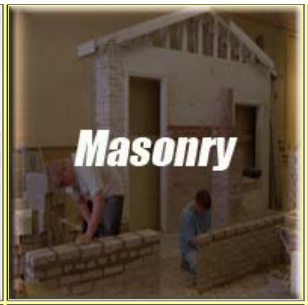
The ICTC Essential Skills Document

Welcome to the Indiana County Technology Center's **Essential Skills Document.**
Here you will find some of the tools you will need to explore the exciting Career and Technical Education (CTE) opportunities at the ICTC.

The index buttons below will link you to:

- What is the Indiana County Technology Center?
- What is the **Essential Skills Document**?
- A letter from the our director
- Course Clusters, Programs of Study, and Instructors
- Detailed Skill Assessments – A checklist to complete with a parent, teacher, and/or guidance counselor to get a look at how ready you are for the demands of a rigorous Career and Technical Education.
- Programs of Study – Detailed descriptions of each of the 14 Program of Study at the ICTC including some research on future career opportunities
- Transition and Post-Secondary Opportunities – A brief description of the ICTC courses designed to get you ready for a college or job placement
- Additional Program Opportunities - A brief overview of post-secondary opportunities you can access while still in high school
- School Wide Enrichment Activities – A discussion of student activities that you can become involved in at the ICTC

What is the Indiana County Technology Center?	What is the Essential Skills Document?	Letter from the Director	Course Clusters and Programs	Detailed Skill Assessments
				
				

				
Transition and Post-Secondary Opportunities	**Additional Programs and Opportunities**	**School Wide Enrichment**		

What is the ICTC?

Index

Education with a Competitive Edge

The Indiana County Technology Center is a regional technology center which is dedicated to providing our students with industry-current curricula, modern equipment, and a safe environment which provides career-relevant experiences.

Through integrating technical and academic curricula, students learn academic and technical skills that provide pathways to post-secondary educational opportunities, as well as skilled and challenging employment opportunities relevant to an ever-changing, fast-paced society.

Learning leadership skills, applying problem-solving skills, developing a positive attitude and being a team player are some of the tenets of a positive work ethic regularly demonstrated by our staff for our students to emulate.

The secondary curriculum is organized around five cluster areas; Automotive Technologies, Construction and Building Trades, Engineering Technologies, Information, and Public Service Occupations.

Students may earn three elective credits each year in their chosen Program of Study. Students may elect to schedule a one, two, or three year experience at the ICTC.

The ICTC is an equal opportunity institution and will not discriminate on the basis of race, color, national origin, sex, disability, or age in the activities, program or employment practices in accordance with federal and state statutes and regulations. For more information regarding civil rights, grievance procedures, service and facilities that are accessible to and usable by individuals with disabilities, contact Michael McDermott. Title 1X Section 504 Coordinator at the ICTC, 441 Hamill Road, Indiana PA (724) 349-6700.

This document is intended to provide an overview of the program and is to be used as an informative tool to assist districts, parents, and students in the decision making process for program placement and transition planning. It is not intended to be and should not be used as a screening tool for student placement.

The Essential Skills Document

Index

Definition, Rationale, and Goal

Definition

The essential skills document is a program summary. The sole purpose of the essential skills document is to provide information to students, parents, districts, and other parties vested in providing a quality career and technical education.

Rationale

The framework will provide all districts, parents, students, and other involved parties the same concise and detailed description of programs, curriculum, and expectations.

The document will provide a tool to assist with decision making for parents and students to ensure program knowledge is used to best suit students' needs, interests, and strengths.

The document will allow the ICTC and partner districts to discuss student needs and possible accommodations in relation to program recommendations.

The document allows industry partners to see the quality and vast technical skills each program offers.

Goal

To bring students, parents, districts, and the ICTC together as a team to work towards providing a quality career and technical education that meets the strengths and desires of each student.

The ICTC essential skills document provides recommendations and is not to be used as a screening tool or to deter student interest in career and technical education.

A Letter From Our Director

Index

Today's Career and Technical Education (CTE) systems are evolving to meet the needs of students and employers in the 21st century. The Indiana County Technology Center (ICTC) provides the needed education, support systems, and guidance to students seeking rewarding technical careers. The ICTC is committed to helping students, "GET THE EDGE" by providing rigorous technical education, integrated academics, and opportunities to develop leadership skills. The instructional staff at ICTC are experts in their career fields and innovative educators who challenge students by going beyond traditional lectures and tapping into students' learning styles using project based learning opportunities. The knowledge and skills acquired at the ICTC help students make the connection between learning and the real world, by helping them answer three key questions:

- What am I learning?
- Why am I learning it?
- How am I going to use it?

Additional opportunities are available for students: portable industry recognizable certificates, dual enrollment (college credits), National Occupational Competency test recognition, etc.

Students, and parents of those students, considering ICTC should reflect on the following with regard to the prospective enrollee:

- level of knowledge about a chosen career pathway
- vocational interest
- vocational aptitude
- academic level
- category and extent of disability if applicable

It needs to be understood that every Program of Study has a rigourous academic and technical curriculum mandated by the PA Department of Education. While every student has the right to pursue a career pathway at the ICTC, having the right to attend does not make the CTC the right educational choice for all students. For the student with special needs, shaping an effective transition plan is especially important. Determining the appropriateness, the extent, and the form of a CTE education in that plan requires a team effort. The purpose of the ***Essential Skills Document*** is to provide the groundwork for an honest, open conversation among all vested parties – students, parents/guardians, General Education staff, CTC staff, and Special Education staff – that will result in appropriate educational decