic
Spreaders	3			plastic
Off-set spatulas	3			Stainless or Plastic
Rolling Pin	2			Wooden or Non-stick
Pastry Blender	2			
Wisk or French Whips	3			Stainless Steel, Varying sizes
Spatulas & Turners	5			Professional Quality, varying sizes
Pie Server	4			
Utility Tongs	5			Professional Quality, varying sizes
Fork Turners	2			Professional Quality, varying sizes
Griddle Scraper	1			Professional Quality
Colander	2			Stainless or Aluminum, Various sizes
Pastry Brush	3			Professional Quality
Ladles	2 each			Stainless Steel: 11", 13"
Cutlery	2 sets			Lockable carrying case, sharpener, Chef's, Carving, Carving Fork, Bread Knife, Meat Cleaver, Boning, Paring, Kitchen Shears, Utility Scissors
Pizza Cutter	1			Professional Quality
Grater	2			Stainless Steel, 4 sided
Garnishing Set	1			Peeler, Decorating knife, Fruit decorator, melon-baller, zester
Vegetable Peelers	2			
Cutting Boards	1 set			Color Coded, NSF approved, non-absorbent, stain and cut resistant
Thermometers	2 each			Instant Read, Meat, Candy/Deep Fry
Kitchen Calculator	2			Easy to Read LCD Display, Solar or Battery operated

Item Name	Count 15 Students	Count 20 Students	Count 25 Students	Specifications/ Descriptions
Bakeware				
Aluminum Sheet Pans	4 each			Aluminum, Full and Half-Size
Pizza Pan	1 each			Thin-style, Deep-dish style, 14"
Cake Pans	3			8"or 9" diameter x 2" deep
Pie Pans	2			8" or 9" diameter
Muffin Pans	1			24 cup
Loaf Pan	3			Professional Quality
Roast Pan	1 each			Aluminum or Stainless, 3 1/2 qt and 6 1/2 qt.
Bake Pans/Casserole	2			11x17 aluminum
Springform Pan	1			8" or 9" diameter, aluminum
Shelving and Food Transport				
Wire Shelving	2			Shelving unit, 4 shelf, chrome or epoxy coated, grate-style to allow for air-flow, rust proof.
Utility Dolly	1			32"x20", 3" casters, durable, non-skid platform
Serving & Presentation				
Hollowware/ Serving	4 each			Various sizes and shapes
Beverage Serving Trays	4			Slide, chip and dent resistant
Chafing Dish	2			Stainless steel, with pan and cover
Beverage Urns	2			Stainless steel
Coffee Urn	1			Aluminum, 30 cup
Cream & Sugar Set	1			Stainless or porcelain
Buffetware Utensil Set	2 each			Stainless, polished finish to include: Solid spoons, slotted spoons, oval spoons, two-tine fork, meat fork, ladle, turner, cake server, serrated knife, tongs
Steam Table Pans	1 each			Stainless Steel with covers and adapter bars to include: Full-size 12" D, Full-size 6" D, Half-size 12" D, Half-size 6" D, Third-size 12" D, Third-size 6" D
Cake Stand	1			
Salt & Pepper Shakers	10 sets			Rust-resistant lids
Condiment Caddies	10			Plastic construction
Bread, Cracker Baskets	10			Woven or Vinyl Construction
Drink Pitchers	6			Plastic construction, 2 qt.
Dinnerware	1			Service for 50 to include: dinner plate, salad plate, coffee cup and saucer
Flatware	1			Service for 50 to include: knife, fork, spoon
Beverageware	1			Service for 50, 16 oz, Glass or Plastic
Table Linens	5			Variety sizes, colors, easy-care fabric, stain/odor release, machine washable, fade-resistant
Safety/Sanitation				
Trash Can	1			55 gallon, with handles to include twist on/off dolly with swivel casters
Kitchen Brushes	3			Various sizes to include: Pan, Vegetable, Nail

Item Name	Count 15 Students	Count 20 Students	Count 25 Students	Specifications/ Descriptions
Kitchen Towels	1 set			20 each Towels, Wash Cloths, White, Cotton, Bleachable
Aprons	1 set			White bib style, 1 per student for largest class
Pot & Sink Gloves	1 each			Rubber, Medium and Large
Oven Mitts	2 each			Institutional Grade, Pair, Medium & Large
Pot Holder	6			Institutional Grade, Steam Barrier
Cut-Resistant Glove	1 each			To fit either hand, machine washable, bleachable. X-SM, Med, Large
Anti-skid Kitchen Mats	2			Rubber Construction, holes for drainage, 3'x5'
Chemical Storage Cabinet	1			30"x24"x65" Locking Cabinet
Busing Boxes	4			20"x15"x7"
Broom	1			Corn bristle or plastic bristle
Push Broom	1			Heavy-duty, 18" floor push broom
Mop Bucket	1			Bucket, Wringer Combination, 35 qt. Capacity
Mop	1			Industrial Grade, Cotton
Ice Scoop with Holder	1			Free-standing or wall-mount, 32 oz.
First Aid Kit	1			Wall-Mounted, Identifiable
Glo-Germ Kit	1			
Sanitizer Test Kit	1 kit			Quaternary, Chlorine styles, with holder
Utility/Service Cart	1			Heavy-duty, 2-3 shelf, stainless or heavy duty polyethylene, 300 lb. capacity.
Dunnage Rack	1			Aluminum or polyethylene construction, 30"x18"x8"
Wall-Mount Shelving	2			Chrome or epoxy coated, grate-style, 24"x21"x12"

Course: Family and Consumer Science Investigation (Family CSI)

STANDARDS FOR NEW PURCHASES (Effective 2002—Updated 2007)

Item Name	Count 15 Students	Count 20 Students	Count 25 Students	Specifications/ Descriptions
Combination TV/VCR/DVD or TV and VCR/DVD with cart.	1	1	1	27" TV screen, either wall mounted or portable with cart, cabinet, or stand; 3 speed recording/playback, remote control.
Cassette/CD Rom Player	1	1	1	Recorder/Player
Digital Camera or Video Camera	1	1	1	Multi-function, digital or VCR tape. Case and strap.
Scanner	1	1	1	
Computer Tables	3	4	5	
Computer Chairs	3	4	5	Adjustable
Presentation Equipment	1	1	1	LCD Projector (Mounting Recommended) Teacher Laptop (See ACE Technology Standards) Computerized Presentation Board
Student Computer System	3	4	5	See ACE Technology Standards
Computer Printer	1	1	1	See ACE Technology Standards
Demonstration Projector	1	1	1	Multiple settings, stable base, large platform.
Filing Cabinet	2	2	2	Sturdy, lockable, 4-drawer.
Media Storage Center	1	1	1	Adjustable compartments for CD, DVD, VCR.
Demonstration Table	1	1	1	For clothing or foods demonstrations. Electrical outlet, overhead mirror, and casters, on board cook top and water supply.
Additional Storage/Demonstration Unit	1	1	1	Multiple storage areas and types, locking, sturdy, easy access during demonstrations. May be additional basic demo table or built in counter storage.
Serger	1	1	2	Differential feed, free arm, 3-5 thread
Sewing Machines	5	7	10	Portable with protective case, sufficient space for setup. (Set-up Options: 1 cabinet per machine, or 1 table per 2 machines, or custom counter space of 40" per machine)
Stools for Sewing Machine	5	7	10	
Pressing Equipment Sets				
Iron	2	2	3	Teflon coated, steam/dry options, UL listed, automatic shut off, self cleaning
Ironing Board, Pad and Cover	2	2	3	Standard size board, Teflon coated cover
Pressing Cloth	5	5	5	Cotton, silicone, treated or see through 14" X 24"
Cutting Equipment Sets				
Pinking Shears	3	4	5	9" length, nickel blade

Item Name	Count 15 Students	Count 20 Students	Count 25 Students	Specifications/ Descriptions
Scissors & Shears	10	15	20	Variety of types and lengths, including left & right hand shears
Cutting Tables	1	1	2	Sturdy wood or metal (folding with gravity lock slides) 36"X 72"
Special Storage Cabinet	1	1	2	Tote tray storage, hanging space, minimum 30 slots.
Refrigerator	1			Dorm Style, adjustable shelves.
Microwave Oven	1			1000-1500 Watts, automatic sensors, turntable, multiple power levels, minimum 1.5 cubic ft interior
Toaster Oven	1			Table top, large enough to bake cookies, muffins, pizza, and other small food items.
Kitchen Tools				
Measuring Equipment Sets	2 sets			liquid and dry measuring cups and spoons
Mixing Equipment Sets	1set			Variety of spoons, whisk spatulas, etc.
Timers	1			60 minute, prolonged signal
Spatulas and Turners	6			Variety of sizes to fit pans
Cutlery Sets	1			Stain and rust resistant. To include Chef, Boning, Bread, Paring, Carving, etc.
Mixing Bowl Sets	1			Graduated sizes, heat resistant, clear.
Oven Baking Equipment				*Note* all baking items should fit dimensions and specifications of toaster oven purchased.
Baking Sheets	3			
Cake Pans	3			
Loaf Pans	3			
Muffin Pans	3			
Pizza Pans	3			12" nonstick
Pie Pans	3			
Casserole Dishes	3			
Cooling Racks	3			Metal
Microwave Sets	1			Variety of pans for microwave cooking. Various shapes and sizes.
Range Top Cooking Equipment				
Sauce Pans	4			Heavy with lids, variety of sized to fit range top.
Skillets	4			Heavy with lids, variety of sized to fit range top.
Small Electrical Equipment				
Blenders	1			12 speed, open at both ends
Can Openers	1			Opens odd shaped and dented cans
Hand Mixers	1			Stainless steel blades
Toasters	1			4 slice, automatic
Waffle Makers	1			Nonstick, automatic temperature control, removable variety of plates for sandwiches, grilling, pancakes or waffles.

Item Name	Count 15 Students	Count 20 Students	Count 25 Students	Specifications/ Descriptions
Kitchen Linen Sets				
Aprons	20	25	30	Wash and wear, varying sizes
Dish Cloths	5	5	5	Washable, large
Kitchen Towels	10	10	10	Washable, lint free
Hot Pads	10	10	10	Varying sizes
Pot Holders	10	10	10	Washable, heavy duty, large
Table Appointments				
Dinnerware Sets	1	1	1	Service for 8, for demos not individual student use.
Flatware Sets	1	1	1	Service for 8, for demos not individual student use.

Career Cluster: Hospitality and Tourism
Pathway: Lodging
Program of Study: Lodging Management

STANDARDS FOR <u>NEW PURCHASES</u> (Effective 2002)

***NOTE**: This list does not include basic equipment, presumed to be in an existing FACS department. Additional items from the FACS department will be used to support this program of study. For a list of these required items, refer to the Family and Consumer Sciences Education Equipment List.*

Item Name	Count 15 Students	Count 20 Students	Count 25 Students	Specifications/ Descriptions
Combination TV/VCR/DVD or TV and VCR/DVD with cart.	1	1	1	27" TV screen, either wall mounted or portable with cart, cabinet, or stand; 3 speed recording/playback, remote control.
Cassette/CD Rom Player	1	1	1	Recorder/Player
Digital Camera or Video Camera	1	1	1	Multi-function, digital or VCR tape. Case and strap.
Scanner	1	1	1	
Computer Tables	3	4	5	
Computer Chairs	3	4	5	Adjustable
Presentation Equipment	1	1	1	LCD Projector (Mounting Recommended) Teacher Laptop (See ACE Technology Standards) Computerized Presentation Board
Demonstration Projector	1	1	1	Multiple settings, stable base, large platform.
Student Computer System	5	6	7	See ACE Technology Standards
Printers	3	3	4	See ACE Technology Standards
Calculator	1	2	3	10 key, multi-function, 2 color tape print out, digital display. Dedicated to Mock Registration Desk.
Office Desk with Chair	1	1	1	Dedicated to Mock Registration, sturdy, professional, desk must lock with storage and room for computer and printer. Chair must be adjustable and on wheels.

Item Name	Count 15 Students	Count 20 Students	Count 25 Students	Specifications/ Descriptions
Sofa Bed	1	1	1	Full Sleeper, 76"w x 38"d x 35" h or larger, Semi Attached Back, loose cushions, durable fabric.
Commercial Vacuum	1	1	1	Triple filtration system, Automatic carpet height adjustment, built in maid's cart, easy transport, on board storage for attachments and supplies, long 2 wire cable (31 feet).
Commercial Floor Polisher	1	1	1	Brush pad diameter 20", 1.5 hp motor, adjustable handle and aluminum construction, sealed gear chamber, non-marking wall bumper, 50 foot cable.
Commercial Cleaning Set	1 set			
Broom	1			
Dust Pan	1			Large
Carpet Sweeper	1			
Dust Mop	1			Telescoping handle
Lamb's Wool Duster	1			Telescoping handle
Deck Mop	1			
Bucket	1			With downward pressure wringer.
Maids Cart	1			Sturdy, lockable, multiple shelves or cabinet style
Bath Linens Set				1 set per student. A set consists of 2 bath towels, 2 hand towels, and 4 wash cloths.
Bath Towels	30	40	50	
Hand Towels	30	40	50	
Washcloths	60	80	100	
Bed Linens Set				
Flat Sheets	2			
Pillow Cases	2			
Pillows	2			
Storage Cabinet	1	1	1	Locking, sturdy, adjustable shelves, storage for linens and additional items.

Operational Guide for School Improvement

Summary of Changes (09/26/12)
COURSE DESCRIPTIONS AND CODES:
Added New Courses – Energy and the Environment, Flight and Space, and Green Architecture to Gateway to Technology
Added New Course Descriptions to – The Magic of Electrons and The Science of Technology
Removed Unit numbers from Gateway to Technology courses
Added Headings--Foundation courses and Specialization courses to Pre-Engineering and Gateway to Technology courses
Deleted Licensure Codes 100, 101, 102, and 211 from ETE 1 and ETE 2 courses
Corrected course code title – ETE 1 (Introduction to Engineering and Technology) and updated course description
Corrected course code title – ETE 2 (Fundamentals of Engineering and Technology) and updated course description
Updated equipment lists for Pre-Engineering, Gateway to Technology, and Applied Sciences
Added equipment list for Biomedical Sciences, Drafting and Design, and Computer Engineering
Added course codes and descriptions for Architectural/CAD, Engineering/CAD, Computer Engineering, Programming, Oracle Academy, and Courses that must seek ACE Approval before Implementation
Added STEM Related Pathway Courses Currently Under Development
Updated High Schools That Work (HSTW) and Technology Center That Work (TCTW) about information pages
PATHWAYS AND PROGRAMS OF STUDY BY CAREER CLUSTER:
Added Information Technology (Computer Engineering, Programming, and Oracle Academy)
Added Architectural/CAD and Engineering/CAD to Science, Technology, Engineering, and Mathematics
Summary of Changes (03/22/11)
Added Digital Electronics as “Core “- 12-23-2009
Moved Digital Electronics to list of “Specialization Courses” - 2-17-2011
Added Computer Engineering Courses as options for additional “Specialization Courses” - 2-17-2011
Added Drafting and Design Courses as options for additional “Specialization Courses”- 2-17-2011

CAREER CLUSTER PATHWAY – PROGRAM OF STUDY CROSSWALK	
Cluster: SCIENCE, TECHNOLOGY, ENGINEERING, & MATHEMATICS	
Pathway	**Program of Study**
Drafting & Design	Architectural/CAD
Drafting & Design	Engineering/CAD
Engineering & Technology	Biomedical Sciences
Engineering & Technology	Pre-Engineering

Cluster: INFORMATION TECHNOLOGY	
Pathway	**Program of Study**
Information Support and Services	Oracle Academy
Network Systems	Computer Engineering
Programming and Software Development	Programming

CAREER CLUSTER: SCIENCE, TECHNOLOGY, ENGINEERING, AND MATHEMATICS (STEM)

Program Description

The STEM cluster makes up a group of instructional programs that prepare individuals to apply technical knowledge and skills in one or more trade, technical, and/or professional occupations. Students will engage in activities and instruction enabling them to use, create, problem solve, and control various technology resources; people, tools, machines, information, materials, energy, capital, and time.

Occupational Programs

Specific courses are required for each of the programs of study (pathways); in addition, various options may be selected to complete the required curriculum.

Student Organization

The appropriate career and technical student organization, SkillsUSA for all occupational programs and/or Technology Student Association (TSA) for all technology education programs, shall be an integral part of each instructional program respectively and shall follow the same guidelines, goals, objectives, and participate in activities of the Arkansas state chapter and the respective national organization.

CLUSTER: SCIENCE, TECHNOLOGY, ENGINEERING, & MATHEMATICS (STEM)

PROJECT LEAD THE WAY (PLTW)

Pre-Engineering

Foundation Courses:

495480 Introduction to Engineering Design (IED)
Credit: 1 Grade Levels: 9-12
Introduction to Engineering Design is an introduction course that develops students' problem-solving skills, with emphasis placed on the concept of developing a 3-D model or solid rendering of an object. Students focus on the application of visualization processes and tools provided by modern, state-of-the-art computer hardware and software. The course will emphasize the design development process of a product and how a model of that product is produced, analyzed, and evaluated, using a computer-aided design system. Various design applications will be explored with discussion of possible career opportunities.
Does course count in required 38 units and, if yes, how: Yes Career & Technical
Does course count in the 21 units required for graduation: Yes
Licensure required to teach this course: 606 Pre-Engineering

495490 Principles of Engineering (POE)
Credit: 1 Grade Levels: 9-12
Principles of Engineering is a broad-based survey course designed to help students understand the field of engineering and engineering technology and its career possibilities. Students will develop engineering problem-solving skills that are involved in postsecondary education programs and engineering careers. They will explore various engineering systems and manufacturing processes. They will also learn how engineers address concerns about the social and political consequences of technological change. The main purpose of this course is to experience through theory and hands-on, problem-solving activities what engineering is all about and to answer the question, "Is a career in engineering or engineering technology for me?"
Does course count in required 38 units and, if yes, how: Yes Career & Technical
Does course count in the 21 units required for graduation: Yes
Licensure required to teach this course: 606 Pre-Engineering

Specialization Courses:

494980 Aerospace Engineering (AE)
Credit: 1 Grade Levels: 11-12
Through hands-on engineering projects developed with NASA, Aerospace Engineering students learn about aerodynamics, astronautics, space-life sciences, and systems engineering, including the study of intelligent vehicles like the Mars rovers Spirit and Opportunity.
Does course count in required 38 units and, if yes, how: Yes Career & Technical
Does course count in the 21 units required for graduation: Yes
Licensure required to teach this course: 606 Pre-Engineering

494990 Biotechnical Engineering (BE)
Credit: 1 Grade Levels: 11-12
The Biotechnical Engineering course provides relevant projects from the diverse fields of biotechnology, bioengineering, biomedical engineering, and biomolecular engineering that enable students to apply and concurrently develop secondary-level knowledge and skills in biology, physics, technology, and mathematics.
Does course count in required 38 units and, if yes, how: Yes Career & Technical
Does course count in the 21 units required for graduation: Yes
Licensure required to teach this course: 606 Pre-Engineering

495440 Civil Engineering and Architecture (CEA)
Credit: 1 Grade Levels: 11-12
This course builds upon the computer solid modeling design skills developed in Introduction to Engineering Design. Students will be presented with design problems that require the use of computer-aided drafting skills to develop solutions to the problems. They will evaluate the solutions using mass property analysis (study of the relationship among the design, function, and materials used), make appropriate modifications, and use prototyping equipment to produce 3-D models of the solutions. Students will be expected to communicate the process and results of their work through oral and written reports.
Does course count in required 38 units and, if yes, how: Yes Career & Technical
Does course count in the 21 units required for graduation: Yes
Licensure required to teach this course: 606 Pre-Engineering

495450 Computer-Integrated Manufacturing (CIM)
Credit: 1 Grade Levels: 11-12
This course builds upon the computer solid modeling design skills developed in Introduction to Engineering Design. Students will be presented with design problems that require the use of Inventor to develop solutions to the problems. They will evaluate the solutions using mass property analysis (study of the relationship among the design, function, and materials used), make appropriate modifications, and use prototyping equipment to produce three-dimensional models of the solutions. Students will be expected to communicate the process and results of their work through oral and written reports.
Does course count in required 38 units and, if yes, how: Yes Career & Technical
Does course count in the 21 units required for graduation: Yes
Licensure required to teach this course: 606 Pre-Engineering

495460 Digital Electronics (DE)
Credit: 1 Grade Levels: 10-12
Digital Electronics is a course of study in applied digital logic. The course is patterned after the first-semester course in digital electronics taught in two- and four-year colleges. Students will study the application of electronic logic circuits and devices and apply Boolean logic to the solution of problems. Students will design circuits using Circuit Maker, export their designs to a printed circuit auto-routing program that generates printed circuit boards, and construct the design using chips and other components.
Does course count in required 38 units and, if yes, how: Yes Career & Technical
Does course count in the 21 units required for graduation: Yes
Licensure required to teach this course: 606 Pre-Engineering

495470 Engineering Design and Development – (CAPSTONE)
Credit: 1 Grade Levels: 11-12
In this course, students will work in teams of two to four to design and construct the solution to an engineering problem, applying the principles developed in the preceding four courses. The problem may be selected from a database of engineering problems, be a recognized national challenge, or be an original engineering problem identified by the team and approved by the instructor. The problems will involve a wide range of engineering applications (e.g., a school robo-mascot, automated solar water heater, remote control hovercraft). Students will maintain a journal as part of a portfolio of their work. Each team will be responsible for delivering progress reports and making final presentations of its project for an outside review panel.
Does course count in required 38 units and, if yes, how: Yes Career & Technical
Does course count in the 21 units required for graduation: Yes
Licensure required to teach this course: 606 Pre-Engineering

Biomedical Sciences (BMS)

495000 Principles of the Biomedical Sciences (PBS)
Credit: 1 Grade Levels: 9-12
Student work involves the study of human medicine, research processes, an introduction to bioinformatics, and the use of computer science, mathematics, and information theory to model and analyze biological systems. Students investigate the human body systems and various health conditions including heart disease, diabetes, sickle-cell disease, hypercholesterolemia, and infectious diseases. They determine the factors that led to the death of a fictional person, and investigate lifestyle choices and medical treatments that might have prolonged the person's life. Key biological concepts including homeostasis, metabolism, inheritance of traits, feedback systems, and defense against disease are embedded in the curriculum. Engineering principles including the design process, feedback loops, and the relationship of structure to function are incorporated in the curriculum. This course is designed to provide an overview of all the courses in the Biomedical Sciences program and lay the scientific foundation for subsequent courses.
Does course count in required 38 units and, if yes, how: Yes Career & Technical
Does course count in the 21 units required for graduation: Yes
Licensure required to teach this course: 624 Biomedical

495010 Human Body Systems (HBS)
Credit: 1 Grade Levels: 9-12
Students engage in the study of the processes, structures, and interactions of the human body systems. Important concepts in the course include: communication, transport of substances, locomotion, metabolic processes, defense, and protection. The central theme is how the body systems work together to maintain homeostasis and good health. The systems are studied as "parts of a whole," working together to keep the amazing human machine functioning at an optimal level. Students design experiments, investigate the structures and functions of body systems, and use data acquisition software to monitor body functions such as muscle movement, reflex and voluntary actions, and respiratory operation. Students work through interesting real-world cases and play the role of biomedical professionals to solve medical mysteries.
Does course count in required 38 units and, if yes, how: Yes Career & Technical
Does course count in the 21 units required for graduation: Yes
Licensure required to teach this course: 624 Biomedical

495020 Medical Interventions (MI)
Credit: 1 Grade Levels: 9-12
Students investigate a variety of interventions involved in the prevention, diagnosis and treatment of disease as they follow the lives of a fictitious family. The course is a "How-To" manual for maintaining overall health and homeostasis in the body as students explore how to prevent and fight infection; how to screen and evaluate the code in human DNA; how to prevent, diagnose and treat cancer; and how to prevail when the organs of the body begin to fail. These scenarios expose students to the wide range of interventions related to immunology, surgery, genetics, pharmacology, medical devices, and diagnostics. Each family case scenario introduces multiple types of interventions and reinforces concepts learned in the previous two courses, as well as presenting new content. Interventions may range from simple diagnostic tests to treatment of complex diseases and disorders. These interventions are showcased across generations of a family and provide a look at the past, present and future of biomedical sciences. Lifestyle choices and preventive measures are emphasized throughout the course, as are the important roles scientific thinking and engineering design play in the development of interventions of the future.
Does course count in required 38 units and, if yes, how: Yes Career & Technical
Does course count in the 21 units required for graduation: Yes
Licensure required to teach this course: 624 Biomedical

495030 Biomedical Innovations (BI) – Capstone Course
Credit: 1 Grade Levels: 11-12
Students apply their knowledge and skills to answer questions and solve problems related to the biomedical sciences. In this capstone course, they may consult with a mentor or advisor from a university, hospital, physician's office, or industry. Students are expected to present the results of their work to an adult audience, which may include representatives from the local healthcare or business community or the school's Partnership Team.
Does course count in required 38 units and, if yes, how: Yes Career & Technical
Does course count in the 21 units required for graduation: Yes
Licensure required to teach this course: 624 Biomedical

Middle School Program of Study

Gateway to Technology (GTT)

Foundation Courses:

399120 Design and Modeling (DM)
Credit: .5 Grade Levels: 7-8
Students will learn the uses of solid modeling. They will be introduced to the design process and shown how this technology has influenced their lives. Using design briefs or abstracts, students create models and documentation to solve problems.
Does course count in required 38 units and, if yes, how: No
Does course count in the 21 units required for graduation: No
Licensure required to teach this course: 606 Pre-Engineering

399110 Automation and Robotics (AR)
Credit: .5 Grade Levels: 7-8
Students trace the history and development of automation and robotics. They learn about structures, energy transfer, and machine automation. They also find out what they need to study in high school and beyond to prepare for careers in engineering.
Does course count in required 38 units and, if yes, how: No
Does course count in the 21 units required for graduation: No
Licensure required to teach this course: 606 Pre-Engineering

Specialization Courses:

399310 Energy and the Environment (EE)
Credit: .5 Grade Levels: 7-8
Students investigate the impact of energy on their lives and the environment. Alternative energy sources are evaluated and used to reduce energy consumption through energy efficiency and sustainability.
Does course count in required 38 units and, if yes how: No
Does course count in the 22 units required for graduation: No
Licensure required to teach this course: 606 Pre-Engineering

399250 Flight and Space (FS)
Credit: .5 Grade Levels: 7-8
The history of aerospace comes to life through hands-on activities and research as students explore the science behind aeronautics. Students use their knowledge to build, design, and test airfoil. Simulation software is used to provide space travel experience.
Does course count in required 38 units and, if yes how: No
Does course count in the 22 units required for graduation: No
Licensure required to teach this course: 606 Pre-Engineering

399300 Green Architecture (GA)
Credit: .5 Grade Levels: 7-8
The concept of “being green” is introduced to the next generation of designers and builders. Students learn about architectural styles and sustainability construction plans. An environmentally friendly home is designed using 3D architecture software.
Does course count in required 38 units and, if yes how: No
Does course count in the 22 units required for graduation: No
Licensure required to teach this course: 606 Pre-Engineering

399130 The Magic of Electrons (ME)
Credit: .5 Grade Levels: 7-8
Students use hands-on projects to explore the science of electricity including the behavior and parts of atoms using sensing devices. Knowledge and skills are acquired in basic circuitry design and the impact of electricity on our lives.
Does course count in required 38 units and, if yes, how: No
Does course count in the 21 units required for graduation: No
Licensure required to teach this course: 606 Pre-Engineering

399140 The Science of Technology (ST)
Credit: .5 Grade Levels: 7-8
How science has affected technology throughout history is traced as students learn to apply the concepts in physics, chemistry and nanotechnology to STEM activities and projects.
Does course count in required 38 units and, if yes, how: No
Does course count in the 21 units required for graduation: No
Licensure required to teach this course: 606 Pre-Engineering

Engineering and Technology Education (ETE)

399150 ETE 1 (Introduction to Engineering and Technology, 7-8th grade)
Credit: .5 Grade Levels: 7-8
Students will develop an understanding of the history of technology involving information and communication, construction, manufacturing, energy, power, transportation and how they can be used to solve technological problems. They will explore principles and concepts as well as the application of technological and engineering practices through the completion of experiments, field trips, writing activities and design projects.
Does course count in required 38 units and, if yes, how: No
Does course count in the 22 units required for graduation: No
Licensure required to teach this course: 212 Industrial Technology Ed
579 Exploring Industrial Technology Education

399160 ETE 2 (Fundamentals of Engineering and Technology, 7-8th grade)
Credit: .5 Grade Levels: 7-8
Students will further their understanding of the of impact technology has on the modern world involving information and communication, construction, manufacturing, energy, power, transportation and how they can be used to solve technological problems. Students will gain an understanding of the history of technology with emphasis placed on the exploration of principles and concepts as well as the application of technological and engineering practices. This will be achieved through the completion of experiments, learning exercises, field trips, writing activities and design projects. These activities will be used to understand the relationship between identified careers and career fields in technology and engineering.
Does course count in required 38 units and, if yes, how: No
Does course count in the 22 units required for graduation: No
Licensure required to teach this course: 212 Industrial Technology Ed
579 Exploring Industrial Technology Education

494010 ETE 1 (Introduction to Engineering and Technology, 9th grade)
Credit: .5 Grade Level: 9
Students will develop an understanding of the history of technology involving information and communication, construction, manufacturing, energy, power, transportation and how they can be used to solve technological problems. They will explore principles and concepts as well as the application of technological and engineering practices through the completion of experiments, field trips, writing activities and design projects.
Does course count in required 38 units and, if yes, how: Yes Career & Technical
Does course count in the 22 units required for graduation: Yes
Licensure required to teach this course: 212 Industrial Technology Ed
579 Exploring Industrial Technology Education

494020 ETE 2 (Fundamentals of Engineering and Technology, 9th grade)
Credit: .5 Grade Levels: 9
Students will further their understanding of the of impact technology has on the modern world involving information and communication, construction, manufacturing, energy, power, transportation and how they can be used to solve technological problems. Students will gain an understanding of the history of technology with emphasis placed on the exploration of principles and concepts as well as the application of technological and engineering practices. This will be achieved through the completion of experiments, learning exercises, field trips, writing activities and design projects. These activities will be used to understand the relationship between identified careers and career fields in technology and engineering.
Does course count in required 38 units and, if yes, how: Yes Career & Technical
Does course count in the 22 units required for graduation: Yes
Licensure required to teach this course: 212 Industrial Technology Ed
579 Exploring Industrial Technology Education

Additional Specialization courses that can be chosen as electives for Pre-Engineering:

Computer Engineering

494400 Diagnostics
Credit: 1 Grade Levels: 9-12
This course will provide an introduction to computer hardware and software as students learn the history of the computer as well as current operating environments. This course will prepare individuals in the understanding and application of basic principles, troubleshooting, and use of microcomputer system hardware, peripheral devices, and operating system hardware.
Does course count in required 38 units and, if yes, how: Yes Career & Technical
Does course count in the 21 units required for graduation: Yes
Licensure required to teach this course: 572 Computer Engineering

Drafting & Design Engineering/CAD Program of Study

494700 Drafting & Design (Core Course)
Credit: 1 Grade Levels: 9-12
Drafting and Design focuses on the basic knowledge and skills required to produce engineering and architectural drawings. Emphasis is given to the development of competencies related to the use of drafting equipment, the production of beginning level engineering drawings and the production of beginning level architectural drawings.
Does course count in required 38 units and, if yes, how: Yes Career & Technical
Does course count in the 21 units required for graduation: Yes
Licensure required to teach this course: 575 Drafting and Design

494740 Engineering/CAD I (Core Course)
Credit: 1 Grade Levels: 9-12
Engineering/CAD I focus on the knowledge and skills required to produce advanced level engineering drawings. Emphasis is given to the development of competencies related to solving drafting and design problems that require the individual to understand and apply a wide range of technical knowledge and critical-thinking skills. The course is designed to allow the student to produce drawings as traditional drawings or as computer-aided drawings.
Does course count in required 38 units and, if yes, how: Yes Career & Technical
Does course count in the 21 units required for graduation: Yes
Licensure required to teach this course: 575 Drafting and Design

494760 Engineering/CAD II (Cannot be chosen as an elective for Pre-Engineering)
Credit: 1 Grade Levels: 10-12
Engineering/CAD II focuses on the knowledge and skills required to produce advanced level engineering drawings. Emphasis is given to the development of competencies related to solving drafting and design problems that require the individual to understand and apply a wide range of technical knowledge and critical-thinking skills. The course is designed to allow the student to produce drawings as traditional drawings or as computer-aided drawings.
Does course count in required 38 units and, if yes, how: Yes Career & Technical
Does course count in the 21 units required for graduation: Yes
Licensure required to teach this course: 575 Drafting and Design

494750 Engineering/CAD Lab
Credit: 1 Grade Levels: 9-12
This production-based program is designed to allow for the development of skills and knowledge needed to execute a comprehensive engineering product.
Does course count in required 38 units and, if yes, how: Yes Career & Technical
Does course count in the 21 units required for graduation: Yes
Licensure required to teach this course: 575 Drafting and Design

Drafting & Design Architectural/CAD Program of Study

494700 Drafting & Design (Core Course)
Credit: 1 Grade Levels: 9-12
Drafting and Design focuses on the basic knowledge and skills required to produce engineering and architectural drawings. Emphasis is given to the development of competencies related to the use of drafting equipment, the production of beginning level engineering drawings and the production of beginning level architectural drawings.
Does course count in required 38 units and, if yes, how: Yes Career & Technical
Does course count in the 21 units required for graduation: Yes
Licensure required to teach this course: 575 Drafting and Design

494710 Architectural/CAD I (Core Course)
Credit: 1 Grade Levels: 9-12
Architectural/CAD II focuses on the knowledge and skills required to plan and prepare scale pictorial interpretations of plans and design concepts for residential buildings. Emphasis is given to the development of competencies related to solving drafting and design problems that require the individual to understand and apply a wide range of technical knowledge and critical thinking skills. The course is designed to allow the student to produce drawings as traditional drawings or as computer-aided drawings.
Does course count in required 38 units and, if yes, how: Yes Career & Technical
Does course count in the 21 units required for graduation: Yes
Licensure required to teach this course: 575 Drafting and Design

494730 Architectural/CAD II
Credit: 1 Grade Levels: 10-12
Architectural/CAD II focuses on the knowledge and skills required to plan and prepare scale pictorial interpretations of plans and design concepts for residential buildings. Emphasis is given to the development of competencies related to solving drafting and design problems that require the individual to understand and apply a wide range of technical knowledge and critical thinking skills. The course is designed to allow the student to produce drawings as traditional drawings or as computer-aided drawings.
Does course count in required 38 units and, if yes, how: Yes Career & Technical
Does course count in the 21 units required for graduation: Yes
Licensure required to teach this course: 575 Drafting and Design

494720 Architectural/CAD Lab
Credit: 1 Grade Levels: 9-12
This production-based program is designed to allow for the development of skills and knowledge needed to execute a comprehensive architectural product.
Does course count in required 38 units and, if yes, how: Yes Career & Technical
Does course count in the 21 units required for graduation: Yes
Licensure required to teach this course: 575 Drafting and Design

APPLIED SCIENCES

Philosophy

Career and Technical education instruction is designed to prepare specialized workers at the technician level in occupational fields that include the technology supportive to professional engineers, scientists, physicians, and managers. To prepare students for a technological society and equip them with the academic skills and technical principles sufficient to allow them to succeed in advanced technical programs/classes, two courses are available at the secondary level. Principles of Technology is a well-established, two-year course while the new Physics in Context course is a one-year course.

Course Descriptions

Principles of Technology (PT) and Physics in Context (PIC) are instructional courses for secondary students interested in technical careers and other students wishing to further their understanding of the physical principles underlying modern technology. (The PIC course was derived from the PT course.) These courses provide instruction in mechanical, fluid, electrical, and thermal principles on which modern equipment operates and the mathematics associated with these principles. These courses may be taught as an alternative for increased course work in science and provide two units or one unit, respectively, of applied and laboratory science toward graduation.

Course Type, Length, Curriculum, and Course Credit

PT and PIC are designed as hands-on, activity-based, applied-physics courses. PT normally requires two years and PIC one year to complete. Students will receive information and experiences from a balance of sources, including class lectures, demonstrations, discussions, textbook materials, audio-video aids, math labs, and hands-on physics application labs with classroom review.

The PT or PIC teacher shall follow the Center for Occupational Research and Development (CORD) teacher manuals, which are used as the course content guide for these courses. Since the science frameworks published by ADE are not as specific as the CORD PT objectives, the end-of-course tests for PT are correlated to the objectives found in the CORD PT and PIC curriculum.

One physics (science) credit toward graduation requirements shall be given students who complete the two-year PT course (PT I and PT II). One elective vocational credit or one physical science credit shall be given students who complete only one year of the PT course. One physics (science) credit toward graduation requirements shall be given to students who complete the one-year PIC course.

Eligibility of Students

Students in the 10th, 11th, and 12th grade choosing the PT course, must have a sound understanding of mathematics, including Algebra I, prior to entering either the PT or PIC courses.

Student Organization

PT and PIC students are encouraged to join the SkillsUSA or the Technology Students Association (TSA).

Principles of Technology (PT)

523000 Principles of Technology I
Credit: 1 Grade Levels: 9-12
PT I is designed as a hands-on, activity-based, applied physics course (it normally requires two years to complete PT I and PT II). One physics (science) credit toward graduation requirements shall be given students who complete the two-year PT course (PT I and PT II). One elective vocational credit or one physical science credit shall be given students who complete only one year of the PT course.
Does course count in required 38 units and, if yes, how: No
Does course count in the 22 units required for graduation: Yes ADE-Approved Physical Science Elective
Licensure required to teach this course: 6541 Principles of Technology I

522000 Principles of Technology II
Credit: 1 Grade Levels: 10-12
PT II is designed as a hands-on, activity-based, applied physics course (it normally requires two years to complete PT I and PT II). One physics (science) credit toward graduation requirements shall be given students who complete the two-year PT course (PT I and PT II). One elective vocational credit or one physical science credit shall be given students who complete only one year of the PT course.
Does course count in required 38 units and, if yes, how: No
Does course count in the 22 units required for graduation: Yes ADE-Approved Physics Elective
Licensure required to teach this course: 6542 Principles of Technology II

Physics in Context (PIC)

522070 Physics in Context
Credit: 1 Grade Levels: 9-12
PIC is designed as a hands-on, activity-based, applied physics course normally requiring one year to complete. Students will receive information and experiences from a balance of sources, such as class lecture, demonstrations and discussions, the text and workbook, audio-video/visual aids, math skills labs, hands-on physics applications labs, and review.
Does course count in required 38 units and, if yes, how: No
Does course count in the 22 units required for graduation: Yes ADE-Approved Physics Elective
Licensure required to teach this course: 6542 Principles of Technology II

STEM Related Pathway Courses Currently Under Development

Innovations in Science and Technology (IST)

Program description

The Innovations in Science and Technology program is designed for all students to develop technological literacy and stimulate interest in pursuing a career in a technological, scientific, or engineering field. Focusing on 21st century practices and skills, the IST program provides students with the knowledge and hands-on experiences to be successful in the global workforce. The curriculum is composed of four courses: The Nature of Science and Technology, Core Applications of Science and Technology, Impacts of Science and Technology, and Creativity and Innovation. This new program is designed to prepare students through classroom and laboratory experiences. Students will learn to work in teams, think critically, identify problems, and propose solutions to design problems. Students will learn to communicate effectively in written, oral, and electronic formats. Students will develop an understanding of how technology can be utilized to solve effectively real world problems. Through project-based learning, students will explore the future of science and technology.

Foundation Courses:

xxxxxx The Nature of Science and Technology
Credit: Semester Credit Grade Level: 9
This contextual based course introduces students to the core fundamental concepts of science and technology. Students will develop an understanding of the relationship between the physical, biological, and social world. Students will understand the difference between science and technology, and know that technology is a process for applying science. Students will develop tools and techniques to solve real world problems, while developing a deeper understanding of scientific inquiry and the engineering design process. Students will learn about the interaction of science and technology while designing under constraints in a problem based learning environment.
Does course count in required 38 units and, if yes, how: Yes Career & Technical
Does course count in the 21 units required for graduation: Yes
Licensure required to teach this course: 606 Pre-Engineering

xxxxxx Core Applications of Science and Technology
Credit: Semester Credit Grade Level: 10
This course uses the fundamentals learned from the Nature of Science and Technology course to explore further problem solving strategies and skills needed by the 21st century workforce. Students will continue to explore emerging technologies and applications of the design. Key concepts introduced in this course include sustainability and environmental trends, systems thinking, and trend analysis and prediction. Students engage in a variety of hands-on design projects to demonstrate the fundamental applications of science and technology.
Does course count in required 38 units and, if yes, how: Yes Career & Technical
Does course count in the 21 units required for graduation: Yes
Licensure required to teach this course: 606 Pre-Engineering

Advanced Courses:

xxxxxx Impacts of Science and Technology
Credit: Semester Credit Grade Level: 11
(Under development)

xxxxxx Creativity and Innovation
Credit: Semester Credit Grade Level: 12
(Under development)

CAREER CLUSTER: INFORMATION TECHNOLOGY

Computer Engineering

494400 Diagnostics
Credit: 1 Grade Levels: 9-12
This course will provide an introduction to computer hardware and software as students learn the history of the computer as well as current operating environments. This course will prepare individuals in the understanding and application of basic principles, troubleshooting, and use of microcomputer system hardware, peripheral devices, and operating system hardware. **(Diagnostics can be used as an elective course for Pre-Engineering)**
Does course count in required 38 units and, if yes how: Yes Career & Technical
Does course count in the 22 units required for graduation: Yes
Licensure required to teach this course: 572 Computer Engineering

494420 Operations
Credit: 1 Grade Levels: 9-12
This course provides a hands-on introduction to personal computers and peripheral devices. Students learn to diagnosis and troubleshoot real-world computer problems. This course includes a basic understanding of the components of a computer and how they function.
Does course count in required 38 units and, if yes how: Yes Career & Technical
Does course count in the 22 units required for graduation: Yes
Licensure required to teach this course: 572 Computer Engineering

494410 Networking
Credit: 1 Grade Levels: 9-12
This course will cover the installation and administration of a network operating system. Students will learn about managing and maintaining physical and logical devices, access to resources, and the server environment.
Does course count in required 38 units and, if yes how: Yes Career & Technical
Does course count in the 22 units required for graduation: Yes
Licensure required to teach this course: 572 Computer Engineering

Oracle

492560 Database Fundamentals – Oracle Internet Academy
Credit: .5 Grade Levels: 10-12
The data-modeling course is largely conceptual in that students are challenged to identify patterns or connections between information that is not obviously related and to identify key or underlying issues in complex situations. Student activities are designed to include using creative, conceptual, and inductive reasoning. Students learn how to transform business information needs into entity relationship diagrams and, later, into a relational database.
Does course count in required 38 units and, if yes, how: Yes Career & Technical
Does course count in the 22 units required for graduation: Yes
Licensure required to teach this course: 031 Business Education (Secretarial)
032 Business Education
034 Data Processing/Computer Permit
037 Computer Tech Permit
225 Business Technology

492570 Database Programming – Oracle Internet Academy
Credit: .5 Grade Levels: 10-12
This course enables users to build data warehouses and data marts; perform an array of integrated reporting; conduct ad-hoc querying and sophisticated analysis, including database optimization and maintenance, forecasting and trending, and market analysis; provide extended database support for online analytical processing, data-mining, and extraction; and perform transformation and loading operations.
Does course count in required 38 units and, if yes, how: Yes Career & Technical
Does course count in the 22 units required for graduation: Yes
Licensure required to teach this course: 031 Business Education (Secretarial)
032 Business Education
034 Data Processing/Computer Permit
037 Computer Tech Permit
225 Business Technology

492580 Introduction to Java – Oracle Internet Academy
Credit: .5 Grade Levels: 10-12
The goal of this course is to teach the fundamentals of the language. Before a student can create applets and other Net-based applications with Java, he/she must understand the basic elements of the language. It includes object-oriented programming; essential concepts, syntax, and programming constructs of the Java language; introduction to classes, objects, and methods; college application process, and IT career research.
Does course count in required 38 units and, if yes, how: Yes Career & Technical
Does course count in the 22 units required for graduation: Yes
Licensure required to teach this course: 031 Business Education (Secretarial)
032 Business Education
034 Data Processing/Computer Permit
037 Computer Tech Permit
225 Business Technology

492590 Java Programming – Oracle Internet Academy
Credit: .5 Grade Levels: 10-12
By the end of this course, the students will have a solid foundation that will enable them to start writing their own programs and applets using Java. This includes examining packages and interfaces, review for the Advanced Placement Computer Science Exam (APCS), Introduction to Integrated Design Environment (IDE), JDeveloper, applications, applets and UI components, and resume/portfolio building.
Does course count in required 38 units and, if yes, how: Yes Career & Technical
Does course count in the 22 units required for graduation: Yes
Licensure required to teach this course: 031 Business Education (Secretarial)
032 Business Education
034 Data Processing/Computer Permit
037 Computer Tech Permit
225 Business Technology

Programming

492120 Computerized Business Applications
Credit: 1 Grade Levels: 9-12
Computerized Business Applications is a two-semester course designed to prepare students with an introduction to business applications that are necessary to live and work in a technological society. Emphasis is given to hardware, concepts, and business uses of applications. The business applications covered are word processing, database, spreadsheet, telecommunications, presentation, and Web page design. This course will also meet the one unit required in the Standards for Computer Applications.
Does course count in required 38 units and, if yes, how: Yes Career & Technical
Does course count in the 22 units required for graduation: Yes
Licensure required to teach this course: 031 Business Education (Secretarial)
032 Business Education
034 Data Processing/Computer Permit
037 Computer Tech Permit
225 Business Technology

492390 Programming I
Credit: .5 Grade Levels: 9-12
Programming I is a one-semester course in any modern, high-level, structured language. Concepts should be taught in the context of practical applications.
Does course count in required 38 units and, if yes, how: Yes Career & Technical
Does course count in the 22 units required for graduation: Yes
Licensure required to teach this course: 031 Business Education (Secretarial)
032 Business Education
034 Data Processing/Computer Permit
037 Computer Tech Permit
225 Business Technology

492400 Programming II
Credit: .5 Grade Levels: 9-12
Programming II is a one-semester course that is a continuation of the study of the language taught in Programming I.
Does course count in required 38 units and, if yes, how: Yes Career & Technical
Does course count in the 22 units required for graduation: Yes
Licensure required to teach this course: 031 Business Education (Secretarial)
032 Business Education
034 Data Processing/Computer Permit
037 Computer Tech Permit
225 Business Technology492520

492140 Advanced Database Applications
Credit: .5 Grade Levels: 10-12
Advanced Database Applications is a one-semester course in which students learn to organize data; create, search, and query databases; and use integrated software to combine database with word processing and mail merge.
Does course count in required 38 units and, if yes, how: Yes Career & Technical
Does course count in the 22 units required for graduation: Yes
Licensure required to teach this course: 031 Business Education (Secretarial)
032 Business Education
034 Data Processing/Computer Permit
037 Computer Tech Permit
225 Business Technology

492450 Advanced Spreadsheet Applications
Credit: .5 Grade Levels: 10-12
Advanced Spreadsheet Applications is a one-semester course in which students use computer programs to analyze quantitative data. Emphasis is placed on the role and value of spreadsheets, financial reporting, budgeting, planning, and forecasting.
Does course count in required 38 units and, if yes, how: Yes Career & Technical
Does course count in the 22 units required for graduation: Yes
Licensure required to teach this course: 031 Business Education (Secretarial)
032 Business Education
034 Data Processing/Computer Permit
037 Computer Tech Permit
225 Business Technology

xxxxxx Mobile Applications
Credit: ? Grade Level: ?
(Under development)

Courses that must seek ACE Approval before Implementation

492490 ACE-Approved Computer Applications I (9-12)
Credit: .5 Grade Levels: 9-12
Computer Applications I is a half-unit course designed to provide students with the fundamental computer skills necessary to do well in high school and in virtually all jobs today. In the area of word processing, students will learn the fundamental skills necessary to create and edit the most widely used documents and use the most commonly used features of a word processor, such as bullets, numbered lists, special characters, borders and shading, fonts, and paragraph and line searching. The fundamentals in use of scanners, graphics, and Word Art are applied to documents. Internet searching skills and citing Internet sources are stressed with these applied to a simple PowerPoint presentation. In the area of spreadsheets, students will be expected to create and edit simple spreadsheets using basic formulas and functions and create a simple graph or chart. Districts desiring to implement this course should request approval from the **School Improvement** Office.
Does course count in required 38 units and, if yes, how: Yes Career & Technical
Does course count in the 22 units required for graduation: Yes
Licensure required to teach this course: 031 Business Education (Secretarial)
032 Business Education
034 Data Processing/Computer Permit
037 Computer Tech Permit
225 Business Technology

492500 ACE-Approved Computer Applications II
Credit: .5 Grade Levels: 9-12
Computer Applications II is a half-unit course designed to provide students with the intermediate computer skills necessary to do well in high school and in virtually all jobs today. Students will learn techniques that will allow them to create fairly complex word processing and spreadsheet documents. They will continue their Internet research, applying it to spreadsheets, charts and graphs, and Web pages. Districts desiring to implement this course should request approval from the Business/Marketing Education Office.
Does course count in required 38 units and, if yes, how: Yes Career & Technical
Does course count in the 22 units required for graduation: Yes
Licensure required to teach this course: 031 Business Education (Secretarial)
032 Business Education
034 Data Processing/Computer Permit
037 Computer Tech Permit
225 Business Technology

492510 ACE-Approved Computer Applications III
Credit: .5 Grade Levels: 9-12
Computer Applications III is a half-unit course designed to provide students with the computer skills necessary to do well in college and needed in most jobs today. Students will learn techniques that will allow them to create simple to intermediate desktop publishing documents; create, access, and edit databases; use e-mail efficiently and ethically; create advanced electronic presentations; and create Web pages using Web-page design software. They will continue their Internet research, applying it to advanced electronic presentations and the Web pages they create. Districts desiring to implement this course should request approval from the **School Improvement** Office.
Does course count in required 38 units and, if yes, how: Yes Career & Technical
Does course count in the 22 units required for graduation: Yes
Licensure required to teach this course: 031 Business Education (Secretarial)
032 Business Education
034 Data Processing/Computer Permit
037 Computer Tech Permit
225 Business Technology

492520 ACE-Approved Programming III
Credit: .5 Grade Levels: 10-12
Programming III is a half-unit course that is a continuation of the study of the language taught in Programming II. Districts desiring to implement this course should request approval from the **School Improvement** Office.
Does course count in required 38 units and, if yes, how: Yes Career & Technical
Does course count in the 22 units required for graduation: Yes
Licensure required to teach this course: 031 Business Education (Secretarial)
032 Business Education
034 Data Processing/Computer Permit
037 Computer Tech Permit
225 Business Technology

492680 ACE-Approved Introduction to Object Oriented Programming
Credit: .5 Grade Levels: 10-12
Introduction to Object Oriented Programming is a half-unit course that is taught in the language *Alice*, and allows students to write on-screen “movies” and “games” in 3D word. Students will learn programming concepts in a fun and motivating environment.
Districts desiring to implement this course should request approval from the **School Improvement** Office.
Does course count in required 38 units and, if yes, how: Yes Career & Technical
Does course count in the 22 units required for graduation: Yes
Licensure required to teach this course: 032 Business Education
225 Business Technology

590020 ACE-Approved Cisco Networking Academy
Credit: 1 Grade Levels: 9-12
Students will acquire skills in understanding the function, installation, configuration, and diagnostic procedures for microcomputer local area network hardware, electronic components, peripheral devices, and operating system software. Prior approval must be obtained from the **School Improvement** Office before this course is implemented.
Does course count in required 38 units and, if yes, how: No
Does course count in the 22 units required for graduation: Yes
Licensure required to teach this course: 572 Computer Engineering

Pathways and Programs of Study by Career Cluster

CLUSTER: SCIENCE, TECHNOLOGY, ENGINEERING, AND MATHEMATICS

Planning, managing, and providing scientific research and professional and technical services (e.g., physical science, social science, engineering), including laboratory and testing services and research and development services

Engineering and Technology Pathway

- Pre-Engineering Program of Study- must have the 2 "Core Courses" and 1 "Specialization" course selected from list below
- Biomedical Sciences Program of Study

Science, Technology, Engineering, and Mathematics- STEM

Pre-Engineering: PLTW

Course Code	Core Requirements	Units of Credit	7th	8th	9th	10th	11th	12th
495480	Introduction to Engineering Design (IED)	1			X	X	X	X
495490	Principles of Engineering (POE)	1			X	X	X	X

Elective Courses-Specialization Courses
(MUST SELECT 1 ELECTIVE)

Course Code	Courses	Units of Credit	7th	8th	9th	10th	11th	12th
494980	Aerospace Engineering (AE)	1					X	X
494990	Biotechnical Engineering (BE)	1					X	X
495440	Civil Engineering and Architecture (CEA)	1					X	X
495450	Computer-Integrated Manufacturing (CIM)	1					X	X
495460	Digital Electronics (DE)	1				X	X	X
495470	Engineering Design and Development (EDD) -CAPSTONE	1					X	X

Computer Engineering – Optional

Course Code	Courses	Units of Credit	7th	8th	9th	10th	11th	12th
494400	Diagnostics	1			X	X	X	X

Drafting and Design Engineering/CAD – Optional

Course Code	Courses	Units of Credit	7th	8th	9th	10th	11th	12th
494700	Drafting and Design	1			X	X	X	X
494740	*Engineering / CAD I	1			X	X	X	X
494750	*Engineering / CAD Lab	1			X	X	X	X

*Engineering CAD I and CAD Lab must both be completed in order to use for completion in Pre-Engineering (4 courses for completion)

Biomedical Sciences: PTLW

Course Code	Courses	Units of Credit	7th	8th	9th	10th	11th	12th
495000	Principles of Biomedical Sciences (PBS)	1			X	X	X	X
495010	Human Body Systems (HBS)	1			X	X	X	X
495020	Medical Interventions (MI)	1			X	X	X	X
495030	Biomedical Innovations (BI)	1			X	X	X	X

Gateway to Technology: PLTW

Course Code	Middle School Courses	Units of Credit	7th	8th	9th	10th	11th	12th
399110	Automation and Robotics (AR) – Core	.5	X	X				
399120	Design and Modeling (DM) – Core	.5	X	X				
399310	Energy and the Environment (EE)	.5	X	X				
399250	Flight and Space (FS)	.5	X	X				
399300	Green Architecture (GA)	.5	X	X				
399130	The Magic of Electrons (ME)	.5	X	X				
399140	The Science of Technology (ST)	.5	X	X				

Engineering and Technology Education

Course Code	Non-Program Specific Electives	Units of Credit	7th	8th	9th	10th	11th	12th
399150	Introduction to Engineering and Technology-(ETE 1)	.5	X	X				
399160	Fundamentals of Engineering and Technology-(ETE2)	.5	X	X				
494010	Introduction to Engineering and Technology-(ETE 1)	.5			X			
494020	Fundamentals of Engineering and Technology- (ETE2)	.5			X			

Applied Sciences

Course Code	Non-Program Specific Electives	Units of Credit	7th	8th	9th	10th	11th	12th
523000	Principles of Technology (PT) I	1			X	X	X	X
522000	Principles of Technology (PT) II	1				X	X	X
522070	Physics in Context (PIC)	1			X	X	X	X

Drafting & Design Architectural/CAD and Engineering/CAD Programs of Study

Course Code	Courses	Units of Credit	7th	8th	9th	10th	11th	12th
494700	Drafting and Design —Core	1			X	X	X	X
494710	Architectural / CAD I —Core	1			X	X	X	X
494720	Architectural / CAD Lab	1			X	X	X	X
494730	Architectural / CAD II	1				X	X	X

Information Technology (IT) Cluster

Building linkages in IT occupations framework: for entry level, careers related to the design, development, support, and management of hardware, software, multimedia and systems integration services

Network Systems Pathway
Computer Engineering Program of Study

Course Code	Courses	Units of Credit	7th	8th	9th	10th	11th	12th
494400	Diagnostics – Core	1			X	X	X	X
494420	Operations – Core	1			X	X	X	X
494410	Networking	1			X	X	X	X

Information Support and Services Pathway
Oracle Program of Study

Course Code	Core Requirements	Units of Credit	7th	8th	9th	10th	11th	12th
492120	Computerized Business Applications	1			X	X	X	X
492560	Database Fundamentals	.5				X	X	X
492570	Database Programming	.5				X	X	X
492580	Introduction to Java	.5				X	X	X
492590	Java Programming	.5				X	X	X
OR								
492490	Computer Applications I	.5			X	X	X	X
492500	Computer Applications II	.5			X	X	X	X
492960	Database Fundamentals	.5				X	X	X
492570	Database Programming	.5				X	X	X
492580	Introduction to Java	.5				X	X	X
492590	Java Programming	.5				X	X	X

Programming/Software Engineering Pathway
Programming Program of Study

Course Code	Courses	Units of Credit	7th	8th	9th	10th	11th	12th
492120	Computerized Business Applications	1			X	X	X	X
492390	Programming I	.5			X	X	X	X
492400	Programming II	.5			X	X	X	X
492140	Advanced Database Applications	.5				X	X	X
492450	Advanced Spreadsheet Applications	.5				X	X	X
OR								
492490	Computer Applications I	.5			X	X	X	X
492500	Computer Applications II	.5			X	X	X	X
492390	Programming I	.5			X	X	X	X
492400	Programming II	.5			X	X	X	X
492140	Advanced Database Applications	.5				X	X	X
492450	Advanced Spreadsheet Applications	.5				X	X	X

SCHOOL IMPROVEMENT COURSES

Course Code	Courses	Units of Credit	7th	8th	9th	10th	11th	12th
492450	Advanced Spreadsheet Applications	.5				X	X	X
494980	Aerospace Engineering (AE)	1					X	X
494710	Architectural/CAD I	1			X	X	X	X
494730	Architectural/CAD II	1				X	X	X
494720	Architectural/CAD Lab	1			X	X	X	X
399120	Automation and Robotics (AR)	.5	X	X				
495030	Biomedical Innovations (BI)	1					X	X
494990	Biotechnical Engineering (BE)	1					X	X
495440	Civil Engineering & Architecture (CEA)	1					X	X
495450	Computer-Integrated Manufacturing (CIM)	1					X	X
492120	Computerized Business Applications	1			X	X	X	X
492140	Advanced Database Applications	.5				X	X	X
492560	Database Fundamentals	.5				X	X	X
492960	Database Programming	.5				X	X	X
399120	Design and Modeling (DM)	.5	X	X				
494400	Diagnostics	1			X	X	X	X
495460	Digital Electronics	1				X	X	X
494700	Drafting & Design	1			X	X	X	X
399310	Energy and the Environment (EE)	.5	X	X				
494740	Engineering/CAD I	1			X	X	X	X
494760	Engineering/CAD II	1				X	X	X
494750	Engineering/CAD Lab	1			X	X	X	X
495470	Engineering Design and Development-CAPSTONE (EDD)	1					X	X
399150	ETE 1 (Intro to Engineering and Technology Education , 7-8th grade)	.5	X	X				
494010	ETE 1 (Intro to Engineering and Technology Education, 9th grade)	.5			X			
399160	ETE 2 (Fundamentals of Engineering and Technology Education, 7-8th grade)	.5	X	X				

Course Code	Courses	Units of Credit	7th	8th	9th	10th	11th	12th
494020	ETE 2 (Fundamentals of Engineering and Technology Education, 9th grade)	.5			X			
399250	Flight and Space (FS)	.5	X	X				
495010	Human Body Systems (HBS)	1			X	X	X	X
495480	Introduction to Engineering Design (IED)	1			X	X	X	X
492580	Introduction to Java – Oracle Internet Academy	.5				X	X	X
492590	Java Programming – Oracle Internet Academy	.5				X	X	X
399130	The Magic of Electrons (ME)	.5	X	X				
495020	Medical Interventions (MI)	1			X	X	X	X
494410	Networking	1			X	X	X	X
494420	Operations	1			X	X	X	X
522070	Physics in Context (PIC)	1			X	X	X	X
495000	Principles of Biomedical Sciences (PBS)	1			X	X	X	X
495490	Principles of Engineering (POE)	1			X	X	X	X
523000	Principles of Technology I (PT)	1			X	X	X	X
522000	Principles of Technology II (PT)	1				X	X	X
492390	Programming I	.5			X	X	X	X
492400	Programming II	.5			X	X	X	X
399140	The Science of Technology	.5	X	X				
Seek ACE prior approval before implementation								
492490	Computer Applications I ACE Approved	.5			X	X	X	X
492500	Computer Applications II ACE Approved	.5			X	X	X	X
492510	Computer Applications III ACE Approved	.5			X	X	X	X
492680	Introduction to Object Oriented Programming ACE Approved	.5				X	X	X
492520	Programming III ACE Approved	.5				X	X	X
590020	CISCO Networking Academy	1			X	X	X	X

SCHOOL IMPROVEMENT

MINIMUM INSTRUCTIONAL EQUIPMENT AND SOFTWARE

Cluster: Information Technology
Pathway: Network Systems
Program of Study: Computer Engineering

Item Name	Count 15 Students	Count 20 Students	Count 25 Students	Description/Specification
Television	1	1	1	25”
DVD player	1	1	1	
A-V cart/media storage center	1	1	1	
Presentation Equipment	1	1	1	LCD Projector (Mounting Recommended) Teacher Laptop (See ACE Technology Standards) Computerized Presentation Board
Flash drive	1	1	1	Minimum 2G
Student Computer System	15	20	25	See ACE Technology Standards
Student Printer	1	1	1	See ACE Technology Standards
Cabinet, storage	2	2	2	Locking, 36” W x 24” D x 72” H
Cable tester	1	1	1	Network circuit tester, data & voice communications test capability
Computer file server	1	1	1	Contact ACE for specs.
Computer modem	1	1	1	Contact ACE for specs.
Computer network switches	1	1	1	24 ports
Computer network switches	1	1	1	12 ports
Camcorder tripod	1	1	1	2'-5' collapsing, w/extension legs
Computer repair trainer	6	8	12	Microcomputer/PC trainer, compliant w/A+ certification standards
Computer scanner	1	1	1	
Ladder	2	2	2	Stepladder, 10', fiberglass, nonconductive, Type 1A, 300-lb. workload
Ladder	2	2	2	Stepladder, 6', fiberglass, nonconductive, Type 1A, 300-lb workload
Network diagnostic software	1	1	1	Capable of monitoring, analyzing, & diagnosing of network problems, XP-Vista-Windows 7.0 compliant
Network management software	1	1	1	For networking & managing classroom computer systems, XP-Vista-Windows 7.0 compliant
Webcam	2	2	2	
Tool kit, technician’s	10	15	15	Comprehensive computer service hand tool kit
Tool kit, wiring	1	1	1	For coax cable, cable tester, center conductor trimmer, crimp frame, die sets, punch tools, stripper
Tool kit, wiring	1	1	1	For Category 5 cable, cable tester, crimp tool, round wire cutter/stripper

Item Name	Count 15 Students	Count 20 Students	Count 25 Students	Description/Specification
Uninterruptible power source (UPS)	1	1	1	Including software, Windows 95/98/2000 compliant, automatic voltage regulation, surge & noise suppression
Video camcorder	1	1	1	Digital w/battery pack & carrying case
Camcorder tripod	1	1	1	2'-5' collapsing, w/extension legs
Volt/ohm meter	4	6	8	Digital
Worktables	10	12	12	30" x 60", w/2 duplex outlets available

Cluster: Science, Technology, Engineering, and Mathematics
Pathway: Engineering and Technology
Program of Study: Biomedical Sciences

Item Name	Count 15 Students	Count 20 Students	Count 25 Students	Description/ Specification {Indicates PLTW Description}
Television/CD/DVD	1	1	1	25"
Digital Projector (Mounted recommended)	1	1	1	
Teacher Laptop	1	1	1	See detailed specs in PLTW purchasing manual
Computerized Presentation Board	1	1	1	
Computer, student	15	20	25	See detailed specs in PLTW purchasing manual
Computer hub, Ethernet	2	2	2	3 COM 16 port 10-BT, 16 connections
Computer printer	1	1	2	{HP LaserJet 3015n}
Workstation, computer	8	10	15	
Inspiration 9	1	1	1	{10 user lab pack} See detailed specs in PLTW purchasing manual
Logger Pro or LabVIEW				See detailed specs in PLTW purchasing manual
Lab Table	8	10	15	High-pressure laminate top, 30" x 60", w/adjustable height {Virco 8774}
Table, folding	8	10	15	High-pressure laminate top, 30" x 96" {Virco 62308}
Edvocycler-Classroom Thermal Cycler	1	1	1	{Catalog #541} See detailed specs in PLTW purchasing manual
Lab bench stirrer	1	1	1	{Stirring range 60 to 1100 rpm}
Water bath	1	1	1	{Analog, maintains temp from 5°C to 100°C, comes with a lid} See detailed specs in PLTW purchasing manual
Microscope	10	10	13	{Binocular head: 4X, 10X, 40XR and 100 XR; Oil immersion objective: mechanical stage}
Incubator	1	1	1	{Compact unit for testing at least 40L capacity with maintained temp of 65°C}

Item Name	Count 15 Students	Count 20 Students	Count 25 Students	Description/ Specification {Indicates PLTW Description}
Power Supply	3	3	4	{Fully programmable; adjustable voltage; LED Display} See detailed specs in PLTW purchasing manual
Microcentrifuge	1	1	1	See detailed specs in PLTW purchasing manual
M12 Dual Electrophoresis Apparatus	5	5	6	See detailed specs in PLTW purchasing manual
Classroom Micropipetter-0.5-10µl	5	5	6	
Classroom Micropipetter-20-200µl	5	5	6	
Hotplate	2	2	3	{Heats from 25˚C to 360˚C}
Electronic Balance	5	5	6	{Capacity 500g, Readability, 0.1g}
Safety Glass Cabinet	1	1	1	{Capacity 25 glasses and 10 goggles with sterilization light and timer)
Sonotrax A Pocket Fetal Doppler	3	3	4	{8Mhz waterproof probe}
PBS Vernier Bundle	5	5	6	See detailed specs in PLTW purchasing manual
HBS Vernier Bundle	5	5	6	See detailed specs in PLTW purchasing manual
MI Vernier Bundle	5	5	6	See detailed specs in PLTW purchasing manual
BlueView Transilluminator	1	1	1	See detailed specs in PLTW purchasing manual
See additional requirements at http://www.pltw.org/sites/default/files/2012-13_BMS_Program_Inventory_Workbook_Final_v6.xlsx under Core Course and Lab Inventory Tab for complete Equipment List. Computer Specifications at http://www.pltw.org/sites/default/files/2012-13%20Appendix_C_Computer_Specs_2012_Final_v3_0.pdf (page 2) Software Table at http://www.pltw.org/sites/default/files/2012-13%20Appendix_B_Software_V3.pdf (page 4). Software Reference Sheet**:** http://www.pltw.org/sites/default/files/2012-13%20Software_Reference_Sheet_Final_0.pdf				
BIOMEDICAL INNOVATION (BI)				
Bone Cutting Forceps	10	10	11	See detailed specs in PLTW purchasing manual
Water Quality Testing III: Multiplex PCR for Contaminants	1	1	1	{Kit #953} See detailed specs in PLTW purchasing manual
Lab-Aids Qualitative Introduction to Water Pollution Kit	1	1	1	See detailed specs in PLTW purchasing manual
Carolina Forensic Dissection Kit	1	1	1	{For a class of 32} See detailed specs in PLTW purchasing manual
See additional requirements for Principles of the Biomedical Sciences at http://www.pltw.org/sites/default/files/2012-13_BMS_Program_Inventory_Workbook_Final_v6.xlsx under BI tab				
HUMAN BODY SYSTEM (HBS)				
Anatomy in Clay® Learning System	1	1	1	{PLTW Classroom Package 2012} See detailed specs in PLTW purchasing manual
WARD's Sherlock Bones	2	2	3	See detailed specs in PLTW purchasing manual
Human Eye Model	2	2	3	See detailed specs in PLTW purchasing manual
Carolina™ Visual Perception Kit	1	1	1	See detailed specs in PLTW purchasing manual
Human Body: Pushing the Lmits-4 DVD set	1	1	1	See detailed specs in PLTW purchasing manual
DNA Fingerprinting II-Usage of Restriction Enzymes in DNA	2	2	3	{Kit #225} See detailed specs in PLTW purchasing manual

Item Name	Count 15 Students	Count 20 Students	Count 25 Students	Description/ Specification {Indicates PLTW Description}
See additional requirements for Human Body Systems at http://www.pltw.org/sites/default/files/2012-13_BMS_Program_Inventory_Workbook_Final_v6.xlsx under HBS tab				
MEDICAL INTERVENTIONS (MI)				
3D Molecular Designs Amino Acid Starter Kit	2	2	3	{5 Group Set} See addl detailed specs in PLTW purchasing manual
Protein Electrophoresis Chamber	3	3	4	See detailed specs in PLTW purchasing manual
How to Stitch Wounds Kit	10	10	11	{18 piece kit} See detailed specs in PLTW purchasing manual
Webcam	5	5	6	{Logitech QuickCam Express-White/Blue (960-000468)-basic webcam (USB cable and software included)}
	2	2	3	See detailed specs in PLTW purchasing manual
See additional requirements for Medical Interventions at http://www.pltw.org/sites/default/files/2012-13_BMS_Program_Inventory_Workbook_Final_v6.xlsx under MI tab				
PRINCIPLES OF THE BIOMEDICAL SCIENCES (PBS)				
DNA Discovery Kit	7	7	8	{12 Base pairs} See addl detailed specs in PLTW purchasing manual
See additional requirements for Biotechnical Engineering at http://www.pltw.org/sites/default/files/2012-13_BMS_Program_Inventory_Workbook_Final_v6.xlsx under PBS tab				

Cluster: Science, Technology, Engineering, and Mathematics
Pathway: Engineering & Technology
Program of Study: Drafting & Design Architectural/CAD and Engineering/CAD

Item Name	Count 15 Students	Count 20 Students	Count 25 Students	Description/ Specification
Television	1	1	1	25”
DVD player	1	1	1	
A-V cart/media storage center	1	1	1	
Presentation Equipment	1	1	1	LCD Projector (Mounting Recommended) Teacher Laptop (See ACE Technology Standards) Computerized Presentation Board
Student Computer System	15	20	25	See ACE Technology Standards
Student Printer	1	1	1	See ACE Technology Standards
Computer plotter	1	1	1	Contact State Office for Standards
Computer scanner	1	1	2	
Blueprint storage cabinet	1	1	1	24” x 36” capacity
Drafting chair	15	20	25	Adjustable height & back
Instructor's drawing chair	1	1	1	Adjustable height & back
Machinist measuring instrument set	2	2	2	1" micrometer, 6" vernier gauge, combination square, 6" machinist scale

Item Name	Count 15 Students	Count 20 Students	Count 25 Students	Description/ Specification
Plot server	1	1	1	Contact State Office for Standards
Computer workstation	15	20	25	Contact Sate Office for Standards
CAD software, student	15	20	25	Contact State Office for Standards
CAD software, teacher	1	1	1	Current release of AutoCAD, AutoCAD Mechanical, or Architectural Desktop
Network control software	1	1	1	(Allows for instructor control of student workstation)
Architectural Graphic Standards Reference	1	1	1	

Cluster: Science, Technology, Engineering, and Mathematics
Pathway: Engineering and Technology
Program of Study: Gateway to Technology

Item Name	Count 15 Students	Count 20 Students	Count 25 Students	Description/ Specification {Indicates PLTW Description}
Television	1	1	1	25”
Digital Projector (Mounted recommended)	1	1	1	{120Hz/3D Ready 3200 Lumens: 1DCR}
Teacher Laptop	1	1	1	See Gateway to Technology Standards
A-V cart/media storage center	1	1	1	
Breadboard trainer, electronic	13	13	13	{Briefcase Martex XK-700}
Camera, digital	1	1	1	{Canon PowerShot (with video capability) 10.0 megapixel resolution, 3.3 optical zoom and 2.5 in LCD screen}
Compressor, portable	1	1	1	{500027}
4GB SD card for camera	1	1	1	{PNY Optima 4GB SDHC Class 4 Flash Memory Card}
Computer system	15	20	25	See Gateway to Technology Standards
Computer hub, Ethernet	2	2	2	3 COM 16 port 10-BT, 16 connections
HP LaserJet 5200tn printer	1	1	1	
Extension unit with power supply	5	5	5	{Vex Robotics Extension (slave) unit w/power supply}
Gateway to Technology kit	7	7	7	{Vex Robotics} See detailed specs in PLTW purchasing manual
Gateway to Technology software bundle (1st Year)	1	1	1	{PLTW AutoCAD Inventor Professional Suite 2012}
Laser beam trainer	7	7	7	{Kelvin 840874}
Photo Editing Software	1	1	1	{Adobe Photoshop 6.0}
Racing platform track	1	1	1	{840957}
Racing 8-foot track	2	2	2	{840445}
Serial interface	5	5	5	{Fishertechniks serial interface w/power supply}

Stroboscope/tachometer	1	1	1	{Digital Carolina Biological Supply D75-1425}
Lab Table	10	10	10	High-pressure laminate top, 30" x 60" {Virco 8774}
Table, folding	10	10	10	High –pressure laminate top, 30" x 96" {Virco 62308}
Wind turbine	1	1	1	{840955}
Workstation, computer	15	20	25	Computer (2 students), 30" x 60" {Virco 84265}

- All new schools or schools teaching GTT for the first time are required to purchase and use VEX equipment.
- Gateway to Technology **Purchasing Manual:** http://www.pltw.org/sites/default/files/2012-13_GTT_Program_Inventory_Workbook_Final_v5_0.xlsx
- Gateway to Technology **Computer Specifications:** http://www.pltw.org/sites/default/files/Appendix_C_Computer_Specs_2012_Final_v2.pdf.
- Gateway to Technology **Software Reference Sheet:** http://www.pltw.org/sites/default/files/2012-13%20Software_Reference_Sheet_Final_0.pdf and **Software Table** (page 3): http://www.pltw.org/sites/default/files/2012-13%20Appendix_B_Software_V2_0.pdf.

Cluster: Science, Technology, Engineering, and Mathematics
Pathway: Engineering and Technology
Program of Study: Pre-Engineering

Item Name	Count 15 Students	Count 20 Students	Count 25 Students	Description/ Specification {Indicates PLTW Description}
Television/CD/DVD	1	1	1	25"
Digital Projector (Mounted recommended)	1	1	1	{ViewSonic Model PJD6241}
Teacher Laptop	1	1	1	See detailed specs in PLTW purchasing manual
Computerized Presentation Board	1	1	1	
Computer, student	15	20	25	See detailed specs in PLTW purchasing manual
Computer hub, Ethernet	2	2	2	3 COM 16 port 10-BT, 16 connections
Computer printer	1	1	2	{HP LaserJet 5200tn}
Scanner	1	1	1	{HP Scanjet 5590 digital flatbed multiple page scanner}
Workstation, computer	8	10	15	Computer (2 students), 30" x 60", w/adjustable height {Virco 8774}
Band saw	1	1	1	Bench top model with 9" throat, 115F, 1/5 HP, tilting
Caliper, Steel dial	15	20	25	6", white faced dial
Compact Digital Scale	1	1	1	CS-2000, 2000g capacity with 1 gram readability of g, lb, and oz modes
Cordless Drill	1	2	2	14 Volt or Higher, 3/8" keyless chuck, variable speed, reversing, dual speed ranges: 0-300 & 0-1100 rpm, 16 position chuck, recharging unit with two batteries
Digital Camera	1	1	1	10.0 Megapixel resolution, 3.3 optical zoom and 2.5 LCD screen
Memory Card for Camera	1	1	1	4GB SD Card
Drill Press Bench Top Model	1	1	1	Minimum 10"

Item Name	Count 15 Students	Count 20 Students	Count 25 Students	Description/ Specification {Indicates PLTW Description}
Storage Organizer	15	20	25	{Storage box for VEX or fischertechnik parts e.g. tackle box}
Wire Stripper	10	10	10	{Xcelite 103 S}
Lab Table	8	10	15	High-pressure laminate top, 30" x 60", w/adjustable height {Virco 8774}
Table, folding	8	10	15	High-pressure laminate top, 30" x 96" {Virco 62308}
Autodesk Inventor Professional only (1st Year)	1	1	1	125 Seat license
Autodesk ADA package	1	1	1	125 Seat license (for additional years)
See additional requirements at http://www.pltw.org/sites/default/files/2012-13_ENGR_Program_Inventory_Workbook_Final_v8.xlsx under Core Course and Lab Inventory Tab for complete Equipment List. Computer Specifications at http://www.pltw.org/sites/default/files/2012-13%20Appendix_C_Computer_Specs_2012_Final_v3_0.pdf (page 1). Software Table at http://www.pltw.org/sites/default/files/2012-13%20Appendix_B_Software_V3.pdf (pages 1 & 2). Software Reference Sheet**:** http://www.pltw.org/sites/default/files/2012-13%20Software_Reference_Sheet_Final_0.pdf.				
INTRODUCTION TO ENGINEERING DESIGN (IED)				
See additional requirements for Introduction to Engineering Design at http://www.pltw.org/sites/default/files/2012-13_ENGR_Program_Inventory_Workbook_Final_v8.xlsx under IED tab				
PRINCIPLES OF ENGINEERING (POE)				
Logger Pro software	1	1	1	See detailed specs in PLTW purchasing manual
VEX POE kit or Fischertechnik POE kit	5	5	6	See detailed specs in PLTW purchasing manual
ROBOTIC programming software for VEX equipment	1	1	1	See detailed specs in PLTW purchasing manual
Dual Range Force Sensor	5	5	6	See detailed specs in PLTW purchasing manual
Stainless Steel Temperature Probe, Part # TMP-BTA	6	6	7	See detailed specs in PLTW purchasing manual
Go! Link	6	6	7	See detailed specs in PLTW purchasing manual
Thermodynamics Heat Box	3	3	4	
Variable DC Power Supply	3	3	4	Voltage Adjustable: 0-18Vdc Current Adjustable: 0-2A
See additional requirements for Principles of Engineering at http://www.pltw.org/sites/default/files/2012-13_ENGR_Program_Inventory_Workbook_Final_v8.xlsx under POE tab				
AEROSPACE ENGINEERING (AE)				
VEX AE kit	5	5	6	See detailed specs in PLTW purchasing manual
ROBOTIC programming software for VEX equipment	1	1	1	See detailed specs in PLTW purchasing manual
Logger Pro software	1	1	1	See detailed specs in PLTW purchasing manual
Dual Range Force Sensor	5	5	6	See detailed specs in PLTW purchasing manual
Go! Link	5	5	6	See detailed specs in PLTW purchasing manual
Force Plate	5	5	6	See detailed specs in PLTW purchasing manual
Garmin eTrex Venture HC	5	5	6	
Microsoft Flight Simulator Verion X	10	10	11	
2" x 24" x 96" Close Cell Blue Construction Foam	4	4	5	Note: May be a special order item

Item Name	Count 15 Students	Count 20 Students	Count 25 Students	Description/ Specification {Indicates PLTW Description}
See additional requirements for Aerospace Engineering at http://www.pltw.org/sites/default/files/2012-13_ENGR_Program_Inventory_Workbook_Final_v8.xlsx under AE tab				
BIOTECHNICAL ENGINEERING (BE)				
Mini Incubator	1	1	1	{Temperature range – ambient to 60 degree C, capacity eighty 6.5 cm plates} See addl detailed specs in PLTW purchasing manual
Economical Micro centrifuge	1	1	1	{166-0603EDU}
Microscope-Monocular	10	10	11	{4X, 10X, 40X, 100X (oil) objectives, Rechargeable LED base} Microscope slides are optional.
Hotplate	3	3	4	{Isotemp, Ceramic top, 4x4 heating surface, temp control to 540C; 120V 60Hz Fisher Scientific #11-100-16H}
pGlo Bacterial Transformation kit	2	2	3	See detailed specs in PLTW purchasing manual
See additional requirements for Biotechnical Engineering at http://www.pltw.org/sites/default/files/2012-13_ENGR_Program_Inventory_Workbook_Final_v8.xlsx under BE tab				
CIVIL ENGINEERING & ARCHITECTURE (CEA)				
Auto Level	3	3	4	{Nikon #AX2S, 20X magnification with stadia lines}
Triple Balance Beam Scale with weight set	1	1	1	{2610g capacity with weight set, 0.1g sensitivity}
See additional requirements for Civil Engineering & Architecture at http://www.pltw.org/sites/default/files/2012-13_ENGR_Program_Inventory_Workbook_Final_v8.xlsx under CEA tab				
DIGITAL ELECTRONICS (DE)				
Breadboard	8	10	13	{Solderless Breadboard 2.4K TP Co. } 1 Breadboard per 2 Students)
Integrated circuit kit	2	2	2	See detailed specs in PLTW purchasing manual
Microcontroller Robotic Kit	8	10	13	See detailed specs in PLTW purchasing manual
Multisim version 12	1	1	1	25 Seat license
National Instruments Digital Logic Board aka FPA	8	10	13	
Random Number Generator Kits/AKA: Board Game Counter	15	20	25	See detailed specs in PLTW purchasing manual
VEX DE kit or Fischertechnik DE kit	8	10	13	See detailed specs in PLTW purchasing manual
ROBOTIC programming software for VEX equipment	1	1	1	See detailed specs in PLTW purchasing manual
See additional requirements for Digital Electronics at http://www.pltw.org/sites/default/files/2012-13_ENGR_Program_Inventory_Workbook_Final_v8.xlsx under DE tab				
ENGINEERING DESIGN AND DEVELOPMENT (EDD)				
Lab Quest Mini	2	2	3	See detailed specs in PLTW purchasing manual
Turbidity Sensor	2	2	3	See detailed specs in PLTW purchasing manual
Logger Pro software	1	1	1	See detailed specs in PLTW purchasing manual

Item Name	Count 15 Students	Count 20 Students	Count 25 Students	Description/ Specification {Indicates PLTW Description}
See additional requirements for Engineering Design and Development at http://www.pltw.org/sites/default/files/2012-13_ENGR_Program_Inventory_Workbook_Final_v8.xlsx under EDD tab				

Cluster: Science, Technology, Engineering, and Mathematics
Pathway: Engineering and Technology
Program Support Course: Applied Sciences - Principles of Technology (PT) and Physics In Context (PIC)

Item Name	Count 15 Students	Count 20 Students	Count 25 Students	Description/ Specification {Indicates ECI Description}
Television/CD/DVD	1	1	1	25”
LCD Projector (Mounted recommended)	1	1	1	1,300 lumens, 800 x 600 SVGA, 1,080 x 720 XGA {Infocus LP 340} – or 800 lumens, 1,024 x 768 XGA, SXGA-compatible {LIGHTWARE LX*}
Presentation Equipment	1	1	1	LCD Projector (Mounting Recommended) Teacher Laptop (See ACE Technology Standards) Computerized Presentation Board
Computer printer, laser	1	1	1	
Breadboarding equipment	4	5	6	Part no. 12500-1
Electrical mounted components	4	5	6	Part no. 12500-2
Hardware & measuring package	4	5	6	Part no. 12500-3
Mechanical mounted components	4	5	6	Part no. 12500-4
Fluid accessories	4	5	6	Part no. 12500-5
Thermal accessories	4	5	6	Part no. 12500-6
Container & accessory package	4	5	6	Part no. 12500-7
Special assemblies	4	5	6	Part no. 12500-8
Waves & momentum	4	5	6	Part no. 12500-9
Radiation & optics	4	5	6	Part no. 12500-10
Laboratory items	1	1	1	Part no. 12500-11
High current power supply	4	5	6	Part no. 20600 E
Digital multimeter	4	5	6	Part no. 50200 A
MOSFET multimeter	4	5	6	Part no. 50500 B
Function generator	4	5	6	Part no. 40600
Oscilloscope, dual trace, 20 MHz	4	5	6	Part no. 30920 E
Physics in Context laboratory manual	15	20	25	Part no. 12501 A
Physics in Context laboratory student journal	15	20	25	Part no. 12501 AJ
Instructor’s guide	1	1	1	Part no. 12503 A

Cluster: Science, Technology, Engineering, and Mathematics
Pathway: Engineering and Technology
Program Support Course: Engineering and Technology Education (ETE)

Item Name	Count 15 Students	Count 20 Students	Count 25 Students	Description/ Specification

Item Name	Count 15 Students	Count 20 Students	Count 25 Students	Description/ Specification
Television/CD/DVD	1	1	1	25”
LCD Projector (Mounted recommended)	1	1	1	1,300 lumens, 800 x 600 SVGA, 1,080 x 720 XGA {Infocus LP 340} – or 800 lumens, 1,024 x 768 XGA, SXGA-compatible {LIGHTWARE LX*}
Presentation Equipment	1	1	1	LCD Projector (Mounting Recommended) Teacher Laptop (See ACE Technology Standards) Computerized Presentation Board
Laser Printer/Copier	1	1	1	
Document Camera	1	1	1	
Wireless Slate with Notebook Software	1	1	1	
Scanner	1	1	1	
Structural Stress Analyzer (digital readout for bridges or towers)	1	1	1	
Dragster Test Track (digital time readout)	1	1	1	
Global Positioning System	8	11	15	
Mind Storm NXT 2.0 Robotics with software	8	11	15	
Microsoft Office Suite (Word, PowerPoint, Excel)	16	21	26	
Classroom Management Software (Vision, School Vue, Etc.)	15	20	25	
Drill Press (Radial)	2	2	2	
Cordless Set (drill, circular saw, reciprocating, impact)	2	2	2	
14’’ Band Saw	2	2	2	
Scroll Saw	2	2	2	
Portable Dust Collection System	1	1	1	
Compressor/Air Hoses (3hp-25 gallon)	1	1	1	
Essential Hand Tool Kit including metal and woodworking tools	1	1	1	
Electronic Equipment	1	1	1	Unit 5- 5.1-5.3.2
CAD Software 2D-3D	1	1	1	Unit 2

About High Schools That Work

High Schools That Work **(HSTW)** is the largest and oldest of the Southern Regional Education Board's (SREB) school-improvement initiatives. Beginning in 1987, it was the nation's first large-scale effort to engage state, district and school leaders and teachers in partnerships with students, parents and the community to improve the way high school students are prepared for work and further education.

Today's students live in an era driven by math, science, technology, and information. Consequently, we must prepare them with the essential skills they need to prosper in the data based economy. ***HSTW*** provides that framework through 10 Key Educational Practices for accelerating learning and setting higher standards. It recommends actions that provide direction to schools as they work to improve academic and career/technical instruction at school and at work sites. These recommendations meet the criteria for comprehensive school reform.

Arkansas is a member of the Southern Regional Education Board's (SREB) network of 31 states and more than 1,200 high schools in the ***HSTW*** program. There are 26 Arkansas high schools that participate in this initiative through the Arkansas Department of Workforce Education (ADWE).

The ***HSTW*** effort is based on the belief that, in the right school environment, most students can learn complex academic and technical concepts. The initiative targets high school students who seldom are challenged to meet higher academic standards. ***HSTW*** offer school systems a unique opportunity to prepare more students to communicate, solve problems, perform tasks and produce products – on the job and in a lifetime of learning.

To learn more, continue to tour through the Arkansas ***High Schools That Work*** web site or www.sreb.org

Other SREB school-improvement initiatives:

- Making Middle Grades Work (MMGW) currently offered in Arkansas
- Making Schools Work
- Comprehensive School Reform Project
- Project Lead the Way (PLTW) currently offered in Arkansas
- Urban Network
- Leadership Preparation Initiative

About Technology Centers That Work (TCTW)

The Bureau of Career and Technical Education's (BCTE) reform initiative consists of twelve programs (a separate in brief) that will be offered to all CTCs that participate in this effort. Of the twelve, one program has been identified as the key component of this process -- Technical Centers that Work (TCTW).

What is Technical Centers that Work? This program is an outgrowth of High Schools that Work (HSTW), which was developed in 1987 by the Southern Regional Education Board (SREB). The SREB has been operating since 1948 when it was formed by 16 governors who wanted to improve conditions in the South by focusing on education. This is a non-profit, non-partisan organization that provides an extensive range of services to education leaders and policy-makers in member states.

SREB launched its High Schools that Work program in 1987 with 28 school sites in 13 states. Currently, there are 1,200 sites in 30 states participating in TCTW. Both of these programs are based on Key Practices identified over the years as impacting student achievement. These practices provide direction and meaning to comprehensive school improvement and student learning. They are:

High expectations - integrate high expectations into classroom practices (more feedback to students).
Program of study - require each student to complete an upgraded academic core and a concentration.
Culture of Continuous Improvement - assess and evaluate data to improve school culture and student learning.
Challenging Career Tech studies - provide more student access to intellectually challenging CTE studies that require higher-level skills.
Work-based learning - provide opportunities for students to participate in programs that integrate school-based studies with work-based learning.
Challenging academic studies - help students make the connection between academic content and real life skills.
Active engagement - develop assignments that integrate content with student interest. The #1 reason students cite for dropping out of school is they're bored.
Teachers working together - provide time for teachers to meet to work collaboratively on integrating the core subjects (reading and math) into all parts of the curriculum.
Guidance and advisement - a three-way partnership between the student, parents and counselor/mentor should be established to set goals, monitor progress and suggest interventions, if necessary.
Extra help - a system should be in place to provide assistance to students completing accelerated programs of study.

While these practices may not be new, using them in conjunction with other reform efforts to create a comprehensive initiative, should lead to a higher rate of student success.

Operational Guide for
Skilled and Technical Sciences Education

Summary of Changes (2/10/12)
Moved Pre-Engineering coursework to the Office of School Improvement
Updated Startup Equipment Lists
Added Sports Medicine program of study
Added Sports Medicine Startup Instructional Equipment and Software List
Summary of Changes (12/22/10)
Pre-Engineering coursework has been moved to the Office of School Improvement
Added 494480/Construction Fundamentals to Core for Construction Technology
Deleted 494450/Bricklaying from Construction Technology
Deleted 494470/Concrete Masonry from Construction Technology
Deleted 494490/Drywall from Construction Technology
Added 495770/Air Force JROTC II to Core for Air Force JROTC
Added 495800/Army JROTC II to Core for Army JROTC
Added 495830 Marine JROTC II to Core for Marine JROTC
Added 495860/Navy JROTC II to Core for Navy JROTC
Added 494420/Operations to Core for Computer Engineering
Added 494870/Furniture Manufacturing II to Core for Furniture Manufacturing
Added 495170/Industrial Equipment Maintenance II to Core for Industrial Equipment Maintenance
Added 495220/Machine Tool II to Core for Machine Tool
Added 495270/Major Appliance Technology II to Core for Major Appliance Technology
Added 495580/Shielded Metal Arc Welding to Core for Welding
Minimum Equipment Lists Updated

Program Description

Skilled and Technical Sciences are a group of instructional programs that prepare individuals to apply technical knowledge and skills in one or more trade, technical, and/or professional occupations. Students will engage in activities and instruction enabling them to use, create, problem solve, and control various technology resources; people, tools, machines, information, materials, energy, capital, and time.

Occupational Programs

There are eight career clusters from which students may choose. Specific courses are required for each of the programs of study (pathways); in addition, various options may be selected to complete the required curriculum.

Skilled and Technical Sciences Career Clusters

Architecture & Construction
Government & Public Administration
Health Science
Information Technology
Law, Public Safety, Corrections & Security
Manufacturing
Science, Technology, Engineering, & Mathematics
Transportation, Distribution & Logistics

Career and Technical Student Organization

The appropriate CTSO (Career and Technical Student Organization), shall be an integral part of each instructional program respectively and shall follow its specific guidelines, goals, and objectives. Students will participate in activities of the Arkansas and its respective national CTSO.

Skilled and Technical Sciences Laboratory Safety

Space and special equipment for the program areas of Skilled and Technical Sciences are varied and unique. Contact with the Skilled and Technical Sciences staff in the Department of Career Education is very important in the planning process. Safety should be of the utmost consideration at all times in planning a facility and locating equipment. Sufficient electrical power should be included to support major pieces of equipment in the lab, including a sufficient number of electrical outlets.

A student wash up area should be provided. Major consideration should be given to proper exhaust and filtration of harmful fumes/dust etc. The laboratory should be zoned and color coded identifying specific work areas and pedestrian walkways. Large open areas for instructional activities should be provided.

Skilled and Technical Sciences programs are based on real world tasks and equipment usage that can sometimes be hazardous; therefore student safety must be of the utmost concern.

Caution must be exercised and enrollment must be limited so that an overcrowded situation does not occur. The specifications for the laboratory areas, please see the website listed at the beginning of the CTE Operational Guide section

CLUSTER: ARCHITECTURE & CONSTRUCTION

Construction Technology

494460 Carpentry
Credit: 1 Grade Levels: 9-12
This instructional program prepares individuals to apply technical knowledge and skills to lay out, fabricate, erect, install, and repair wooden structures and fixtures, using hand and power tools. This course is based on the NCCER Carpentry Fundamentals 1 Curriculum.
Does course count in required 38 units and, if yes, how: Yes Career & Technical
Does course count in the 21 units required for graduation: Yes
Licensure required to teach this course: 570 Construction Technology

494480 Construction Fundamentals
Credit: 1 Grade Levels: 9-12
This instructional program prepares individuals to apply technical knowledge and skills in the building, inspecting, and maintaining of structures and related properties. This course is based on the NCCER Core Curriculum.
Does course count in required 38 units and, if yes, how: Yes Career & Technical
Does course count in the 21 units required for graduation: Yes
Licensure required to teach this course: 570 Construction Technology

494500 Electrical
Credit: 1 Grade Levels: 9-12
This instructional program prepares individuals to apply technical knowledge and skills to install and repair residential electrical systems. This course is based on the NCCER Electrical 1 Curriculum.
Does course count in required 38 units and, if yes, how: Yes Career & Technical
Does course count in the 21 units required for graduation: Yes
Licensure required to teach this course: 570 Construction Technology

494510 Plumbing
Credit: 1 Grade Levels: 9-12
This instructional program prepares individuals to apply technical knowledge and skills to lay out, assemble, install, and maintain piping fixtures and piping systems, hot water, heating, cooling, and drainage systems. This course is based on the NCCER Plumbing 1 Curriculum.
Does course count in required 38 units and, if yes, how: Yes Career & Technical
Does course count in the 21 units required for graduation: Yes
Licensure required to teach this course: 570 Construction Technology

Geospatial Technology

494910 GIS & Remote Sensing
Credit: .5 Grade Levels: 9-12
Skill-based training in GIS & Remote Sensing is a one-semester course designed to introduce students to the use of ArcView GIS software and software extensions through academic study and extensive applied instruction. Students will be introduced to terminology and concepts relating to ArcView GIS software and will apply these concepts through the use of industry-standard software.
Does course count in required 38 units and, if yes, how: Yes Career & Technical
Does course count in the 21 units required for graduation: Yes
Licensure required to teach this course: 607 Geospatial Technology

494900 Intro to GIS
Credit: .5 Grade Levels: 9-12
Introduction to GIS/Remote Sensing is a one-semester course designed to introduce students to geographic information systems (GIS) and remote sensing (RS) technology through academic study and applied instruction. Students will be introduced to terminology and concepts relating to GIS/RS technology and will apply these concepts through the use of GIS software programs. Students will participate in structured, applied learning exercises taken from existing data sources, as well as conduct new study of these data sources through self-driven study and analysis.
Does course count in required 38 units and, if yes, how: Yes Career & Technical
Does course count in the 21 units required for graduation: Yes
Licensure required to teach this course: 607 Geospatial Technology

494920 SPACE (Spatial Projects and Community Exchange)
Credit: 1 Grade Levels: 11-12
The purpose of this class is to provide students with advanced instruction in geographic information systems (GIS) and remote sensing (RS) technology through focused academic study and continued emphasis on applied instruction that began in the Year 2 class. While the Year 2 GIS/RS project had a small scope that was limited to the school environment, this class will provide emphasis placed on special geographic projects dealing with the local community environment that will be planned, conducted, and presented by the student, with guidance from community/industry mentors. Students will identify a community problem or situation that may be addressed using GIS/RS technology; interview necessary residents/community personnel relevant to the situation; identify and/or collect data needed for the project; perform necessary analyses; and present findings to peers, school personnel, and community stakeholders. Within the study parameters of the school-community partnership, students will gain relevant "hands-on," industry-specific experience and valuable career guidance information that will aid the student in either the continuing education or job placement environments.
Does course count in required 38 units and, if yes, how: Yes Career & Technical
Does course count in the 21 units required for graduation: Yes
Licensure required to teach this course: 607 Geospatial Technology

494930 STARS (Spatial Technology and Remote Sensing)
Credit: 1 Grade Levels: 10-12
Spatial Technology and Remote Sensing (STARS) is a one-year course designed to provide students with continued instruction in geographic information systems (GIS) and remote sensing (RS) technology. Students will receive instruction and guidance from the instructor acting in a facilitator capacity on topics including skill building in industry-standard geospatial extension software and geospatial tools, including global positioning systems (GPS), and continued training in GIS project management and problem solving. Each student will participate in applied-learning activities with emphasis placed on planning, conducting, and presenting three special projects dealing with the use of GIS/RS tools and data in various career cluster groups that deal with the immediate school environment. In addition to formally presenting projects to peers, school administration, and other interested parties, students will be encouraging these entities to use their solutions to improve the local environment.
Does course count in required 38 units and, if yes, how: Yes Career & Technical
Does course count in the 21 units required for graduation: Yes
Licensure required to teach this course: 607 Geospatial Technology

HVACR (Heating, Ventilation, Air Conditioning, and Refrigeration)

495100 HVACR I
Credit: 1 Grade Levels: 9-12
This instructional program prepares individuals to apply technical knowledge and skills to repair, install, service, and maintain the operating condition of heating, air conditioning, and refrigeration systems.
Does course count in required 38 units and, if yes, how: Yes Career & Technical
Does course count in the 21 units required for graduation: Yes
Licensure required to teach this course: 578 HVACR

495110 HVACR II
Credit: 2 Grade Levels: 10-12
This instructional program prepares individuals to apply technical knowledge and skills to repair, install, service, and maintain the operating condition of heating, air conditioning, and refrigeration systems.
Does course count in required 38 units and, if yes, how: Yes Career & Technical
Does course count in the 21 units required for graduation: Yes
Licensure required to teach this course: 578 HVACR

JROTC (Junior Reserve Officer Training Corps)

495760 Air Force JROTC I
Credit: 1 Grade Levels: 9-12
The purpose of JROTC is to instill in students in secondary education institutions the values of citizenship, service to the United States, and personal responsibility and a sense of accomplishment.
Does course count in required 38 units and, if yes, how: Yes Career & Technical
Does course count in the 21 units required for graduation: Yes
Licensure required to teach this course: 612 JROTC

495770 Air Force JROTC II
Credit: 1 Grade Levels: 10-12
The purpose of JROTC is to instill in students in secondary education institutions the values of citizenship, service to the United States, and personal responsibility and a sense of accomplishment.
Does course count in required 38 units and, if yes, how: Yes Career & Technical
Does course count in the 21 units required for graduation: Yes
Licensure required to teach this course: 612 JROTC

495780 Air Force JROTC III
Credit: 1 Grade Levels: 11-12
The purpose of JROTC is to instill in students in secondary education institutions the values of citizenship, service to the United States, and personal responsibility and a sense of accomplishment.
Does course count in required 38 units and, if yes, how: Yes Career & Technical
Does course count in the 21 units required for graduation: Yes
Licensure required to teach this course: 612 JROTC

495880 Air Force JROTC IV
Credit: 1 Grade Levels: 12
The purpose of JROTC is to instill in students in secondary education institutions the values of citizenship, service to the United States, and personal responsibility and a sense of accomplishment.
Does course count in required 38 units and, if yes, how: Yes Career & Technical
Does course count in the 21 units required for graduation: Yes
Licensure required to teach this course: 612 JROTC

495790 Army JROTC I
Credit: 1 Grade Levels: 9-12
The purpose of JROTC is to instill in students in secondary education institutions the values of citizenship, service to the United States, and personal responsibility and a sense of accomplishment.
Does course count in required 38 units and, if yes, how: Yes Career & Technical
Does course count in the 21 units required for graduation: Yes
Licensure required to teach this course: 612 JROTC

495800 Army JROTC II
Credit: 1 Grade Levels: 10-12
The purpose of JROTC is to instill in students in secondary education institutions the values of citizenship, service to the United States, and personal responsibility and a sense of accomplishment.
Does course count in required 38 units and, if yes, how: Yes Career & Technical
Does course count in the 21 units required for graduation: Yes
Licensure required to teach this course: 612 JROTC

495810 Army JROTC III
Credit: 1 Grade Levels: 11-12
The purpose of JROTC is to instill in students in secondary education institutions the values of citizenship, service to the United States, and personal responsibility and a sense of accomplishment.
Does course count in required 38 units and, if yes, how: Yes Career & Technical
Does course count in the 21 units required for graduation: Yes
Licensure required to teach this course: 612 JROTC

495890 Army JROTC IV
Credit: 1 Grade Levels: 12
The purpose of JROTC is to instill in students in secondary education institutions the values of citizenship, service to the United States, and personal responsibility and a sense of accomplishment.
Does course count in required 38 units and, if yes, how: Yes Career & Technical
Does course count in the 21 units required for graduation: Yes
Licensure required to teach this course: 612 JROTC

495820 Marine JROTC I
Credit: 1 Grade Levels: 9-12
The purpose of JROTC is to instill in students in secondary education institutions the values of citizenship, service to the United States, and personal responsibility and a sense of accomplishment.
Does course count in required 38 units and, if yes, how: Yes Career & Technical
Does course count in the 21 units required for graduation: Yes
Licensure required to teach this course: 612 JROTC

495830 Marine JROTC II
Credit: 1 Grade Levels: 10-12
The purpose of JROTC is to instill in students in secondary education institutions the values of citizenship, service to the United States, and personal responsibility and a sense of accomplishment.
Does course count in required 38 units and, if yes, how: Yes Career & Technical
Does course count in the 21 units required for graduation: Yes
Licensure required to teach this course: 612 JROTC

495840 Marine JROTC III
Credit: 1 Grade Levels: 11-12
The purpose of JROTC is to instill in students in secondary education institutions the values of citizenship, service to the United States, and personal responsibility and a sense of accomplishment.
Does course count in required 38 units and, if yes, how: Yes Career & Technical
Does course count in the 21 units required for graduation: Yes
Licensure required to teach this course: 612 JROTC

495900 Marine JROTC IV
Credit: 1 Grade Levels: 12
The purpose of JROTC is to instill in students in secondary education institutions the values of citizenship, service to the United States, and personal responsibility and a sense of accomplishment.
Does course count in required 38 units and, if yes, how: Yes Career & Technical
Does course count in the 21 units required for graduation: Yes
Licensure required to teach this course: 612 JROTC

495850 Navy JROTC I
Credit: 1 Grade Levels: 9-12
The purpose of JROTC is to instill in students in secondary education institutions the values of citizenship, service to the United States, and personal responsibility and a sense of accomplishment.
Does course count in required 38 units and, if yes, how: Yes Career & Technical
Does course count in the 21 units required for graduation: Yes
Licensure required to teach this course: 612 JROTC

495860 Navy JROTC II
Credit: 1 Grade Levels: 10-12
The purpose of JROTC is to instill in students in secondary education institutions the values of citizenship, service to the United States, and personal responsibility and a sense of accomplishment.
Does course count in required 38 units and, if yes, how: Yes Career & Technical
Does course count in the 21 units required for graduation: Yes
Licensure required to teach this course: 612 JROTC

495870 Navy JROTC III
Credit: 1 Grade Levels: 11-12
The purpose of JROTC is to instill in students in secondary education institutions the values of citizenship, service to the United States, and personal responsibility and a sense of accomplishment.
Does course count in required 38 units and, if yes, how: Yes Career & Technical
Does course count in the 21 units required for graduation: Yes
Licensure required to teach this course: 612 JROTC

495910 Navy JROTC IV
Credit: 1 Grade Levels: 12
The purpose of JROTC is to instill in students in secondary education institutions the values of citizenship, service to the United States, and personal responsibility and a sense of accomplishment.
Does course count in required 38 units and, if yes, how: Yes Career & Technical
Does course count in the 21 units required for graduation: Yes
Licensure required to teach this course: 612 JROTC

CLUSTER: HEALTH SCIENCE

Medical Professions

495370 Abnormal Psychology
Credit: .5 Grade Levels: 9-12
This course provides a basic survey of maladaptive human behavior. Major psychological disorders, their causes, symptom behaviors, cultural influences, and relevant treatment approaches are discussed. Included topics are historical medical background, perspectives of treatment of the mentally ill, fundamental definitions, causes of anxiety disorders, disorders of mood including depression and bipolar disorder, personality disorders, disorders of thought including schizophrenia, substance-related disorders, and domestic violence. Legal, ethical, and social issues relating to the medical professional's role in treating psychological disorders are explored.
Does course count in required 38 units and, if yes, how: Yes Career & Technical
Does course count in the 21 units required for graduation: Yes
Licensure required to teach this course: 611 Medical Professions
625 Sports Medicine

494140 ACE-Approved First Responder
Credit: 1 Grade Levels: 9-12
This course introduces students to emergency medical technician occupational skills. Prior approval must be obtained from the Skilled and Technical Sciences Office before this course is implemented.
Does course count in required 38 units and, if yes, how: Yes Career & Technical
Does course count in the 21 units required for graduation: Yes
Licensure required to teach this course: 611 Medical Professions
625 Sports Medicine

495300 Human Anatomy and Physiology
Credit: 1 Grade Levels: 9-12
This course focuses on anatomical and physiological systems of the body as well as the diseases of those systems.
Does course count in required 38 units and, if yes, how: Yes Career & Technical
Does course count in the 21 units required for graduation: Yes
Licensure required to teach this course: 611 Medical Professions
625 Sports Medicine

495320 Human Behavior and Disorders
Credit: .5 Grade Levels: 9-12
This course focuses on normal behavior and personality, abnormal behavior and personality, and behavior disorders and the therapies used to treat those disorders and abnormalities.
Does course count in required 38 units and, if yes, how: Yes Career & Technical
Does course count in the 21 units required for graduation: Yes
Licensure required to teach this course: 611 Medical Professions
625 Sports Medicine

495340 Introduction to Medical Professions
Credit: .5 Grade Levels: 9-12
This course provides a general overview of the many health-related occupations and the special concerns of the health care worker.
Does course count in required 38 units and, if yes, how: Yes Career & Technical
Does course count in the 21 units required for graduation: Yes
Licensure required to teach this course: 611 Medical Professions
625 Sports Medicine

495380 Introduction to Medical Professions Expanded
Credit: .5 Grade Levels: 9-12
This course is designed as an extension of Introduction to Medical Professions. The course provides students with a general overview of the more crucial content areas of the health science technology education program core courses. Areas covered are medical terminology, medical math, human growth and development, processes of disease, and employability skills needed within the health care industry. This course is recommended for students who will not have the opportunity to take any additional health science technology education courses other than Introduction to Medical Professions.
Does course count in required 38 units and, if yes, how: Yes Career & Technical
Does course count in the 21 units required for graduation: Yes
Licensure required to teach this course: 611 Medical Professions
625 Sports Medicine

495230 Medical Clinical Internship/Specialization
Credit: .5 Grade Levels: 11-12
This is an educational program that offers Specialized Training in a health related field. It may also alternate in-school instruction and supervised on-the-job training activities in health science technology occupations.
Does course count in required 38 units and, if yes, how: Yes Career & Technical
Does course count in the 21 units required for graduation: Yes
Licensure required to teach this course: 611 Medical Professions
625 Sports Medicine

495310 Medical Clinical Internship/Specialization
Credit: 1 Grade Levels: 11-12
This is an educational program that offers Specialized Training in a health related field. It may also alternate in-school instruction and supervised on-the-job training activities in health science technology occupations.
Does course count in required 38 units and, if yes, how: Yes Career & Technical
Does course count in the 21 units required for graduation: Yes
Licensure required to teach this course: 611 Medical Professions
625 Sports Medicine

495330 Medical Procedures
Credit: .5 Grade Levels: 9-12
Medical Procedures is a one-unit course that helps students develop specific and general skills needed by the health science technology professional.
Does course count in required 38 units and, if yes, how: Yes Career & Technical
Does course count in the 21 units required for graduation: Yes
Licensure required to teach this course: 611 Medical Professions
625 Sports Medicine

495390 Medical Procedures Expanded
Credit: .5 Grade Levels: 9-12
This course focuses on the specific skills needed in several different areas of health care. Students are able to build upon the skills gained in the Medical Procedures course. The different areas addressed are dental assisting, laboratory assisting, medical assisting, nurse assisting, physical therapy assisting, and veterinary assisting.
Does course count in required 38 units and, if yes, how: Yes Career & Technical
Does course count in the 21 units required for graduation: Yes
Licensure required to teach this course: 611 Medical Professions
625 Sports Medicine

495360 Medical Terminology
Credit: .5 Grade Levels: 9-12
Medical Terminology is a one-semester course that assists students in developing the language used for communication in the health care profession.
Does course count in required 38 units and, if yes, how: Yes Career & Technical
Does course count in the 21 units required for graduation: Yes
Licensure required to teach this course: 611 Medical Professions
625 Sports Medicine

495290 Pathology
Credit: .5 Grade Levels: 9-12
This course is devoted to the exploration of human pathology. Pathology is the branch of medical science that studies the causes, nature, and effects of diseases. This course of study begins with an introduction to pathology-related terms, predisposing factors of diseases, the relationship between diagnosis and prognosis, and disease treatments. Following the introduction, the course delves into a range of pathology-related topics and their relationships to specific systems of the human body. The topics include signs and symptoms of pathology, the effects of trauma, the effects of age, and characteristics of common diseases.
Does course count in required 38 units and, if yes, how: Yes Career & Technical
Does course count in the 21 units required for graduation: Yes
Licensure required to teach this course: 611 Medical Professions
625 Sports Medicine

495280 Pharmacy Technology Fundamentals
Credit: 1 Grade Levels: 9-12
Provides an overview of the pharmacy technology field and develops the fundamental concepts and principles necessary for successful participation in the pharmacy field.
Does course count in required 38 units and, if yes, how: Yes Career & Technical
Does course count in the 21 units required for graduation: Yes
Licensure required to teach this course: 611 Medical Professions
625 Sports Medicine

495240 Medical Math
Credit: 1 Grade Levels: 9-12
This course is designed to increase students' ability to identify, solve, and apply mathematical principles involving temperature, weights, and measures used in the health care delivery system.
Does course count in required 38 units and, if yes, how: Yes Career & Technical
Does course count in the 21 units required for graduation: Yes
Licensure required to teach this course: 611 Medical Professions
625 Sports Medicine

Sports Medicine

494050 Foundations of Sports Medicine I
Credit: .5 Grade Levels: 9-12
This course provides students with a general overview of sports medicine and its history from the perspective of the healthcare community that includes injury prevention, treatment, rehabilitation, psychosocial, and administration concerns. Students will gain an understanding of sports medicine and the role it plays in the athletic community.
Does course count in required 38 units and, if yes, how: Yes Career & Technical
Does course count in the 21 units required for graduation: Yes
Licensure required to teach this course: 625 Sports Medicine

494060 Foundations of Sports Medicine II
Credit: .5 Grade Levels: 9-12
Prerequisite: 494050 Foundations of Sports Medicine I
This course provides students with a general overview of sports medicine and its history from the perspective of the healthcare community that includes injury prevention, treatment, rehabilitation, psychosocial, and administration concerns. Students will gain an understanding of sports medicine and the role it plays in the athletic community.
Does course count in required 38 units and, if yes, how: Yes Career & Technical
Does course count in the 21 units required for graduation: Yes
Licensure required to teach this course: 625 Sports Medicine

494070 Foundations of Sports Medicine III
Credit: .5 Grade Levels: 9-12
Prerequisite: 494050 Foundations of Sports Medicine I
495060 Foundations of Sports Medicine II
This course provides students with a general overview of sports medicine and its history from the perspective of the healthcare community that includes injury prevention, treatment, rehabilitation, psychosocial, and administration concerns. Students will gain an understanding of sports medicine and the role it plays in the athletic community.
Does course count in required 38 units and, if yes, how: Yes Career & Technical
Does course count in the 21 units required for graduation: Yes
Licensure required to teach this course: 625 Sports Medicine

495300 Human Anatomy and Physiology
Credit: 1 Grade Levels: 9-12
This course focuses on anatomical and physiological systems of the body as well as the diseases of those systems.
Does course count in required 38 units and, if yes, how: Yes Career & Technical
Does course count in the 21 units required for graduation: Yes
Licensure required to teach this course: 611 Medical Professions
625 Sports Medicine

Health Informatics

492120 Computerized Business Applications
Credit: 1 Grade Levels: 9-12
Computerized Business Applications is a two-semester course designed to prepare students with an introduction to business applications that are necessary to live and work in a technological society. Emphasis is given to hardware, concepts, and business uses of applications. The business applications covered are word processing, database, spreadsheet, telecommunications, presentation, and Web page design. This course will also meet the one unit required in the Standards for Computer Applications.
Does course count in required 38 units and, if yes, how: Yes Career & Technical
Does course count in the 22 units required for graduation: Yes
Licensure required to teach this course: 031 Business Education (Secretarial)
032 Business Education
034 Data Processing/Computer Permit
037 Computer Tech Permit
225 Business Technology

492690 Medical Office Management
Credit: 1 Grade Levels: 11-12
Prerequisite: 492120 Computerized Business Applications
495590 Introduction to Health Informatics
495360 Medical Terminology
Medical Office Procedures is a two-semester course focusing on management and supervision in the Health Informatics office environment. The course covers basic skills in word processing, database, spreadsheet, presentation, desktop publishing, 10-key calculating, record keeping, communicating and transcribing, as well as decision making, critical thinking, teamwork and ethics.
Does course count in required 38 units and, if yes, how: Yes Career & Technical
Does course count in the 22 units required for graduation: Yes
Licensure required to teach this course: 031 Business Education (Secretarial)
032 Business Education
225 Business Technology
040 Marketing Education
222 Marketing Technology

495360 Medical Terminology
Credit: .5 Grade Levels: 9-12
Medical Terminology is a one-semester course that assists students in developing the language used for communication in the health care profession.
Does course count in required 38 units and, if yes, how: Yes Career & Technical
Does course count in the 21 units required for graduation: Yes
Licensure required to teach this course: 611 Medical Professions

495590 Introduction to Health Informatics
Credit: .5 Grade Levels: 9-12
Prerequisite: 492120 Computerized Business Applications
This course will provide understanding about employability or “soft skills,” to enhance employment opportunities, and job satisfaction. It will also explore history, trends, and careers in Health Informatics, as well as legal, ethical and safety associated issues related to health careers. Basic principles of infection control that are essential for all workers in any healthcare field will be studied.
Does course count in required 38 units and, if yes, how: Yes Career & Technical
Does course count in the 21 units required for graduation: Yes
Licensure required to teach this course: 611 Medical Professions

495600 Case Studies in Health Informatics
Credit: .5 Grade Levels: 11-12
Prerequisite: 492120 Computerized Business Applications
495590 Introduction to Health Informatics
495360Medical Terminology
492690 Medical Office Management
This course will help guide students in “bridging the gap” between content knowledge and on-the-job performance in actual Health Information Management practice. Students will apply critical thinking skills to real events and situations that occur in the workplace.
Does course count in required 38 units and, if yes, how: Yes Career & Technical
Does course count in the 21 units required for graduation: Yes
Licensure required to teach this course: 611 Medical Professions

495610 Professional Practice: Health Informatics Internship
Credit: .5 Grade Levels: 11-12
Prerequisite: 492120 Computerized Business Applications
495590 Introduction to Health Informatics
495360 Medical Terminology
492690 Medical Office Management
Internship is a capstone course for all students in programs of study leading to a career goal. Internships rely on well-defined partnerships between high schools, business communities, and post-secondary institutions and apprenticeship programs. The purpose of the program is to help students successfully transition from high school to their chosen career field. Individualized and "real world" experiences that are competency based enhance the internship program.
Does course count in required 38 units and, if yes, how: Yes Career & Technical
Does course count in the 21 units required for graduation: Yes
Licensure required to teach this course: 611 Medical Professions

CLUSTER: LAW, PUBLIC SAFETY, CORRECTIONS, & SECURITY

Criminal Justice

494610 Criminal Law
Credit: 1 Grade Levels: 9-12
This instructional program prepares individuals to perform the duties of police and public security officers, including witness interviewing, evidence collection and management, and basic crime prevention methods.
Does course count in required 38 units and, if yes, how: Yes Career & Technical
Does course count in the 21 units required for graduation: Yes
Licensure required to teach this course: 603 Criminal Justice

494620 Introduction to Criminal Justice
Credit: 1 Grade Levels: 9-12
This instructional program prepares individuals to perform the duties of police and public security officers, including patrol and investigative activities, traffic control, crowd control, and public relations.
Does course count in required 38 units and, if yes, how: Yes Career & Technical
Does course count in the 21 units required for graduation: Yes
Licensure required to teach this course: 603 Criminal Justice

494630 Law Enforcement I
Credit: 1 Grade Levels: 9-12
This instructional program prepares individuals to perform the duties of police and public security officers, including patrol and investigative activities, traffic control, crowd control, and public relations.
Does course count in required 38 units and, if yes, how: Yes Career & Technical
Does course count in the 21 units required for graduation: Yes
Licensure required to teach this course: 603 Criminal Justice

494600 Law Enforcement II
Credit: 1 Grade Levels: 9-12
Prerequisite: Law Enforcement I (494630)
This instructional program prepares individuals to perform the duties of police and public security officers, including patrol and investigative activities, traffic control, crowd control, public relations, and witness interviewing.
Does course count in required 38 units and, if yes, how: Yes Career & Technical
Does course count in the 21 units required for graduation: Yes
Licensure required to teach this course: 603 Criminal Justice

CLUSTER: MANUFACTURING

Furniture Manufacturing

494850 Furniture Manufacturing I
Credit: 1 Grade Levels: 9-12
This instructional program introduces basic principles of assembling and finishing wooden furniture.
Does course count in required 38 units and, if yes, how: Yes Career & Technical
Does course count in the 21 units required for graduation: Yes
Licensure required to teach this course: 581 Furniture/Cabinet Making

494870 Furniture Manufacturing II
Credit: 2 Grade Levels: 10-12
Skills and techniques taught in this class will correlate more closely with manufacturing standards as determined by the furniture industry. Each student will assemble and finish a useful furniture piece as a required individual project.
Does course count in required 38 units and, if yes, how: Yes Career & Technical
Does course count in the 21 units required for graduation: Yes
Licensure required to teach this course: 581 Furniture/Cabinet Making

494860 Furniture Manufacturing Lab
Credit: 1 Grade Levels: 9-12
This production-based program is designed to allow for the development of skills and knowledge needed to execute a comprehensive furniture manufacturing product.
Does course count in required 38 units and, if yes, how: Yes Career & Technical
Does course count in the 21 units required for graduation: Yes
Licensure required to teach this course: 581 Furniture/Cabinet Making

Industrial Equipment Maintenance

495150 Industrial Equipment Maintenance I
Credit: 1 Grade Levels: 9-12
The student will be trained to perform a variety of skills to repair, install, fabricate, set up, adjust, and do preventive maintenance to industrial machinery and equipment.
Does course count in required 38 units and, if yes, how: Yes Career & Technical
Does course count in the 21 units required for graduation: Yes
Licensure required to teach this course: 585 Industrial Equipment Maintenance

495170 Industrial Equipment Maintenance II
Credit: 2 Grade Levels: 10-12
The student will be trained to perform a variety of skills to repair, install, fabricate, set up, adjust, and do preventive maintenance to industrial machinery and equipment.
Does course count in required 38 units and, if yes, how: Yes Career & Technical
Does course count in the 21 units required for graduation: Yes
Licensure required to teach this course: 585 Industrial Equipment Maintenance

495160 Industrial Equipment Maintenance Lab
Credit: 1 Grade Levels: 9-12
This production-based program is designed to allow for the development of skills and knowledge needed to execute comprehensive industrial equipment maintenance.
Does course count in required 38 units and, if yes, how: Yes Career & Technical
Does course count in the 21 units required for graduation: Yes
Licensure required to teach this course: 585 Industrial Equipment Maintenance

Machine Tool

495200 Machine Tool I
Credit: 1 Grade Levels: 9-12
This instructional program prepares individuals to shape parts on machines, such as lathes, grinders, drill presses, and milling machines from various materials. Programs may also train in the use of individual machine tools.
Does course count in required 38 units and, if yes, how: Yes Career & Technical
Does course count in the 21 units required for graduation: Yes
Licensure required to teach this course: 587 Machine Tool

495220 Machine Tool II
Credit: 2 Grade Levels: 10-12
This instructional program prepares individuals to shape parts on machines, such as lathes, grinders, drill presses, and milling machines from various materials. Programs may also train in the use of individual machine tools.
Does course count in required 38 units and, if yes, how: Yes Career & Technical
Does course count in the 21 units required for graduation: Yes
Licensure required to teach this course: 587 Machine Tool

495210 Machine Tool Lab
Credit: 1 Grade Levels: 9-12
This production-based program is designed to allow for the development of skills and knowledge needed to execute comprehensive machine tool technology.
Does course count in required 38 units and, if yes, how: Yes Career & Technical
Does course count in the 21 units required for graduation: Yes
Licensure required to teach this course: 587 Machine Tool

Major Appliance Tech

495250 Major Appliance Technology I
Credit: 1 Grade Levels: 9-12
This course prepares individuals to engage in the diagnosis and repair of major appliances. Instruction will include units on safety, tools and equipment, fundamentals of electricity, and electric motors.
Does course count in required 38 units and, if yes, how: Yes Career & Technical
Does course count in the 21 units required for graduation: Yes
Licensure required to teach this course: 588 Major Appliance

495270 Major Appliance Technology II
Credit: 2 Grade Levels: 10-12
This course prepares individuals to engage in the diagnosis and repair of major appliances. Instruction will include units on clothes washers, clothes dryers, refrigerators and freezers, dishwashers, and microwave ovens.
Does course count in required 38 units and, if yes, how: Yes Career & Technical
Does course count in the 21 units required for graduation: Yes
Licensure required to teach this course: 588 Major Appliance

495260 Major Appliance Technology Lab
Credit: 1 Grade Levels: 9-12
This production-based program is designed to allow for the development of skills and knowledge needed to execute comprehensive major appliance repair.
Does course count in required 38 units and, if yes, how: Yes Career & Technical
Does course count in the 21 units required for graduation: Yes
Licensure required to teach this course: 588 Major Appliance

Welding

495550 Gas Metal Arc Welding
Credit: 1 Grade Levels: 9-12
This instructional program prepares individuals to apply technical knowledge and skills to unite or separate metal parts by heating, using a variety of techniques and equipment. Emphasis of this course will be the use of gas metal arc welders. This course is based on selected modules from Welding Level 1 and Welding level 2 NCCER curriculum.
Does course count in required 38 units and, if yes, how: Yes Career & Technical
Does course count in the 21 units required for graduation: Yes
Licensure required to teach this course: 597 Welding

495560 Gas Tungsten Arc Welding
Credit: 1 Grade Levels: 9-12
This instructional program prepares individuals to apply technical knowledge and skills to unite or separate metal parts by heating, using a variety of techniques and equipment. Emphasis of this course will be the use of gas tungsten arc welders. This course is based on selected modules from Welding Level 1 and Welding level 2 NCCER curriculum.
Does course count in required 38 units and, if yes, how: Yes Career & Technical
Does course count in the 21 units required for graduation: Yes
Licensure required to teach this course: 597 Welding

495570 Metal Fabrication
Credit: 1 Grade Levels: 9-12
This instructional program prepares individuals to apply technical knowledge and skills to unite or separate metal parts by heating, using a variety of techniques and equipment. This course is based on selected modules from Welding Core, Welding Level 1 and Welding level 2 NCCER curriculum.
Does course count in required 38 units and, if yes, how: Yes Career & Technical
Does course count in the 21 units required for graduation: Yes
Licensure required to teach this course: 597 Welding

495580 Shielded Metal Arc Welding
Credit: 1 Grade Levels: 9-12
This instructional program prepares individuals to apply technical knowledge and skills to unite or separate metal parts by heating, using a variety of techniques and equipment. Emphasis of this course will be the use of shielded metal arc welders. This course is based on selected modules from Welding Level 1 NCCER curriculum.
Does course count in required 38 units and, if yes, how: Yes Career & Technical
Does course count in the 21 units required for graduation: Yes
Licensure required to teach this course: 597 Welding

Advanced Manufacturing

494940 Introduction to Manufacturing
Credit: 1 Grade Levels: 10-12
This course is designed to introduce the student to the world of advanced manufacturing and establish a foundation upon which further studies in manufacturing might rest. Students will explore basic manufacturing materials and processes, tools, techniques, and produce some simple products.
Does course count in required 38 units and, if yes, how: Yes Career & Technical
Does course count in the units required for graduation: Yes
Licensure required: 585 Industrial Equipment Maintenance
587 Machine Tool

494950 Design for Manufacturing
Credit: 1 Grade Levels: 10-12
This course is designed to expand on the introductory manufacturing course and expose the student to basic design concepts, computer skills, and drawing skills used in product and process design within the field of manufacturing. Additionally, the course is designed to expose students to a number of interpersonal skills and competencies necessary for a sustained career in manufacturing.
Does course count in required 38 units and, if yes, how: Yes - Career & Technical
Does course count in the units required for graduation: Yes
Licensure required: 585 Industrial Equipment Maintenance
587 Machine Tool

494960 Manufacturing Production Processes
Credit: 1 Grade Levels: 10-12
This course is designed to provide the student with a hands-on learning experience with the basic tools, equipment, and operations of manufacturing industries. The student will also understand the relationship between a manufacturing need, a design, materials, processes, as well as tools and equipment. During this course, the student will utilize many of the basic manufacturing processes to produce primary and secondary materials for manufacturing.
Does course count in required 38 units and, if yes, how: Yes Career & Technical
Does course count in the units required for graduation: Yes
Licensure required: 585 Industrial Equipment Maintenance
587 Machine Tool

494970 Manufacturing Power & Equipment Systems
Credit: 1 Grade Levels: 10-12
This course is designed to expand upon previous courses and allow students the opportunity to demonstrate knowledge of power systems and use the advanced tools of manufacturing production. Students will plan, design, implement, use, and troubleshoot manufacturing power systems, equipment systems, and control systems.
Does course count in required 38 units and, if yes, how: Yes Career & Technical
Does course count in the units required for graduation: Yes
Licensure required: 585 Industrial Equipment Maintenance
587 Machine Tool

Electronics

494800 Electronics I
Credit: 1 Grade Levels: 9-12
This instructional program prepares individuals to support the electronic engineer and other professionals in the design, development, modification, and testing of electronic circuits, devices, and systems.
Does course count in required 38 units and, if yes, how: Yes Career & Technical
Does course count in the 21 units required for graduation: Yes
Licensure required to teach this course: 577 Electronics

494820 Electronics II
Credit: 2 Grade Levels: 10-12
This instructional program prepares individuals to support the electronic engineer and other professionals in the design, development, modification, and testing of electronic circuits, devices, and systems.
Does course count in required 38 units and, if yes, how: Yes Career & Technical
Does course count in the 21 units required for graduation: Yes
Licensure required to teach this course: 577 Electronics

494810 Electronics Lab
Credit: 1 Grade Levels: 9-12
This production-based program is designed to allow for the development of skills and knowledge needed to execute a comprehensive electronics product.
Does course count in required 38 units and, if yes, how: Yes Career & Technical
Does course count in the 21 units required for graduation: Yes
Licensure required to teach this course: 577 Electronics

CLUSTER: TRANSPORTATION, DISTRIBUTION & LOGISTICS

Automotive Collision Repair

494300 Nonstructural Analysis/Repair
Credit: 1 Grade Levels: 9-12
This course concentrates on analysis and repair of the nonstructural components as they pertain to collision repair.
Does course count in required 38 units and, if yes, how: Yes Career & Technical
Does course count in the 21 units required for graduation: Yes
Licensure required to teach this course: 567 Automotive Collision Repair

494310 Painting/Refinishing
Credit: 1 Grade Levels: 9-12
This course concentrates on painting and refinishing as they pertain to collision repair. The course includes causes and correction of finish defects.
Does course count in required 38 units and, if yes, how: Yes Career & Technical
Does course count in the 21 units required for graduation: Yes
Licensure required to teach this course: 567 Automotive Collision Repair

494320 Structural Analysis/Repair
Credit: 1 Grade Levels: 10-12
This course concentrates on analysis and repair of the structural components as they pertain to collision repair.
Does course count in required 38 units and, if yes, how: Yes Career & Technical
Does course count in the 21 units required for graduation: Yes
Licensure required to teach this course: 567 Automotive Collision Repair

Automotive Service Technology

494180 Brakes
Credit: 1 Grade Levels: 9-12
This course prepares individuals to engage in the diagnosis and repair of brakes. Instruction will include units on hydraulic system diagnosis and repair, drum brake diagnosis and repair, and disc brake diagnosis and repair.
Does course count in required 38 units and, if yes, how: Yes Career & Technical
Does course count in the 21 units required for graduation: Yes
Licensure required to teach this course: 568 Automotive Service Technology

494190 Electrical Systems
Credit: 1 Grade Levels: 9-12
This course prepares individuals to engage in the diagnosis and repair of electrical/electronic systems. Instruction will include units on general electrical system diagnosis and service.
Does course count in required 38 units and, if yes, how: Yes Career & Technical
Does course count in the 21 units required for graduation: Yes
Licensure required to teach this course: 568 Automotive Service Technology

494200 Engine Performance
Credit: 1 Grade Levels: 9-12
This course prepares individuals to engage in the diagnosis and repair of engine performance. Instruction will include units on general engine diagnosis and computerized engine controls diagnosis and repair.
Does course count in required 38 units and, if yes, how: Yes Career & Technical
Does course count in the 21 units required for graduation: Yes
Licensure required to teach this course: 568 Automotive Service Technology

494210 Suspension & Steering
Credit: 1 Grade Levels: 9-12
This course prepares individuals to engage in the diagnosis and repair of suspension and steering. Instruction will include units on steering systems diagnosis and repair; suspension systems diagnosis and repair; wheel alignment diagnosis, adjustment, and repair; and wheel and tire diagnosis and repair.
Does course count in required 38 units and, if yes, how: Yes Career & Technical
Does course count in the 21 units required for graduation: Yes
Licensure required to teach this course: 568 Automotive Service Technology

Aviation Mechanics

494250 Aviation Mechanics I (A&P)
Credit: 2 Grade Levels: 9-12
This program will include instruction on the general core curriculum required by the Federal Aviation Administration.
Does course count in required 38 units and, if yes, how: Yes Career & Technical
Does course count in the 21 units required for graduation: Yes
Licensure required to teach this course: 569 Aviation Mechanics

494260 Aviation Mechanics II (A&P)
Credit: 2 Grade Levels: 10-12
This program will include instruction on the general core curriculum required by the Federal Aviation Administration (FAA). This course will prepare students for the Air Frame and Power Plant School certified by the FAA.
Does course count in required 38 units and, if yes, how: Yes Career & Technical
Does course count in the 21 units required for graduation: Yes
Licensure required to teach this course: 569 Aviation Mechanics

Diesel Mechanics

494650 Diesel Mechanics I
Credit: 2 Grade Levels: 9-12
This instructional program prepares individuals to diagnose and repair diesel equipment in on-road and off-road vehicles and machinery.
Does course count in required 38 units and, if yes, how: Yes Career & Technical
Does course count in the 21 units required for graduation: Yes
Licensure required to teach this course: 574 Diesel Mechanics

494660 Diesel Mechanics II
Credit: 2 Grade Levels: 10-12
This instructional program prepares individuals to diagnose and repair diesel equipment in on-road and off-road vehicles and machinery. Advanced on-the-job training may be included.
Does course count in required 38 units and, if yes, how: Yes Career & Technical
Does course count in the 21 units required for graduation: Yes
Licensure required to teach this course: 574 Diesel Mechanics

Power Equipment Technology

495400 Power Equipment Technology I
Credit: 1 Grade Levels: 9-12
This instructional program prepares individuals to apply technical knowledge and skills to repair, service, and maintain small internal-combustion engines used on portable equipment, such as lawnmowers, chain saws, and rotary tillers.
Does course count in required 38 units and, if yes, how: Yes Career & Technical
Does course count in the 21 units required for graduation: Yes
Licensure required to teach this course: 593 Power Equipment Technology

495420 Power Equipment Technology II
Credit: 2 Grade Levels: 10-12
This instructional program prepares individuals to apply technical knowledge and skills to repair, service, and maintain small internal-combustion engines used on portable equipment, such as lawnmowers, chain saws, and rotary tillers.
Does course count in required 38 units and, if yes, how: Yes Career & Technical
Does course count in the 21 units required for graduation: Yes
Licensure required to teach this course: 593 Power Equipment Technology

495410 Power Equipment Technology Lab
Credit: 1 Grade Levels: 9-12
This production-based program is designed to allow for the development of skills and knowledge needed to execute comprehensive power equipment repair.
Does course count in required 38 units and, if yes, how: Yes Career & Technical
Does course count in the 21 units required for graduation: Yes
Licensure required to teach this course: 593 Power Equipment Technology

MISCELLANEOUS COURSES

690040 Driver's Education
Credit: .5 Grade Levels: 9-12
Please contact the ACE office at 501-682-1040 with questions regarding this program.
Does course count in required 38 units and, if yes, how: No
Does course count in the 21 units required for graduation: No
Licensure required to teach this course: 210 Driver Education
417 Driver Education

495180 Dry Cleaning I
Credit: 1 Grade Levels: 9-12
This instructional program prepares individuals to apply technical knowledge and skills to enter into the dry cleaning profession.
Does course count in required 38 units and, if yes, how: Yes Career & Technical
Does course count in the 21 units required for graduation: Yes
Licensure required to teach this course: 576 Dry-clean/Laundry

495190 Dry Cleaning II
Credit: 1 Grade Levels: 9-12
This instructional program prepares individuals to apply technical knowledge and skills to enter into the dry cleaning profession.
Does course count in required 38 units and, if yes, how: Yes Career & Technical
Does course count in the 21 units required for graduation: Yes
Licensure required to teach this course: 576 Dry-clean/Laundry

Skilled and Technical Sciences (non-program specific)

590010 Cashier/Checker
Credit: .5 Grade Levels: 9-12
This course prepares individuals to apply technical knowledge and skills to become cashiers or checkers.
Does course count in required 38 units and, if yes, how: No
Does course count in the 21 units required for graduation: Yes
Licensure required to teach this course: 600 Cashier/checker Instruction

590110 ACE-Approved Skilled & Technical Sciences Course
Credit: .5 Grade Levels: 9-12
This is a specialized CTE course for which the district must submit a framework and receive approval to teach. District must have a letter on file to use this course code.
Does course count in required 38 units and, if yes, how: No
Does course count in the 21 units required for graduation: Yes
Licensure required to teach this course: Any Skilled and Technical Sciences Permit

590090 ACE-Approved Skilled and Technical Sciences Course
Credit: 1 Grade Levels: 9-12
This is a specialized CTE course for which the district must submit a framework and receive approval to teach. District must have a letter on file to use this course code.
Does course count in required 38 units and, if yes, how: No
Does course count in the 21 units required for graduation: Yes
Licensure required to teach this course: Any Skilled and Technical Sciences Permit

590100 ACE-Approved Skilled and Technical Sciences Lab
Credit: 1 Grade Levels: 9-12
This course is an extension of an existing career and technical program of study – to allow students more time for hands-on application of the approved framework/curriculum. This course will not count in the 38 units required to be taught, but it will count in the six units for a career focus.
Does course count in required 38 units and, if yes, how: No
Does course count in the 21 units required for graduation: Yes
Licensure required to teach this course: Any Skilled and Technical Sciences Permit

590040 Industrial Technology Education
Credit: 1 Grade Levels: 9-12
Industrial Technology Education is a program of instruction designed to prepare high school students to comprehend a technological society. Students will engage in activities enabling them to use, control, and create various technology resources.
Does course count in required 38 units and, if yes, how: Yes Career & Technical
Does course count in the 21 units required for graduation: Yes
Licensure required to teach this course: 010 Agriculture
100 Industrial Arts I
102 Industrial Arts II
211 Industrial Technology Education
212 Industrial Technology Education
579 Exploring Industrial Technology

Youth Apprenticeship

493950 Youth Apprenticeship
Credit: 1 Grade Levels: 11-12
This course code is for recognized and approved youth apprenticeship programs. Prior approval by the Department of Career Education is required.
Does course count in required 38 units and, if yes, how: Yes Career & Technical
Does course count in the 21 units required for graduation: Yes
Licensure required to teach this course: Any

Middle School Courses

399200 ACE-Approved Career & Technical Education
Credit: 1 Grade Levels: 7-8
This is a specialized CTE course for which the district must submit a framework and receive approval to teach. District must have a letter on file to use this course code.
Does course count in required 38 units and, if yes, how: No
Does course count in the 21 units required for graduation: No
Licensure required to teach this course: Any Skilled and Technical Sciences Permit

Pathways and Programs of Study by Career Cluster

Architecture and Construction Cluster

Designing, planning, managing, building, and maintaining physical structures and the larger built environment, including roadways and bridges and industrial, commercial, and residential facilities and buildings

Construction Pathway
Construction Technology Program of Study

Course Code	Core Requirements	Units of Credit	7th	8th	9th	10th	11th	12th
494460	Carpentry	1			X	X	X	X
494480	Construction Fundamentals	1			X	X	X	X

Construction Pathway
HVACR Program of Study

Course Code	Core Requirements	Units of Credit	7th	8th	9th	10th	11th	12th
495100	HVACR I	1			X	X	X	X
495110	HVACR II	2				X	X	X

Design Pre-Construction Pathway
Geospatial Technology

Course Code	Core Requirements	Units of Credit	7th	8th	9th	10th	11th	12th
494910	GIS & Remote Sensing (GIS/RS)	.5			X	X	X	X
494900	Introduction to GIS	.5			X	X	X	X

Government and Public Administration Cluster

Executing governmental functions to include governance; national security; foreign service; planning; revenue and taxation; regulation; and management and administration at the local, state, and federal levels

National Security Pathway
JROTC Programs of Study

Course Code	Core Requirements	Units of Credit	7th	8th	9th	10th	11th	12th
495760	Air Force JROTC I	1			X	X	X	X
495770	Air Force JROTC II	1				X	X	X
495790	Army JROTC I	1			X	X	X	X
495800	Army JROTC II	1				X	X	X
495820	Marine JROTC I	1			X	X	X	X
495830	Marine JROTC II	1				X	X	X
495850	Navy JROTC I	1			X	X	X	X
495860	Navy JROTC II	1				X	X	X

Health Science Cluster

Planning, managing, and providing therapeutic services, diagnostic services, health informatics, support services, and biotechnology research and development

Therapeutic Services Pathway
Health Science Technology Education Program of Study

Course Code	Core Requirements	Units of Credit	7th	8th	9th	10th	11th	12th
495300	Human Anatomy & Physiology	1				X	X	X
495340	Introduction to Medical Professions	.5			X	X	X	X

Therapeutic Services Pathway
Sports Medicine Program of Study

Course Code	Core Requirements	Units of Credit	7th	8th	9th	10th	11th	12th
495300	Human Anatomy & Physiology	1				X	X	X
494050	Foundations to Sports Medicine I	.5			X	X	X	X
494060	Foundations to Sports Medicine II	.5			X	X	X	X
494070	Foundations to Sports Medicine III	1				X	X	X

Health Informatics Pathway
Health Informatics Program of Study

Course Code	Core Requirements	Units of Credit	7th	8th	9th	10th	11th	12th
492120	Computer Business Applications	1			X	X	X	X
492690	Medical Office Management	1				X	X	X
495360	Medical Terminology	.5			X	X	X	X
495590	Introduction to Health Informatics	.5			X	X	X	X

Law, Public Safety, Corrections and Security Cluster

Planning, managing, and providing judicial, legal, and protective services, including professional and technical support services in the fire protection and criminal justice systems

Law Enforcement Services Pathway
Criminal Justice Program of Study

Course Code	Core Requirements	Units of Credit	7th	8th	9th	10th	11th	12th
494620	Introduction to Criminal Justice	1			X	X	X	X
494630	Law Enforcement I	1			X	X	X	X

Manufacturing Cluster

Planning, managing, and performing the processing of materials into intermediate or final products and related professional and technical support activities, such as production planning and control, maintenance, and manufacturing/process engineering

Production Pathway
Advanced Manufacturing Program of Study

Course Code	Core Requirements	Units of Credit	7th	8th	9th	10th	11th	12th
494940	Introduction to Manufacturing	1			X	X	X	X
494950	Design for Manufacturing	1			X	X	X	X

Production Pathway
Furniture Manufacturing Program of Study

Course Code	Core Requirements	Units of Credit	7th	8th	9th	10th	11th	12th
494850	Furniture Manufacturing I	1			X	X	X	X
494870	Furniture Manufacturing II	2				X	X	X

Production Pathway
Machine Tool Program of Study

Course Code	Core Requirements	Units of Credit	7th	8th	9th	10th	11th	12th
495200	Machine Tool I	1			X	X	X	X
495220	Machine Tool II	2				X	X	X

Production Pathway
Welding Program of Study

Course Code	Core Requirements	Units of Credit	7th	8th	9th	10th	11th	12th
495570	Metal Fabrication	1			X	X	X	X
495580	Shielded Metal Arc Welding	1			X	X	X	X

Maintenance, Installation, and Repair Pathway
Industrial Equipment Maintenance Program of Study

Course Code	Core Requirements	Units of Credit	7th	8th	9th	10th	11th	12th
495150	Industrial Equipment Maintenance I	1			X	X	X	X
495170	Industrial Equipment Maintenance II	2				X	X	X

Maintenance, Installation, and Repair Pathway
Major Appliance Technology Program of Study

Course Code	Core Requirements	Units of Credit	7th	8th	9th	10th	11th	12th
495250	Major Appliance Technology I	1			X	X	X	X
495270	Major Appliance Technology II	2				X	X	X

Engineering and Technology Pathway
Electronics Program of Study

Course Code	Core Requirements	Units of Credit	7th	8th	9th	10th	11th	12th
494800	Electronics I	1			X	X	X	X
494820	Electronics II	2				X	X	X

Transportation, Distribution, and Logistics Cluster

Planning, managing, and moving of people, materials, and goods by road, pipeline, air, rail, and water and related professional and technical support services, such as transportation infrastructure planning and management, logistic services, and mobile equipment and facility maintenance

Facility and Mobile Equipment Maintenance Pathway
Automotive Collision Repair Program of Study

Course Code	Core Requirements	Units of Credit	7th	8th	9th	10th	11th	12th
494310	Painting & Refinishing	1			X	X	X	X
494320	Structural Analysis/Damage Repair	1				X	X	X

Facility and Mobile Equipment Maintenance Pathway
Automotive Service Technology Program of Study

Course Code	Core Requirements	Units of Credit	7th	8th	9th	10th	11th	12th
494190	Electrical Systems	1			X	X	X	X
494180	Brakes	1			X	X	X	X

Facility and Mobile Equipment Maintenance Pathway
Aviation Program of Study

Course Code	Core Requirements	Units of Credit	7th	8th	9th	10th	11th	12th
494250	Aviation Mechanics I (A&P)	2			X	X	X	X

Facility and Mobile Equipment Maintenance Pathway
Diesel Mechanics Program of Study

Course Code	Core Requirements	Units of Credit	7th	8th	9th	10th	11th	12th
494650	Diesel Mechanics I	2			X	X	X	X

Facility and Mobile Equipment Maintenance Pathway
Power Equipment Technology Program of Study

Course Code	Core Requirements	Units of Credit	7th	8th	9th	10th	11th	12th
495400	Power Equipment Technology I	1			X	X	X	X
495420	Power Equipment Technology II	2				X	X	X

SKILLED AND TECHNICAL SCIENCES COURSES:

Course Code	Courses	Units of Credit	7th	8th	9th	10th	11th	12th
495370	Abnormal Psychology	.5			X	X	X	X
495760	Air Force JROTC I	1			X	X	X	X
495770	Air Force JROTC II	1				X	X	X
495780	Air Force JROTC III	1					X	X
495880	Air Force JROTC IV	1						X
495790	Army JROTC I	1			X	X	X	X
495800	Army JROTC II	1				X	X	X
495810	Army JROTC III	1					X	X
495890	Army JROTC IV	1						X
494250	Aviation Mechanics I (A&P)	2			X	X	X	X
494260	Aviation Mechanics II (A&P)	2				X	X	X
494180	Brakes	1			X	X	X	X
494460	Carpentry	1			X	X	X	X
495600	Case Studies in Health Informatics	.5					X	X
494480	Construction Fundamentals	1			X	X	X	X
494610	Criminal Law	1			X	X	X	X
494950	Design for Manufacturing	1			X	X	X	X
494650	Diesel Mechanics I	2			X	X	X	X
494660	Diesel Mechanics II	2				X	X	X
494500	Electrical	1			X	X	X	X
494190	Electrical Systems	1			X	X	X	X
494200	Engine Performance	1			X	X	X	X
494050	Foundations of Sports Medicine I	.5			X	X	X	X
494060	Foundations of Sports Medicine II	.5			X	X	X	X
494070	Foundations of Sports Medicine III	1				X	X	X
494850	Furniture Manufacturing I	1			X	X	X	X
494870	Furniture Manufacturing II	2				X	X	X
494860	Furniture Manufacturing Lab	1			X	X	X	X
495550	Gas Metal Arc Welding	1			X	X	X	X
495560	Gas Tungsten Arc Welding	1			X	X	X	X
495300	Human Anatomy & Physiology	1				X	X	X

Course Code	Courses	Units of Credit	7th	8th	9th	10th	11th	12th
495320	Human Behavior & Disorders	.5			X	X	X	X
495100	HVACR I	1			X	X	X	X
495110	HVACR II	2				X	X	X
495150	Industrial Equipment Maintenance I	1			X	X	X	X
495170	Industrial Equipment Maintenance II	2				X	X	X
495160	Industrial Equipment Maintenance Lab	1			X	X	X	X
494620	Introduction to Criminal Justice	1			X	X	X	X
494900	Introduction to GIS	.5			X	X	X	X
495590	Introduction to Health Informatics	.5			X	X	X	X
494940	Introduction to Manufacturing	1			X	X	X	X
495340	Introduction to Medical Professions	.5			X	X	X	X
495380	Introduction to Medical Professions Expanded	.5			X	X	X	X
494630	Law Enforcement I	1			X	X	X	X
494600	Law Enforcement II	1			X	X	X	X
495200	Machine Tool I	1			X	X	X	X
495220	Machine Tool II	2				X	X	X
495210	Machine Tool Lab	1			X	X	X	X
495250	Major Appliance Technology I	1			X	X	X	X
495270	Major Appliance Technology II	2				X	X	X
495260	Major Appliance Technology Lab	1			X	X	X	X
494970	Manufacturing Power and Equipment Systems	1			X	X	X	X
494960	Manufacturing Production Process	1			X	X	X	X
495820	Marine JROTC I	1			X	X	X	X
495830	Marine JROTC II	1				X	X	X
495840	Marine JROTC III	1					X	X
495900	Marine JROTC IV	1						X
495230	Medical Clinical Internship/Specialization	.5					X	X
495310	Medical Clinical Internship/Specialization	1					X	X
495240	Medical Math	1					X	X
492690	Medical Office Management	1				X	X	X
495330	Medical Procedures	.5			X	X	X	X
495390	Medical Procedures Expanded	.5			X	X	X	X
495360	Medical Terminology	.5			X	X	X	X
495570	Metal Fabrication	1			X	X	X	X
495850	Navy JROTC I	1			X	X	X	X
495860	Navy JROTC II	1				X	X	X
495870	Navy JROTC III	1					X	X
495910	Navy JROTC IV	1						X
494300	Nonstructural Analysis/Repair	1			X	X	X	X
494310	Painting/Refinishing	1			X	X	X	X
495290	Pathology	.5			X	X	X	X
495280	Pharmacy Technology Fundamentals	1					X	X
494510	Plumbing	1			X	X	X	X
495610	Professional Practice: Health Informatics Internship	.5					X	X
495400	Power Equipment Technology I	1			X	X	X	X

Course Code	Courses	Units of Credit	7th	8th	9th	10th	11th	12th
495420	Power Equipment Technology II	2				X	X	X
495410	Power Equipment Technology Lab	1			X	X	X	X
495580	Shielded Metal Arc Welding	1			X	X	X	X
494320	Structural Analysis/Repair	1				X	X	X
494210	Suspension & Steering	1			X	X	X	X

Course Code	Special Courses	Units of Credit	7th	8th	9th	10th	11th	12th
Seek ACE prior approval before implementation								
590110	Career & Technical Education	.5			X	X	X	X
494140	First Responder	1			X	X	X	X
590090	Skilled and Technical Sciences Course	1			X	X	X	X
590100	Skilled and Technical Sciences Lab	1			X	X	X	X

Course Code	Non-program Specific Courses	Units of Credit	7th	8th	9th	10th	11th	12th
590010	Cashier Checker	.5			X	X	X	X
590040	Industrial Technology Ed	1			X	X	X	X

Course Code	Other Miscellaneous Courses	Units of Credit	7th	8th	9th	10th	11th	12th
690040	Driver Education	.5			X	X	X	X
495180	Dry Cleaning I	1			X	X	X	X
495190	Dry Cleaning II	2			X	X	X	X

Cluster: Architecture and Construction
Pathway: Construction
Program of Study: Construction Technology

Item Name	Count 15 Students	Count 20 Students	Count 25 Students	Description/ Specification
Presentation Equipment	1	1	1	LCD Projector (Mounting Recommended) Teacher Laptop (See ACE Technology Standards) Computerized Presentation Board
Student Computer System	4	6	8	See ACE Technology Standards
Student Printer	1	1	1	See ACE Technology Standards
Air compressor	1	1	1	Portable, 2 hp, 30 gal., 110 v
Air compressor	1	1	1	Stationary, 5 hp, 220 v, 60 gal.
Airless paint sprayer	1	1	1	1 pt. or 1 qt. capacity, 110 v
Airless paint sprayer	1	1	1	5 gal. capacity, 110 v
Approved metal storage cabinet for flammable, caustic, and/or toxic materials	1	1	1	OSHA Approved
Bench, work	6	7	8	36" x 48", 2 1/4" hardwood tops
Body harness (fall protection)	1	1	2	(Standard OSHA approved harness for working above ground)
Drill bit set	1	1	1	Wood, 1/4"-1"
Drill press	1	1	1	15", 1/2", 1/2 hp, 110 v, single-phase
Drill, cordless	1	2	3	Electric, 3/8", w/charger, pistol grip, heavy-duty, 2-speed, forward & reverse
Eye Wash Station	1	1	1	
Grinder, bench	1	1	1	6", 1/3 hp, 110 v, single-phase, 2-wheel
Ladder, extension	1	1	1	12'/24', aluminum
Ladder, step	1	1	1	10', heavy-duty, aluminum
Ladder, step	2	2	2	6', heavy-duty, fiberglass
Nail gun, pneumatic	1	1	1	Box/common
Nail gun, pneumatic	1	2	3	Finish
Pop-rivet gun	1	1	1	Pneumatic
Router	1	2	3	1 1/2 hp, 22,000 rpm, 110 v
Router guide	1	1	1	For cabinet doors
Router, plastic laminate	1	1	1	Trimmer
Sander, belt	1	2	3	3" x 21", 110 v
Sander, belt/disk	1	1	1	Bench or pedestal type, 6" x 48" belt, 110 v
Sander, vibrating	2	4	6	Heavy-duty, 110 v
Saw, band	1	1	1	15", 3/4 hp,110/220 v, single-phase
Saw, circular	2	2	3	7 1/4"
Saw, compound miter	1	1	2	1 1/2 hp, 5,000 rpm, 110 v
Saw, panel or equivalent	1	1	1	Panel saw or equivalent guide table for table saw

Item Name	Count 15 Students	Count 20 Students	Count 25 Students	Description/ Specification
Saw, saber	1	2	3	1" stroke, 110 v
Saw, scroll	1	1	1	15", 110 v
Saw, table	1	2	2	10" heavy-duty, tilt arbor, 3 hp, 110/220 v, single-phase
Saw, table	1	1	1	Contractor's, 10" tilt arbor, 1 1/2 hp, 110/220 v, single-phase
Scaffolding section	1	1	1	8' height, low level, steel mason's
Scaffolding section	2	2	2	Steel or aluminum, collapsing
Screw gun	2	2	2	Drywall type
Screwdriver, cordless	2	4	6	W/charger
Stapler, pneumatic	1	2	2	1 1/4"-1 1/2"
Stapler, pneumatic	1	2	2	1/4"-5/8"
Transit & tripod	1	1	1	Builder's
Transit & tripod	1	1	1	Laser
Vacuum cleaner, shop	1	2	3	5 gal., 110 v, wet/dry

Cluster: Architecture and Construction
Pathway: Construction
Program of Study: HVACR

Item Name	Count 15 Students	Count 20 Students	Count 25 Students	Description/ Specification
Presentation Equipment	1	1	1	LCD Projector (Mounting Recommended) Teacher Laptop (See ACE Technology Standards) Computerized Presentation Board
Air acetylene torch	2	2	2	
Air compressor	1	1	1	5 hp, 60 gal.
Amp & voltage recorder	2	2	2	Digital
Approved metal storage cabinet for flammable, caustic, and/or toxic materials	1	1	1	OSHA Approved
Bench, work	2	2	2	Electrical, 4-15 A outlets w/circuit breaker
Bench, work	4	5	6	30" x 60", wood or metal
Charging cylinder	3	3	3	Heated
Charging meter	1	1	1	Electronic
Combustion testing kit	1	1	1	
Cooling unit	1	1	1	Window unit
Cutter Set, Knock-Out	1	1	1	
Drill, Electric	2	3	4	1/2" drive, variable speed, reversing
Drill, Electric	2	3	4	Cordless, 3/8" Drive, variable speed, reversing
Drill, Electric	1	1	1	Right angle, 3/8" drive, variable speed, reversing
Eye Wash Station	1	1	1	
Gauge Set, Refrigeration	3	3	3	
Grinder, Bench	2	2	2	6", dual wheel
Hand Truck, Appliance	2	2	2	With tie strap
Heating/Cooling Unit	1	1	1	Furnace/condenser system

Item Name	Count 15 Students	Count 20 Students	Count 25 Students	Description/ Specification
Heating/Cooling Unit	1	1	1	Heat pump system
Heating/Cooling Unit	1	1	1	Window unit
Hermetic Analyzer	2	2	2	
Hermetic Service Valve Kit	2	2	2	
Leak Detector	2	2	2	Electronic
Notcher	1	2	3	Hand
Pilot Tube	2	2	2	
Puller Set	1	2	3	Bearing
Puller set	1	2	3	Gear
Regulator, nitrogen	1	1	1	W/nitrogen bottle & cart
Tap & die set	1	1	1	Standard & metric
Threading tool	3	3	3	T-handle tap wrench
Threading tool, die	2	2	2	
Threading tool, die stock	2	2	2	
Tubing bender	3	4	5	Lever
Tubing swage punch	2	2	2	
Vacuum gauge	2	2	2	Thermistor
Vacuum pump	2	2	2	2-stage, 20 micron
Welder, MIG	1	1	1	Portable, 90 amp, 115 v
Welder, portable	2	2	2	Oxyacetylene unit (complete welding outfit w/cutting torch attachments, bottles, & cylinder truck)
Wrench, impact	2	2	2	Electric

Cluster: Manufacturing
Pathway: Production
Program of Study: Welding

Item Name	Count 15 Students	Count 20 Students	Count 25 Students	Description/ Specification
Presentation Equipment	1	1	1	LCD Projector (Mounting Recommended) Teacher Laptop (See ACE Technology Standards) Computerized Presentation Board
Student Computer System	4	6	8	See ACE Technology Standards
Student Printer	1	1	1	See ACE Technology Standards
Air compressor	1	1	1	5 hp, 80-gal. tank
Air compressor	2	2	2	Portable, 3 hp, 20-gal. tank
Air regulators	2	2	2	Including water and/or oil extractors
Approved metal storage cabinet for flammable, caustic, and/or toxic materials	1	1	1	OSHA Approved
Band saw, horizontal	1	1	1	Metal, 7" capacity minimum, 1 hp
Band saw, vertical	1	1	1	Metal, 14” capacity minimum, 1 hp
Cutting machine	1	1	1	Traveling, track type, oxyacetylene
Drill press	1	1	1	Including attachments, 15"

Item Name	Count 15 Students	Count 20 Students	Count 25 Students	Description/ Specification
Drill, electric	1	2	3	1/2" drive, variable speed, reversible
Drill, electric	1	2	3	3/8" drive, variable speed, reversible
Exhaust system	1	1	1	Suitable for exhausting welding gases
Eye Wash Station	1	1	1	
Grinder	2	3	4	Bench or pedestal, 10", 1 hp
Grinder	1	1	1	Bench, 6", dual-wheel
Grinder	1	1	2	Electric, hand-held, 7"
Guide bend tester	1	1	1	
Hoist	1	1	1	1-ton, hand, chain or electric
Jack, floor	1	1	1	2-ton, hydraulic
Oven, electrode	1	1	1	
Puller set	1	1	1	Bearing, wheel, & gear
Quenching tank	1	1	1	
Saw, cut-off	1	1	1	Abrasive, 10", 1 hp
Shear	1	1	1	Squaring, 32"
Tap & die set	1	1	1	Standard & metric to ½"
Welder, arc	10	12	12	300 amp, w/attachments
Welder, MIG	3	3	3	200 amp, w/attachments
Welder, portable	2	2	2	Oxyacetylene welding unit (complete w/cutting torch, bottles, attachments, & cylinder truck)
Welder, TIG	3	3	3	250 amp, w/attachments
Welding booths	10	12	12	For arc welding, 60" W x 96"H w/16" deep work surface
Welding stations, oxyacetylene	6	6	6	Including 2-stage regulators

Cluster: Architecture and Construction
Pathway: Design Pre-Construction
Program of Study: Geospatial Technology

Item Name	Count 15 Students	Count 20 Students	Count 25 Students	Description/ Specification
Presentation Equipment	1	1	1	LCD Projector (Mounting Recommended) Teacher Laptop (See ACE Technology Standards) Computerized Presentation Board
3-D software	1	1	1	
Arcview Schools & Lib Pkg (software)	1	1	1	
Computer page scanner	1	1	1	11” x 14” scan area, see current SpaceStars Equipment Standards
Computer server, switch, & network	1	1	1	Contact state office for SpaceStars Equipment Standards
Teacher laptop	1	1	1	GIS/RS workstation & monitor, contact state office for SpaceStars Equipment Standards

Item Name	Count 15 Students	Count 20 Students	Count 25 Students	Description/ Specification
Student computer system	15	20	25	GIS/RS workstation & monitor, contact state office for SpaceStars Equipment Standards
Student printer	1	1	1	See ACE technology standards
GEODESY, GIS Data, Air Photo, Landsat 7, including satellite tool kit (software)	1	1	1	School license for GIS software & data
GPS units	5	7	10	Contact state office for SpaceStars Equipment Standards
Image analysis software	1	1	1	
Microsoft Office (software)	1	1	1	Classroom site license
Network analysis software	1	1	1	
Spatial analysis software	1	1	1	
EQUIPMENT/SOFTWARE FOR GEOGRAPHIC INFORMATION SYSTEMS (YEARS 2 & 3)				
High-resolution multi-spectral data set (software)	1	1	1	For use in Year 2 Spatial technology & remote sensing
High-resolution multi-spectral data set	1	1	1	For use in Year 2 Spatial projects & community exchange
ESSENTIAL TOOLS AND SUPPLIES (Essential tools and supplies are items such as hand tools, small power tools, test instruments, etc., considered necessary for instruction in the program but that cost less than $100 are not eligible for reimbursement by the grant.)				
Network installation	1	1	1	Installation & configuration of computer network, GIS software, etc.
SpaceStars station kit (Semester 1)	15	20	25	
Student kit (Year 2)	15	20	25	1 per student
Student kit (Year 3)	15	20	25	1 per student
Teacher Resource Pack (Year 2)	1	1	1	Curriculum/Instructional materials
Teacher Resource Pack (Year 3)	1	1	1	Curriculum/Instructional materials
Teacher Resource Pack (Semester 1)	1	1	1	Curriculum/Instructional materials
Teacher Resource Pack (Semester 2)	1	1	1	Curriculum/Instructional materials

Clusters: Health Science
Pathways: Health Informatics
Programs of Study: Health Informatics

Item Name	Count 15 Students	Count 20 Students	Count 25 Students	Specification/ Description
Presentation Equipment (Business and Medical classrooms)	1	1	1	LCD Projector (Mounting Recommended) Teacher Laptop (See ACE Technology Standards) Computerized Presentation Board
Student Computer System	15	20	25	See ACE Technology Standards – Level 1
Student Computer Stations	15	20	25	Minimum of 30" x 43" per station, keyboard height 26"-28"
Student posture chairs	4	5	6	Ergonomically designed w/strong back support, must be adjustable (25% of class enrollment)
Teacher computer station	1	1	1	Minimum of 30" x 43" per station, keyboard height 26"-28"
Teacher posture chair	1	1	1	Ergonomically designed w/strong back support, must be adjustable
Filing cabinets	2	2	2	4-drawer, lockable
Laser printer	1	1	1	
Media cart (Unless LCD projector is ceiling mounted)	1	1	1	
Scanner	1	1	1	

Cluster: Health Science
Pathway: Therapeutic Services
Program of Study: Health Science Technology Education

Item Name	Count 15 Students	Count 20 Students	Count 25 Students	Description/ Specification
Presentation Equipment	1	1	1	LCD Projector (Mounting Recommended) Teacher Laptop (See ACE Technology Standards) Computerized Presentation Board
Student Computer System	4	6	8	See ACE Technology Standards
Student Printer	1	1	1	See ACE Technology Standards
AED automated ext. defibrillator	1	1	1	Trainer w/voice & screen prompts/electrodes
Anatomical chart	1 set	1 set	1 set	Charts, markable, detailed illustration
Anatomical model set	1 set	1 set	1 set	
Ear	1	1	1	Enlarged 3 times, dissectible in 6 parts, unbreakable plastic
Eye	1	1	1	Enlarged 6 times, dissectible, unbreakable plastic

Item Name	Count 15 Students	Count 20 Students	Count 25 Students	Description/ Specification
Teeth	1	1	1	Teeth & jaw, 4-part series, cross-section, unbreakable plastic
Skin	1	1	1	Enlarged 105 Times, cross-section, mounted
Heart	1	1	1	Realistic, palpable, dissectible, unbreakable plastic
Brain	1	1	1	Twice life size, mounted
Anatomical torso	1	1	1	Full sized, detachable parts, mounted, unbreakable plastic
Beds, hospital	2	2	2	Full spring, enameled steel, 6-button control, emergency crank, 80” x 35” mattress, spring-loaded adjustable side rails
Blood pressure cuff	5	10	15	Mercury, aluminum case, adult calibrated V-Lok inflation, 260 mm Hg scale
Cart, utility	1	2	3	Welded steel, ball bearing casters, rubber wheels, T-shelves, 1 drawer
Chart holders	2	4	4	Spring-loaded or 3-ring binder
Hospital linen set	3	6	10	
Bedspread	4	4	4	Cotton/polyester, 72” x 90”
Draw sheet	4	4	4	45” x 72”
Flat sheet	4	4	4	50/50 cotton/polyester, hospital grade
Mattress pad	2	2	2	Quilted, cotton/poly fabric
Mattress pad	2	2	2	Heavy-gauge vinyl
Exam gloves	3 boxes.	3 boxes.	3 boxes.	Latex-free
Bath towel	1 doz.	1 doz.	1 doz.	Cotton, 20” x 40”
Washcloth	1 doz.	1 doz.	1 doz.	Cotton, 12” x 12”
Manikin, adult CPR	2	2	2	Full body, face removable, disposable airway, electronic monitor, print out, carry case, cleaning kit
Manikin, infant CPR	2	2	2	Removable face, airway, brachial pulse simulator, movable jaw, indicator (monitor)
Microscope	2	3	4	45 mm DIN objectives, 4x, 10x, 40” x 19”, viewing tube mounted on rotating head, 20-watt illumination, oil immersion lens, low/high powered
Opthalmoscope	1	1	1	Medium size handles, rechargeable batteries
Otoscope	1	1	1	Handle w/batteries, reusable specula
Patient-assist equipment set	1	2	3	
Walker	1	1	1	1” aluminum tubing, folding, adjustable, nonskid, rubber tips
Walking cane	1	1	1	Adjustable, 1” anodized aluminum, double locked, non-skid tip, cushioned handle
Crutches (standard)	1 pair	1 pair	1 pair	
Crutches (forearm)	1 pair	1 pair	1 pair	
Isolation kit	10	10	10	Disposable

Item Name	Count 15 Students	Count 20 Students	Count 25 Students	Description/ Specification
Scales, adult weight	1	2	2	Physician's balanced die cast beam, heavy-duty base & lower system
Scales, pediatric weight	1	2	2	Chrome-plated balance beam, enameled steel tray w/protective edges, 30-lb. capacity
Skeleton, deluxe model	1	1	1	Full sized, joints movable, heavy-duty plastic, dust cover
Tables, multipurpose classroom	5	6	7	Wood or metal (folding is OK), w/slide lock, 36" x 72"
Vital signs instrument set	1 set	2 sets	3 sets	
Thermometer, electronic	8	10	12	Electronic, digital, visual & audio
Stethoscope, student	10	10	10	Dual-head chest piece
Blood pressure cuff	10	10	10	Calibrated V-Lok calibration & infiltration, cuff & bag
Stethoscope, teaching	1	1	1	Dual-head chest piece, double set of binaural
Wheelchair	1	2	2	Fixed arm rest, elevating leg rest, all steel, heavy-duty wheels

Cluster: Health Science
Pathway: Therapeutic Services
Program of Study: Sports Medicine

Item Name	Count 15 Students	Count 20 Students	Count 25 Students	Description/ Specification
Presentation Equipment	2	2	2	LCD Projector (Mounting Recommended) Teacher Laptop (See ACE Technology Standards) Computerized Presentation Board
Student Computer System	4	6	8	See ACE Technology Standards
Student Printer	1	1	1	See ACE Technology Standards
Anatomical Charts-Hand and wrist	1	1	1	Poster
Anatomical charts- head and neck	1	1	1	Poster
Anatomical charts Muscular system	1	1		Poster
Anatomical model-Torso non gender specific	1	1	1	Model with removable parts
Anatomical Model Set Muscled joints-knee, hip, elbow, shoulder	1	1	1	Muscled joint displays for 4 joints
Anatomical Model-adult skeleton-Mr. Super Skeleton with muscle and ligament display	1	1	1	Full size skeleton with depiction of muscles and ligaments
Anatomical model-articulating knee	1	1	1	Knee model depicts cartilage and ligaments
Automated external defibrillator trainer	1	1	1	AED for training purposes
Spineboard	1	2	3	Board with Spider straps
Biomechanical Ankle Platform System	1	1	1	Blue ankle platform with adjustable levels
Body Blade	1	1	1	Body Blade classic with poster and instructional video

Item Name	Count 15 Students	Count 20 Students	Count 25 Students	Description/ Specification
Cervical Collar	1	1	1	Foam and velcro
Hydroculator E-2 6 pack unit	1	1	1	6 slot hydroculator with hose
Crutches, aluminum w/access 5'2-5'10	1	1	1	Adjustable Aluminum heights 5'2-5'10
Crutches, aluminum w/access 5'10-6'6	1	1	1	Adjustable Aluminum heights 5'10-6'6
Foam-closed cell	1	2	3	OPEN CELL FOAM KIT *Four 1/4" x 6" x 12" sheets *Two 1/2" x 6" x 12" sheets
Foam-open cell	1	2	3	OPEN CELL FOAM KIT *Four 1/4" x 6" x 12" sheets *Two 1/2" x 6" x 12" sheets
Foam Rubber assortment	1	2	3	Five 6" x 12" sheets in assorted thickness - 1/4" (2), 1/2" (2) & 1" (1)
Icing Compression Recovery System	1	1	1	Unit with connector hoses, bag and ankle, knee, elbow, and shoulder wraps
Goniometer, 8", standard	8	10	12	8", standard
Knee Immobilizers	3	5	7	Velcro an foam Straight leg brace
Manikin, adult CPR	1	1	1	Full body, removable face, disposable airway, electronic monitor, printout, cleaning kit, and carrying case
Electronic Muscle Stimulation/Ultrasound Combo.	1	2	3	4 channel electrical muscle stimulation unit with Ultrasound
Ophthalmoscope	1	1	1	Professional diagnostic instrument with case. Chrome plated brass construction with pediatric and adult attachments
Orthoplast	2	3	5	24" x 36" perf. / 2 per case
Percussion hammers	8	10	12	Stainless steel handle with rubber tip.
Rebounder pac II	1	1	1	Trampoline with medicine ball pack
CPR manikin	5	5	5	Student practice manikin
Sam splint	3	5	7	4¼" x 36" aluminum strip, foam covered on both sides is easily trimmed if required. Weighs only 5½ oz., but when molded becomes rigid.
Sling, arm deluxe, large	1	1	1	Single strap with cotton binding on all edges, Adjustable slide buckle for proper height adjustment. Large
Sling, arm deluxe, medium	5	5	5	Single strap with cotton binding on all edges, Adjustable slide buckle for proper height adjustment. medium

Item Name	Count 15 Students	Count 20 Students	Count 25 Students	Description/ Specification
Sling Psychrometer, digital read	1	1	1	• Displays wet bulb, dew point, humidity and temperature • No twirling or charts necessary • Large digital display • Dew point measurement • Wet & dry bulb temperature • Min/max memory with reset key • ºF or ºC readings • Data hold • Auto power off • Low battery indication • Microprocessor based design
Snellen Eye Chart	1	1	1	Vision test
Skinfold calipers	1	1	1	Body fat percentage calculation tool
Sphygmomanometer with stethoscope and case.	8	10	12	Includes sphygmomanometer and stethoscope and care
Sphygmomanometer deluxe plus, lg. adult	1	1	1	Includes sphygmomanometer and stethoscope and care-lg adult
Stethoscope, Teaching	1	1	1	Two headed stethoscope
Exam stool	1	2	3	Basic swivel stool with wheels
Tape measure, linen, plastic case	8	10	12	Basic plastic retractable tape measure
Thera Tubing-yellow	1	1	1	6 x 50 yd
Thera Tubing-red	1	1	1	6 x 50 yd
Thera Tubing-Green	1	1	1	6 x 50 yd
Thermal Hydroculator cover-all terry cloth	6	6	6	Terry cloth covers
Thermal hydrocover drying rack	1	1	1	Stainless steel rack of 6
Thermometer-digital	8	10	12	Digital model thermometer
Face mask remover	1	1	1	
Treatment table with cubby	2	3	4	78in by 30in wide
Tuning Fork	8	10	12	
Vacuum Immobilizer kit-3splint	1	1	1	Splint kit
Sharps container - gallon	1	1	1	Plastic sealable container
Ice machine, Flake AC 350 lb.	1	1	1	Flake AC 350 lb
Dumbell set	1	1	1	10pc-with rack
3-D Cross Trainer	1	1	1	Multiple Resistance Levels
Exercise ball- 22" red	1	1	1	22" red
Exercise ball-26" green	1	1	1	26" green
Exercise ball-30" blue	1	1	1	30" blue
Bosu Ball	1	1	1	PNF Rehabilitation tool

Cluster: Law, Public Safety, Corrections, and Security
Pathway: Law Enforcement Service
Program of Study: Criminal Justice

Item Name	Count 15 Students	Count 20 Students	Count 25 Students	Description/ Specification
Presentation Equipment	1	1	1	LCD Projector (Mounting Recommended) Teacher Laptop (See ACE Technology Standards) Computerized Presentation Board
Student Computer System	4	6	8	See ACE Technology Standards
Student Printer	1	1	1	See ACE Technology Standards
Belt, patrolman's	4	6	8	Nylon; including patrolman's flashlight, handcuffs, & red non-fiction plastic gun & carrier for each; carrier for walkie-talkie
Cabinet, storage	2	2	2	Locking, 36" W x 24" D x 72" H
Camcorder, digital	2	2	2	Still photo capability, digital zoom, time/date generator, (standard accessories – battery holder, battery, tripod base, microphone, viewfinder, carrying case)
Camcorder tripod	1	2	2	2'-5' collapsing, w/extension legs
Camera lens kit	1	1	1	Lens kit for digital camera, wide-angle & close-up lens attachments
Camera, digital	1	2	3	Resolution 3.0+ megapixels, computer interface or dock, 6x zoom, 8 Mb internal memory, rechargeable battery & charger
Casting kit	1	2	2	
Computer scanner	1	1	1	
Fingerprint kit	1	1	1	Master
Metal detector	1	1	1	Hand-held
Microscope	1	1	1	Computer interface, magnification 100x-300x,
Patrol car	1	1	1	Retired police cruiser or documented access to same
Photo editing software	4	6	8	Photoshop, Photo Editor, or equal; digital imaging & editing
Walkie-talkie	4	6	8	Police, channel selector, w/shoulder microphone

Cluster: Manufacturing
Pathway: Production
Program of Study: Furniture Manufacturing

Item Name	Count 15 Students	Count 20 Students	Count 25 Students	Description/ Specification
Presentation Equipment	1	1	1	LCD Projector (Mounting Recommended) Teacher Laptop (See ACE Technology Standards) Computerized Presentation Board
Air compressor	1	1	1	Portable, 2 hp, 110 v, 30 gal.
Air compressor	1	1	1	Stationary, 5 hp, 60 gal., 220 v
Approved metal storage cabinet for flammable, caustic, and/or toxic materials	1	1	1	OSHA Approved
Biscuit joiner	1	1	1	Hand-held or table model, 110 v
Drill bit set	2	3	4	Wood, 1/4”-1”
Drill press	1	2	2	15”, 1/2”, 1/2 hp, 110 v, single-phase
Drill, electric	3	4	5	Cordless, 3/8”, pistol grip, heavy-duty, 2-duty, 2-speed, forward & reverse, 110 v, w/charger
Eye Wash station	1	1	1	
Guide, router	2	2	2	For cabinet doors
Jointer	1	1	1	8”, 3/4 hp, 110/220 v, single-phase
Ladder, step	1	2	2	6’, heavy-duty, fiberglass
Ladder, step	1	2	2	8’, heavy-duty, fiberglass
Nail gun, finish	2	3	4	Pneumatic
Router	2	3	4	1 1/2 hp, 22,000 rpm, 110 v, heavy-duty
Router, plastic laminate	2	2	2	110 v, trimmer
Sander, belt	1	1	2	3” x 21”, electric, 110 v
Sander, belt/disk	1	1	2	Bench or pedestal, 6” x 48” belt, 8” disk, 110 v
Sander, vibrating	4	6	8	Heavy-duty, 110 v
Saw, band	1	1	1	15”, 3/4 hp, 110/220 v, single-phase
Saw, compound miter	1	2	2	1 1/2 hp, 5,000 rpm, 110 v
Saw, panel or equivalent	1	1	1	Panel saw or equivalent guide table for table saw
Saw, saber	2	2	2	1” stroke, 110 v
Saw, scroll	1	2	2	15”, 110 v
Saw, table	2	2	2	10” heavy-duty, tilt arbor, 3 hp, 110/220 v, single-phase
Shaper w/bit set	1	1	1	110/220 v, single-phase
Spray gun, airless	2	2	2	1 pt. or 1 qt. capacity, 110 v
Stapler, pneumatic	2	3	4	1 1/4” staples
Stapler, pneumatic	2	3	4	1/4”-5/8” staples
Table, glue clamping	1	1	1	48” length
Workbench	6	10	12	36” x 48”, 2 1/4” hardwood tops

Cluster: Manufacturing
Pathway: Maintenance, Installation, and Repair
Program of Study: Industrial Equipment Maintenance

Item Name	Count 15 Students	Count 20 Students	Count 25 Students	Description/Specification
Presentation Equipment	1	1	1	LCD Projector (Mounting Recommended) Teacher Laptop (See ACE Technology Standards) Computerized Presentation Board
Student Computer System	1	2	3	See ACE Technology Standards
Student Printer	1	1	1	See ACE Technology Standards
Air compressor	1	1	1	5 hp, w/80-gal. tank
Air regulators	2	2	2	Water and/or oil extractors
Approved metal storage cabinet for flammable, caustic, and/or toxic materials	1	1	1	OSHA Approved
CAD software	1	2	3	AutoCAD LT or Inventor
Dial indicator	1	1	1	
Drill press	1	2	3	Including attachments, 20” capacity
Drill, electric	2	3	4	3/8” reversible, variable speed
Drill, electric	2	3	4	1/2” reversible, variable speed
Exhaust system, smoke	1	1	1	
Eye Wash Station	1	1	1	
File set	1	2	3	Assorted
Grinder, bench	1	1	2	Dual wheel, 6”
Grinder, electric	1	2	3	Hand-held, 7”
Hydraulic system trainer	1	2	3	
Iron worker, hydraulic	1	1	1	50-ton, up to 1/2” x 10” cut
Jack, hydraulic	1	1	1	10-ton
Jack, hydraulic	2	2	2	5-ton
Lathe, bench	2	3	4	12” minimum length, w/attachments
Level, precision	1	1	1	
Mandrel set	1	2	3	Lathe
Milling machine, vertical	1	2	3	Including attachments
Multimeter	2	3	4	Digital
Saw, band	1	1	1	Horizontal, metal, 7” capacity
Saw, band	1	1	1	Vertical, metal, 20” capacity
Saw, circular	1	1	1	7 1/4”
Saw, table	1	1	1	10”, 1 1/2 hp
Square, machinist	1	2	3	Combination w/attachment set
Surface plate	1	1	1	
Tables, work	5	6	7	Steel
Tap & die	1 set	1 set	1 set	Standard & metric,1/2”-1 1/2”
Welder	2	2	2	AC/DC arc, 200 amp
Welder	1	1	1	MIG/TIG, 200 amp
Welder	1	1	1	MIG, portable, 90 amp, 115 v
Welder, oxyacetylene	1	1	1	

Pathway: Production
Program of Study: Machine Tool Technology

Item Name	Count 15 Students	Count 20 Students	Count 25 Students	Description/Specification
Presentation Equipment	1	1	1	LCD Projector (Mounting Recommended) Teacher Laptop (See ACE Technology Standards) Computerized Presentation Board
Student Computer System	1	2	3	See ACE Technology Standards
Student Printer	1	1	1	See ACE Technology Standards
Air compressor	1	1	1	115 v, 3 hp, 60-gal. tank
Air regulators	1	1	1	Water & oil separator
Approved metal storage cabinet for flammable, caustic, and/or toxic materials	1	1	1	OSHA Approved
Arbor press	1	1	1	Hydraulic, 50-ton
CAD software	1	2	3	AutoCAD LT or Inventor
Collet sets	3	4	5	1/4"-1"
Dial caliper	2	3	4	6"
Digital readout	2	3	4	For vertical milling machine
Drill press, bench	1	1	2	8", variable speed, 1/3 hp, w/attachments
Drill press, floor	1	1	2	20", variable speed, 1 1/2 hp, w/attachments
Drill, electric	1	2	3	1/2" drive, reversible, variable speed
Drill, electric	1	2	3	3/8" drive reversible, variable speed
End mill sets	3	3	3	1/4-1"
Eye Wash Station	1	1	1	
Gauge set, radius	1	1	1	
Gauge, height	1	1	1	
Grinder	1	1	1	Surface, 220 v, 1 hp, 6" x 18", magnetic chuck, automatic feed, w/attachments
Grinder, bench	1	1	1	7", 115 v, 1/2 hp
Grinder, carbide	1	1	1	115 v, 1/2 hp
Grinder, electric	1	2	3	7", hand-held
Grinder, pedestal/bench	1	1	1	10", 1 hp
Grinder, tool & cutter	1	1	1	1/2 hp
Grinder, tool post	1	1	1	115 v, 1/4 hp
Hardness tester	1	1	1	
Indexing head	1	1	1	For vertical milling machine
Lathe, bench	2	3	4	1 1/2 hp, 9" x 20" w/attachments
Lathe, gap bed	1	1	1	1 1/2 hp, 9" x 20" w/attachments
Mandrels set	3	4	5	Lathe
Micrometer	2	3	4	1"-2"
Micrometer	2	3	4	2"-3"
Micrometer	1	2	3	3"-4"
Micrometer	1	2	3	Digital, 0-1", .0001" accuracy

Item Name	Count 15 Students	Count 20 Students	Count 25 Students	Description/Specification
Milling machine, vertical	1	2	3	8" x 30", variable speed 3 axis, 1 1/2 hp, w/attachments
Milling machine, vertical	1	1	1	9" x 42", variable speed, 3 axis, 3 hp power feed, w/attachments
Parallel set	2	3	4	For vertical milling machine
Reamer set	1	2	3	
Rotary table	1	1	1	For vertical milling machine
Sander	1	2	3	Belt & disk, 6" belt, 12" disk, 1 1/2 hp
Saw, band	1	1	1	Horizontal, 1/2 hp, 1" blade capacity, 3-speed, coolant system
Saw, band	1	1	1	Vertical, 2 hp, variable speed, w/blade welder
Surface plate	1	1	1	20" x 30", granite
Tap & die set	1	1	1	Standard ¼"-1/2" & 3 mm-12 mm
Vise	2	2	2	Drill press, angle adjustable
Vise	6	7	8	Machinist, 4"
Workbench	6	7	8	Steel, 30" x 60"
Wrench set	1	2	3	Standard & metric, 5/16"-1 1/16"

Cluster: Manufacturing
Pathway: Maintenance, Installation, and Repair
Program of Study: Major Appliance Technology

Item Name	Count 15 Students	Count 20 Students	Count 25 Students	Description/ Specification
Presentation Equipment	1	1	1	LCD Projector (Mounting Recommended) Teacher Laptop (See ACE Technology Standards) Computerized Presentation Board
Air compressor	1	1	2	2 hp, 30-gal. tank
Analyzer, hermetic	1	1	1	Multiphase
Approved metal storage cabinet for flammable, caustic, and/or toxic materials	1	1	1	OSHA Approved
Cart, work	4	5	6	Roll around
Cleaning tank, parts	1	1	1	Non-solvent based cleanser suggested
Drill press	1	1	2	Bench, 12"
Eye Wash Station	1	1	1	
Flipper, appliance	2	2	2	
Gauge & manifold, refrigeration	1	1	1	For HFC-134a
Gauge & manifold, refrigeration	1	1	1	For R-12
Gauge & manifold, refrigeration	1	1	1	For R-410
Grinder, bench	1	1	2	1/4 hp w/wire brush
Leak detector	2	2	2	Combustible gas, electronic
Leak detector	2	2	2	Halogen, electronic
Multimeter, digital	4	5	6	
Puller set	1	1	1	

Item Name	Count 15 Students	Count 20 Students	Count 25 Students	Description/ Specification
Recovery cylinder	3	3	3	Refrigerant (1 ea. R-12, HFC-134a, R-410)
Recovery system, refrigerant	1	1	1	Multiple refrigerants
Table, metal	4	5	6	30" x 5'
Tap & die set	1	1	1	Standard & metric
Tool set, automatic washer	3	4	5	1 set per major manufacturer
Tool set, service valve	1	2	3	
Vacuum gauge	1	1	2	Vacuum to 50 microns
Vacuum pump	1	1	2	2-sage, 1/2 hp, 5 cu. ft./min.
Vise, bench	2	3	4	4" jaws
Vise, drill press	1	1	2	Angle adjustable
Vise, machinist	1	1	2	4 1/2" metal jaw
Welder, portable	1	1	1	Oxyacetylene unit (complete welding outfit w/cutting torch attachments, bottles, & cylinder truck)
Wrench set, open end	2	2	3	Standard & metric, 1/4"-1"; 7 mm-15 mm
Wrench set, socket	2	2	3	Standard & metric, 1/4" drive, 3/16"-1/2", 6 pt.; 5 mm-13 mm, standard & deep well
Wrench set, socket	2	2	3	Standard & metric, 3/8" drive, 3/8"-13/16", 5 mm-13 mm, standard & deep well
Wrench, air ratchet	1	2	3	3/8" drive

Cluster: Transportation, Distribution, and Logistics
Pathway: Facility and Mobile Equipment Maintenance
Program of Study: Automotive Collision

Item Name	Count 15 Students	Count 20 Students	Count 25 Students	Description/ Specification
Presentation Equipment	1	1	1	LCD Projector (Mounting Recommended) Teacher Laptop (See ACE Technology Standards) Computerized Presentation Board
Air chisel set	2	2	2	Assorted chisel types
Air compressor	2	2	2	5 hp, 2 stage, w/80 gal. tank each or a total of 160 gal. or greater capacity
Air drill	1	1	1	3/8" drive
Air file	2	4	5	Orbital or straight line
Air hammer	2	2	2	
Air nibbler	1	1	2	1/2 hp
Air ratchet	1	1	2	3/8" drive
Air regulators	10	10	10	Including water and/or oil extractors
Approved metal storage cabinet for flammable, caustic, and/or toxic materials	1	1	1	OSHA Approved
Battery charger/boost starter	1	1	1	Heavy-duty
Body straightening equipment	1	1	1	Bench/rack or floor-mounted system w/multiple pull capability

Item Name	Count 15 Students	Count 20 Students	Count 25 Students	Description/ Specification
Chisels & punches	2 sets	2 sets	2 sets	Assorted
Come-along	2	2	2	2-ton minimum
Dolly set	3	4	5	Assorted
Eye Wash Station	1	1	1	
Files	3	4	5	Assorted
Grinder, bench	1	1	1	1 hp or larger
Grinder, body	3	4	5	7", air or electric
Jack stands, dolly	4 pair	4 pair	4 pair	2-ton minimum
Jack, body & fender	1	1	1	4-ton minimum, w/attachments
Jack, body & fender	1	1	1	10-ton minimum, w/attachments
Jack, floor	2	2	2	2-ton minimum
Masking machines	2	2	2	
Multimeter	2	4	6	Digital
Paint dryer, infrared	1	1	1	
Paint gun	2	2	2	Detail
Paint gun	2	2	2	Color
Paint gun	2	2	2	Primer
Pliers set, vise grip	6 sets	8 sets	10 sets	
Polisher	1	2	3	Air or electric
Sandblaster	1	1	1	
Sander	6	8	10	Pneumatic, dual-action, 6", rotary, random orbital
Snips, sheet metal	1 set	2 sets	3 sets	Aviation & standard
Socket set	1	2	3	Impact, 1/2" drive, standard & metric
Socket set	1	2	3	1/2" drive, standard & metric
Socket set	1	2	3	1/4" drive, standard & metric
Student Computer System	2	3	4	See ACE Technology Standards
Student Printer	1	1	1	See ACE Technology Standards
Tap & die set	1	1	1	Standard & metric
Torch, plasma cutting	1	1	1	
Tram & centerline datum gauges	1	1	1	
Vehicle collision service information system	1	1	1	Online service preferred
Vehicle paint booth	1	1	1	OSHA-approved
Welder, MIG	2	2	2	
Welder, Oxyacetylene	2	2	2	Welding, cutting, & brazing capability
Workbenches	3	4	5	Steel, 60" x 30"
Wrench set, combination	2 sets	2 sets	3 sets	5/16"-1 1/16", standard & metric
Wrench, air impact	2	2	3	1/2" drive

Cluster: Transportation, Distribution, and Logistics
Pathway: Facility and Mobile Equipment Maintenance
Program of Study: Automotive Service Technology

Item Name	Count 15 Students	Count 20 Students	Count 25 Students	Description/ Specification
Presentation Equipment	1	1	1	LCD Projector (Mounting Recommended) Teacher Laptop (See ACE Technology Standards) Computerized Presentation Board
Student Computer System	4	6	8	See ACE Technology Standards
Student Printer	1	1	1	See ACE Technology Standards
Vehicle service information system	1	1	1	Online service preferred
HAND TOOLS				
Pliers set	3	4	5	Combination 6”, needle nose 6”, hose clamp, side cutters, locking jaw, slip joint (water pump)
Pry bar	3	4	5	Rolling head, straight
Punch set	3	4	5	Pin – 5/16”, ¼”, 3/16”, & 1/8”; taper – 5/8”, ½”, & 3/8”; center; brass drift
Screwdriver set	3	4	5	Flat tip stubby – 6”, 9”, 12”, offset
Screwdriver set	3	4	5	Phillips: stubby – #1 & #2; 6” – #1 & #2; 12” --#3; offset – #2
Screwdriver set				Posidrive: #1, #2, #3, #4
Screwdriver/bit set	3	4	5	Impact driver set torx: T-8, T-10, T-15, T-20, T-25, T-27, T-30, T-40, T-50, T-55
Screwdriver/bit set	1	1	2	Inverted TORX
Screwdriver/bit set	1	1	2	Tamperproof TORX
Socket set	3	4	5	½” drive; 7/16”-1 1/8” U.S. standard & deep socket; 10 mm-25 mm standard & deep socket; extensions (3”, 6”, 12”); flex handle; ratchets
Socket set	3	4	5	¼” drive; ¼”-½” standard & deep socket; 6 mm-12 mm standard & deep socket; flex/univ. joint; ratchet; extensions (3”, 6”)
Socket set	3	4	5	3/8" drive 5/16"-3/4" standard (6 pt.); 3/8"-3/4” deep socket (6 pt.); 9 mm-19 mm standard & deep socket; extensions (3", 6", 12", 18"); flexhead ratchet; universal joint, ratchet; speed handle; 5/8" & 13/16" spark plug sockets; 3/8"-3/4" flex socket set; 9 mm-19 mm flex socket set
Socket set, impact	2	3	3	½" drive, 12 mm-32 mm
Socket set, impact	2	3	3	½" drive, 7/16"-1 1/8"
Socket set, impact	1	2	2	3/8" drive, standard & metric
Wrench set, combination	2	2	2	1/4"-1", 7 mm-19 mm
Wrench set, crowfoot	1	1	1	Standard & metric

Item Name	Count 15 Students	Count 20 Students	Count 25 Students	Description/ Specification
Wrench set, flare nut	1	1	1	3/8"-3/4"(tubing), 10 mm-17 mm
Wrench, impact	2	3	3	1/2" drive
Wrench, impact	2	3	3	3/8" drive
Wrench, torque	2	2	3	3/8" drive, 10-250 lb.in. 3/8" drive, 5-75 lb.ft. 1/2" drive, 50-250 lb.ft.
Torque angle meter	1	1	1	
GENERAL LABORATORY EQUIPMENT				
Air chisel & bit set	1	1	1	Including adapters & various bits
Air compressor	1	1	1	5-10 hp, 100 gal.
Air delivery system	1	1	1	W/pressure regulator & piping system, minimum 2 air outlets per work area in lab
Air drier	1	1	1	
Air ratchet	3	3	3	3/8" drive
Approved metal storage cabinet for flammable, caustic, and/or toxic materials	1	1	1	OSHA Approved
Caliper set, vernier	1	2	2	0"-6", 0 mm-125 mm
Charger, battery	1	2	2	40 amp, 12 v
Cleaning tank, parts	1	1	1	Non-solvent based cleanser suggested
Compression tester	2	3	3	
Coolant/combustion gas detector	1	1	1	
Cooling system pressure tester	2	2	2	Including adapters
CV joint service tool set	1	1	1	Including boot installation tool & boot clamping pliers or crimping ring
Cylinder leakage tester	2	3	3	
Dial indicator set	1	2	3	Including flex arm & clamp base
Dispenser, gear lube	1	1	1	
Drill bit set	1	2	2	Twist drill, 1/64”-1/2", high speed
Drill, electric	1	1	1	1/2", variable speed, reversible
Drill, electric	1	1	1	3/8", variable speed, reversible
Eye Wash Station	1	1	1	
Grinder, bench or pedestal	1	1	1	6" diameter wheel
Jack, floor	2	2	2	Hydraulic, 2-ton minimum
Micrometer set	1	1	1	Outside type: 0-1", 1”-2", 2”-3", 3”-4", 4”-5"
Micrometer, depth	1	1	1	
Pliers set, snap ring	2	2	2	Internal & external
Press, hydraulic	1	1	1	25-ton, w/adapters (piston pin press & adapters)
Puller, gear	1	2	2	2-Jaw, 3-Jaw
Recovery system, engine coolant	1	1	1	Recycler or coolant disposal contract services
Stands, jack	4 pair	4 pair	4 pair	5-ton, 4-leg, safety stands
Tap & die set	1	1	1	Standard & metric
Thread repair insert kit	1	1	1	

Item Name	Count 15 Students	Count 20 Students	Count 25 Students	Description/ Specification
Vehicle exhaust removal system	1	1	1	
Vehicle Lift	2	2	2	Swing arm, frame contact
Vehicle safety stands	2	2	2	For under vehicle support when raised on a lift
Vise, bench	4	5	6	Fitted to steel workbenches
Waste oil receptacle	1	1	1	Extension neck & funnel
Welder, portable	1	1	1	Oxyacetylene unit (complete welding outfit w/cutting torch attachments, bottles, & cylinder truck)
Workbench, steel	4	5	6	30" x 72", all worktables and workbenches are to be metal
SPECIALTY AREA EQUIPMENT				
The "specialty area equipment" section covers the additional equipment an automotive laboratory should have for training in the specialty area. Some of the tools and equipment may be the same as for other specialty areas. Because the equipment is specialized, and to provide quality instruction, the equipment must be available in the laboratory. The quantity listed allows equipment to be used in more than one specialty area.				
SUSPENSION AND STEERING				
Wheel alignment equipment	1	1	1	4-wheel w/rack, including alignment adjusting tools
Tire mounting machine	1	1	1	Rim clamp suggested
Wheel balancer	1	1	1	
Ball joint press with adapters	1	1	1	
Chassis lubricator system	1	1	1	
Compressor, spring/strut	1	1	1	
Socket wrench, drag link	3	4	5	
Power steering pulley removal and installation tool kit	1	1	1	
BRAKES				
Asbestos contamination removal system	1	1	1	OSHA-approved
Bleeder, brake	2	2	2	Pressure/Vacuum
Lathe, brake	1	1	1	Mobile or stationary, including disk & drum service attachments
Micrometer, brake rotor	1	2	2	Standard and Metric
Micrometer, brake drum	1	2	2	Standard and Metric
Tubing bender	1	2	2	
Tubing cutter & flaring set	1	2	3	ISO rated/double flare
ENGINE PERFORMANCE				
Computer scan tool	2	3	3	Hand-held or PC w/interface capability for onboard diagnostics (OBD II compliant)
Analyzer, engine	1	1	1	Including scope (lab scope w/ignition display capability acceptable)
Analyzer, exhaust gas	1	1	1	4 or 5 gas
Cleaner, fuel injection	1	1	1	
Gauge set, fuel injection pressure	1	1	2	W/adapters
Light, timing advance	1	1	1	
Pyrometer	1	1	1	

Item Name	Count 15 Students	Count 20 Students	Count 25 Students	Description/ Specification
Scope, lab	1	1	2	Dual trace
Tester, cylinder leakage	2	3	3	
Tester, injector pulse	1	1	1	
ELECTRICAL/ELECTRONIC SYSTEMS				
Multimeter, digital	8	10	12	AC/DC, volts, ohms & amps, w/various lead sets
Pick tool set, connector	1	1	2	
System tester, battery/starter/charging	1	2	2	
Electronic battery tester	1	1	1	
Probe, logic	1	2	3	

Cluster: Transportation, Distribution, and Logistics
Pathway: Facility and Mobile Equipment Maintenance
Program of Study: Aviation

Item Name	Count 15 Students	Count 20 Students	Count 25 Students	Description/ Specification
Presentation Equipment	1	1	1	LCD Projector (Mounting Recommended) Teacher Laptop (See ACE Technology Standards) Computerized Presentation Board
Aerodynamics demonstrator	1	1	1	
Aircraft	1	1	1	Aircraft w/taxi capability
Airframe mockup	1	1	1	
Approved metal storage cabinet for flammable, caustic, and/or toxic materials	1	1	1	OSHA Approved
Battery charging system	1	1	1	Aircraft
Battery, aircraft	4	4	4	
Drawing table	1	2	3	
Drill bit set, aircraft	1	1	1	Aircraft length, 135° split pt., 1/8”-1/2”
Electrical circuit trainer	1	1	1	
Eye Wash Station	1	1	1	
Mandrel set, tubing	1	2	3	
Multimeter	5	7	10	Digital
Parallel bar	1	2	3	
Pump, test	1	1	1	
Scale	1	1	1	Including adapters & weights
Socket set, deep	1	1	1	Inches, ½” drive, ½”-15/16”
Socket set, shallow	1	2	3	Inches, ½” drive, ½”-15/16”
Socket set, shallow	1	2	3	Metric, ½” drive, 8 mm-20 mm
Student Computer System	4	5	6	See ACE Technology Standards
Student Printer	1	1	1	
Tool set, aircraft machine	1	1	1	
Tool set, flaring	1	1	1	
Tug, aircraft	1	1	1	Aircraft towing vehicle
Vacuum/pressure pump	1	1	1	

Item Name	Count 15 Students	Count 20 Students	Count 25 Students	Description/ Specification
Wrench set, aircraft box	1	2	3	Metric, 0° offset, 12 pt., 6 mm-24 mm
Wrench set, aircraft box	1	2	3	Inches, 15° offset, 12 pt., ¼"-7/8"
Wrench set, aircraft box	1	2	3	Metric, 15° offset, 12 pt., 8 mm-20 mm

Cluster: Transportation, Distribution, and Logistics
Pathway: Facility and Mobile Equipment Maintenance
Program of Study: Power Equipment Technology

Item Name	Count 15 Students	Count 20 Students	Count 25 Students	Description/ Specification
Presentation Equipment	1	1	1	LCD Projector (Mounting Recommended) Teacher Laptop (See ACE Technology Standards) Computerized Presentation Board
Air Compressor	1	1	1	2 hp, 30 gal. tank
Approved metal storage cabinet for flammable, caustic, and/or toxic materials	1	1	1	OSHA Approved
Engine, Briggs & Stratton	2	2	2	3.5 hp, 4-cycle, current model
Engine, Briggs & Stratton	2	2	2	3.5 hp, quantum, current model
Engine, Kohler	2	2	2	3.5 hp, 4-cycle
Engine, Tecumseh	2	2	2	3.5 hp, 4-cycle
Engine, Tecumseh	2	2	2	3.5 hp, 2-cycle
Eye Wash Station	1	1	1	
Grinder	1	1	2	6", 2-wheel w/wire brush
Metal tables, work	4	6	8	30" x 6'
Micrometers	1 set	1 set	1 set	Assorted, 0-1" to 3"-4"
Parts cleaning sink	1	1	2	Chemical w/pump
Press, arbor	1	1	1	
Tachometer	1	1	2	Electronic
Tap & die set	1	1	1	Standard & metric
Test stand	5	5	5	Small engine
Valve seat repair set	3	3	3	One valve seat repair set for each major brand taught
Vise, bench	4	5	6	4 1/2" metal jaw
Welder, arc	1	1	1	200 amp
Welder, portable	1	1	1	Oxyacetylene unit (complete welding outfit w/cutting torch attachments, bottles, & cylinder truck)
Wrench, air ratchet	2	3	4	3/8" drive

Operational Guide for Special Populations

Summary of Changes (08/27/12)
Added 399290 JAG Middle/ALE.
Updated Class Grade Level & Length.
Updated Minimum Equipment List for all courses.
Summary of Changes (02/04/10)
Updated equipment lists
Added Technology Standards for 2009-10
Removed HSTW Model removed from Special Populations
Renamed Special Populations separated from School Improvement
Summary of Changes (09/04/08)
Special Populations separated from School Improvement.
HSTW model removed from Special Populations operational guide.
Summary of Changes (06/28/07)
HSTW model added to operational guide.
Special Populations renamed as School Improvement
Summary of Changes (04/01/05)
Incomplete sentences in numerous course code descriptions are completed.

COURSES ONLY: WORK-BASED LEARNING; SUPPORT; SPECIAL POPULATIONS; & MISCELLANEOUS COURSES

Special Populations

493800 JAG Apprenticeship/Work-Based Learning
Credit: 1 Grade Levels: 9-12
This is an instructor-supervised work release course that includes monthly employer evaluations of participants. Employment is not a requirement of the JAG program, but credit can be given at the discretion of the individual school district. Participants should be expected to complete 180 hours of work-based learning in order to receive one credit—with a maximum of four credits for completing 720 hours of work study within a consecutive two-year period.
Does course count in required 38 units and, if yes, how: Yes Career & Technical
Does course count in the 22 units required for graduation: Yes
Licensure required to teach this course: 413 Career Services for School Improvement

493780 JAG Multi-Year I
Credit: 1 Grade Levels: 9-12
JAG utilizes the National Jobs for America's Graduates model. It is designed to assist career and technical students whose ability to successfully graduate from high school and obtain meaningful employment is in jeopardy.
Does course count in required 38 units and, if yes, how: Yes Career & Technical
Does course count in the 22 units required for graduation: Yes
Licensure required to teach this course: 413 Career Services for School Improvement

493790 JAG Multi-Year II
Credit: 1 Grade Levels: 9-12
JAG utilizes the National Jobs for America's Graduates model. It is designed to assist career and technical students whose ability to successfully graduate from high school and obtain meaningful employment is in jeopardy.
Does course count in required 38 units and, if yes, how: Yes Career & Technical
Does course count in the 22 units required for graduation: Yes
Licensure required to teach this course: 413 Career Services for School Improvement

493770 JAG Senior Applications
Credit: 1 Grade Levels: 12
JAG utilizes the National Jobs for America's Graduates model. It is designed to assist career and technical students whose ability to successfully graduate from high school and obtain meaningful employment is in jeopardy.
Does course count in required 38 units and, if yes, how: Yes Career & Technical
Does course count in the 22 units required for graduation: Yes
Licensure required to teach this course: 413 Career Services for School Improvement

399290 JAG Middle/ ALE
Credit: 0 (JAG Middle 7th - 8th)
Credit: 1 (JAG ALE 9 -12)
Middle School Program serves seventh and eighth grade students
Students are identified by middle school staff as being at risk of not reaching their potential or leaving school prematurely.
ALE School Program serves grades seventh through twelfth
The program is design to serve students in alternative learning environments
NOTE: (See Traditional JAG Course Codes for JAG 9-12 ALE Programs)

690030 STRIVE
Credit: 1 Grade Levels: 9-10
This secondary program is individualized to meet the specific academic needs of career and technical students who are members of a special population. This program provides a versatile spectrum of instruction with the intent of improving vocational and academic scores and/or skills. Student eligibility is to be discussed with the student, parents, STRIVE instructor, and/or counselor prior to enrollment.
Does course count in required 38 units and, if yes, how: No
Does course count in the 22 units required for graduation: No
Licensure required to teach this course: 413 Career Services for School Improvement

SPECIAL POPULATIONS – SPECIAL NEEDS STUDENTS

Definitions and policies related to serving students who are members of “special populations” (special needs) must be in compliance with the Carl D. Perkins Vocational and Technical Education Act of 1998 (Public Law 105.332) or its successor.

The term “special populations” includes individuals with disabilities, educationally and economically disadvantaged individuals (including foster children), individuals of limited English proficiency, individuals who participate in programs designed to eliminate sex bias, and individuals in correctional institutions.

Each student identified as disabled and/or handicapped under the guidelines of the Special Education Section of ADE and admitted to career and technical education program(s) must have an Individualized Education Plan (IEP) developed prior to placement in the program.

Each student who meets the criteria for identification as a member of special populations shall be provided with the vocational assessment, guidance, counseling, and career development in order to ensure his/her success in the career focus program of study.

Transition services as well as supplemental/support services shall be provided as needed to assist the student in making the transition from school to employment.

JOBS FOR ARKANSAS' GRADUATES (JAG)

Program Description

JAG is a broad based School-to-Work program designed to assist students whose ability to successfully graduate from high school and obtain meaningful employment is in jeopardy. The program's goal is to ensure student's graduation (or GED) and prepare students for workplace success whether their career begins immediately upon high school graduation or requires them to complete postsecondary education/training.

Course Description

JAG can be utilized in any program of study and can count as credit toward a student's vocational career focus/major. The program's goal is to ensure student graduation (or GED) and prepare students for workplace success whether their career begins immediately upon high school graduation, includes entry into military service, or requires them to complete postsecondary education/training.

Course Content

The course will consist of the following areas:

1. Career Development Skills
2. Job Attainment Skills
3. Job Survival Skills
4. Basic Skills
5. Leadership and Self-development Skills
6. Life Survival Skills
7. Workplace Skills

The model requires the completion of the 37 core competencies. The curriculum contains a total of 87 competencies. Arkansas requires the completion of 40 (including core) competencies for School-to-Career (senior only) participants and 50 (including core) competencies for Dropout Prevention (multiyear) participants.

Required Instructional Methods:

1. Hands-on Activities (minimum of one activity per unit)
2. Audio-Visual Aids
3. Resource Speakers
4. Field Trips
5. Lectures
6. Occupational Research (including the Arkansas Occupational and Educational Information System – AOEIS)

Background Information

JAG is a nonprofit corporation established to promote business interaction in schools. It was initiated as a "pull out" program utilizing business people as specialists (instructors). JAG was established 20 years ago in Delaware and has been established in 27 states.

The model has 10 components, which must be maintained by the state affiliate. The components are:

- Oversight Board
- Program Management
- Program Staff
- Participant Selection
- Student Load
- Career Association
- Competency Attainment
- Employer Marketing and Job Development
- Follow-up Services
- National Database Participation

The model has three program applications or ways to utilize it:

- School-to-Career (senior only) (12th-grade students only)
- Dropout Prevention (multi-year)
- Dropout Recovery

There are five primary performance goals of the School-to-Career and Dropout Prevention Applications:

- 90% graduation/GED rate;
- 80% overall success rate at the end of 12 months after graduation, with participants either employed in a job leading to a career, in the military, or enrolled in a postsecondary education or training, or a combination of work and postsecondary education;
- 60% of graduates are employed;
- 60% of employed graduates are in full-time jobs leading to careers; and
- 80% of the graduates are employed full-time or are combining work and school. These goals are to be achieved by the third year of operation.

Arkansas high schools and alternative schools wishing to implement JAG may apply for ACE New Program Start-up funds to operate the School-to-Career application or the Dropout Prevention application for 11-12th grades (senior only).

Teacher Qualifications

The specialist is to be secondary certified in a vocational or any core academic area and endorsed through the completion of program management training developed and approved by the Department of Career Education. Training includes New Specialist Training (one to two days) and National Data Management System training (one day).

Contract Length

It is strongly recommended that, during the first year of operation, the specialist be employed on a contract of a minimum of 215 days. It also is strongly recommended that during each subsequent year, the specialist be employed on a contract of a minimum of 225 days.

The model requires 12 months of follow-up after graduation, which means monthly contact with participant beginning the month of June following graduation and at least six contacts with the participant's employer/school/military recruiter.

Professional Development Activities

Teachers are encouraged to participate in all in-service training workshops, quarterly meetings, National Training Seminar, and the following professional organizations:

Association of Career of Career & Technical Educators (Special Needs Division)
National Association of Vocational Education Special Needs Personnel
Arkansas Association of Vocational Education Special Needs Personnel

Funding

The Arkansas Workforce Investment Board (WIB) endorses the JAG program. A few local WIBs have provided supplemental funding for JAG programs.

New program start-up equipment funds are available. Supplemental funding through local Workforce Investment Youth Councils may be utilized.

Class Grade Level & Length

JAG is designed as a School-to-Career Application or as Dropout Prevention Application (11–12th grade) program.

Eleventh -or Twelfth-grade career and technical students with two or more identified barriers shall apply for acceptance to the program. The specialist identifies a student's barriers prior to placement into the program. Students are to have an identified career and technical focus/major and have completed at least one unit and be enrolled in a second unit of the identified career focus/major. Alternative schools that do not offer or have access to career and technical education must request a waiver.

The model requires 35-45 students be the maximum in the in-school phase. Programs in alternative schools can request a waiver to lower the student load. Arkansas JAG recommends that the specialist be provided one period for Employer Marketing and Job Development for every 25 in-school participants.

Class periods shall conform to the minimum class hours established by the Standards for Accreditation of Public Schools and North Central Association (NCA)

(NCA: 120hours = 1 unit; 60 hours = ½ unit)

One unit of credit per year is to be given for JAG participants. A student's maximum length of enrollment in the program shall be two years, depending on the application of the model. JAG may be utilized as a related option of any program of study. It is not a stand-alone program of study or career focus/major.

Part-time employment is not a requirement of the JAG program, but credit can be given at the discretion of the individual school district. Schools that grant credit for work-based learning shall follow the course credit guidelines for the Workforce Education Internship program.

Class Size

"*Standards of Accreditation", Arkansas Public Schools* states: "in grades seven through twelve, a teacher shall not be assigned more than one hundred fifty (150) students daily and an individual class shall not exceed thirty (30) students, provided that, in exceptional cases or for courses that lend themselves to large group instruction, these ratios may be increased." (JAG is not an exceptional case). Large JAG classes have proven to be less practical and effective because they place limitations on the types and quality of hands-on, individualized, or other class activities.

Advisory Committee

Sites are to develop a local advisory board with representatives of groups such as: educational providers (e.g., adult education, GED instructors, community college representatives, School-to-Work partnerships), community agencies (e.g., homeless shelters, mental health services, workforce development, and juvenile officers), and school personnel.

The selection committee, a subcommittee of the local advisory board, shall be local and accept responsibility for program participants targeted for services. The selection committee shall be comprised of selected representatives of the local school system (e.g., high school administrators, counselors, vocational faculty, and academic faculty).

Student Organization

Alternative schools must operate a local career association if they are a stand-alone facility.

While National Jobs for America's Graduates' (JAG) asks that elements of their career association (National Career Association) be included in the curriculum, specialists will provide support to the students and advisors in the student's career focus career and technical student organization. JAG students are strongly encouraged to hold membership in the student organization that represents their chosen career focus/major area. The specialists will assist the JAG students in the activities of their chosen CTSO. NCA or "club-like" activities can be utilized as a classroom management tool.

Courses Offered

Course Code	Electives	Units of Credit	7th	8th	9th	10th	11th	12th
493800	JAG Apprenticeship/Work-Based Learning	1			X	X	X	X
399290	JAG Middle School		X	X				
493780	JAG I	1			X	X	X	X
493790	JAG II	1			X	X	X	X

SUPPORT FOR SPECIAL POPULATIONS
JAG

MINIMUM INSTRUCTIONAL EQUIPMENT AND SOFTWARE

Item Name	Count 15 Students	Count 20 Students	Count 25 Students	Description/ Specification
Student Computer System	15	20	25	See ACE Technology Standards – Level 1
Laptop /Notebook	1	1	1	See ACE Technology Standards
Color Printer for classroom	1	1	1	
Telephone/FAX/answer machine & jack for office	1	1	1	Newest technology
Data station	5	7	9	Minimum of 30” x 42” per station (keyboard height 26”-28”)
Computer chairs	15	20	25	Strong, durable, ergonomically designed with strong back support (25 percent must be adjustable)
Multipurpose tables	3	3	3	24” x 48”, sturdy, wood
Locking storage cabinet	1	1	1	3’ x 6’ x 2’
Photocopier, video camera				Easy access to
TV/ /DVD player/recorder	1	1	1	Minimum 25” monitor; 3-speed recording/playback
Visualizer/digital demonstration camera	1	1	1	Lens 10x, auto/manual focus
Filing cabinets	1	1	1	4-drawer, lockable
Docking station for laptops	1	1	1	Appropriate for laptop
Presentation Equipment	1	1	1	LCD Projector, Mounting Recommended Laptop (See ACE Technology Standards)
Scanner	1	1	1	Newest technology
8’ x 10’ screen				Access to

Supplemental Instructional Materials and Suppliers

Classroom set of any of the following:

Succeeding in the World of Work – Revised
Glencoe Division of MacMillan/McGraw-Hill
P.O. Box 508
Columbus, OH 43216
1-800-828-5096

From School to Work – Revised
Goodheart-Wilcox Publisher
18604 W. Creek Dr.
Tinley Park, IL 60477-6243
1-800-323-0440

Workmatters – Revised
Contemporary Books
4255 W. Touhy Ave.
Lincolnwood, IL 60646-1975
1-800-323-4900

Dynamics of Work – Revised
South-Western Educational Publishing
5101 Madison Road
Cincinnati, OH 45227-1490
1-800-354-9706

Students and Teachers Responsibly Integrating Vocational Education (STRIVE)

STRIVE is a secondary course that integrates academics with a student's selected career and technical education course of study. This course provides a versatile spectrum of instruction with the intent of improving the knowledge and skills of both vocational and academic competencies. Student eligibility is based on an application process and is to be discussed with the student, parents, STRIVE instructor, and/or counselor prior to enrollment.

Course Type

STRIVE is a recommended course for students in the ninth and/or tenth grades in secondary schools who have identified barriers. Instruction will include integrated areas of career and technical education and academic skills. The instruction shall be related to the vocational program of study/career focus in which the student is or will be enrolled. The administration of a pre- and post-assessment tool (TABE) is required of all students. Documentation of student achievement is required.

Length of Course

STRIVE is recommended as a one-year course.

Eligibility of Students

Ninth- and tenth-grade career and technical students or potential career and technical students with multiple identified barriers shall apply for acceptance to the STRIVE course. The instructor identifies a student's barriers prior to placement into the course. This ninth- or tenth-grade student is or will be enrolled in a vocational program or study/career focus. Student eligibility shall be discussed with the student, parents, STRIVE instructor, and/or counselor prior to enrollment.

Course Credits

It is recommended that a student may earn the equivalent of one unit of credit per year for the successful completion of the STRIVE course. This course will not count as a credit toward a student's career focus major.

Course Code	Electives	Units of Credit	7th	8th	9th	10th	11th	12th
690030	STRIVE	1					X	X

SUPPORT FOR SPECIAL POPULATIONS
STRIVE

MINIMUM INSTRUCTIONAL EQUIPMENT AND SOFTWARE
(15, 20, or 25 students)

Item Name	Count	Specification/ Description
Computers	1 per student	See ACE Technology Standards – Level I
Color Printer	1	Newest Technology
Laptop /Notebook	1	See ACE Technology Standards
Data stations	1 per computer	Minimum of 30" x 42" per station (keyboard height 26"-28")
Computer chairs	1 per computer	Strong, durable, ergonomically designed w/strong back support (25 percent must be adjustable)
Multipurpose tables	2	24" x 28", sturdy, wood
Photocopier, video camera		Easy access to
TV/ DVD Player	1	Minimum 25" monitor, 3-speed recording/playback
Presentation Equipment	1	LCD Projector (Mounting recommended) Teacher Laptop (See ACE Technology Standards) Computerized Presentation Board
Filing cabinets	1	4-drawer, lockable
TABE software	1 (Contact Office of Special Population) For updated information	For appropriate TABE test administration/interpretation
Optical mark reader	1 (Contact Office of Special Population) For updated information	48 x 108 marks; 2,200 forms/hour; reflective read; 2 read heads; 40-48 read head channels; 512 KB memory; RS-232C serial interface; built-in form translation software
TABE test booklets	(Contact Office of Special Population) For updated information	Version 9/10 Locater & Survey Tests

Adaptive Equipment

Adaptive Equipment for Individuals with Disabilities Enrolled in Funded Vocational Education Programs can be obtained through Appropriation 681, by:

1. The requesting school must enter the student in the CIR/CUIT system. This may be done online at http://arksped.k12.ar.us/sections/CIRCUIT.html -- the Arkansas Department of Education's intake and referral system. The student will be assigned a special education consultant to assist with ordering the adaptive equipment.
2. The superintendent or school principal in which the student is enrolled may then request services through contacting: Program Manager, Office of Special Populations, ACE, Three Capitol Mall, Little Rock, Arkansas 72201. Assistance in submitting requests may be obtained by calling 501-682-1535.
3. The **written** request for services **MUST** contain the following information:
   a. Name of student
   b. Age of student
   c. Disability and need for adaptive equipment
   d. Vocational program(s) and grade in which the student is enrolled
   e. Equipment requested (if known)
   f. Assistance in identifying appropriate equipment (if known)

g. Appropriate cost of equipment (if known)
h. The written evaluation and recommendation of the Special Education Consultant

4. Upon receipt of the **written** request for adaptive equipment, the Office of Special Populations may place a follow-up telephone call to the school for specific information. At that time a letter of approval (or disapproval) will be sent to the school listing the approved equipment along with approximate funds available for purchase. (If the Office of Special Populations locates existing appropriate equipment, this equipment may be provided in lieu of funding.)
5. **All adaptive equipment will be purchased through the Educational Cooperative.** The Office of Special Populations will reimburse the Co-op upon receipt of the expenditure report (WE-10). The reimbursement will not exceed the allocation approved for the equipment.
6. The adaptive equipment remains the property of the Office of Special Populations of the ACE. It is subject to redistribution when no longer required by the student or similarly disabled student enrolled in funded vocational education programs within the school district or Cooperative.
7. A list of existing adaptive equipment can be obtained through our web site. Existing equipment may be transferred between school districts after following steps 1-3 and written approval from the Office of Special Populations has been provided. An Adaptive Equipment Transfer Form (WE-SN-254) must be submitted by the school district requesting the transfer within 15 days of the physical transfer of the equipment.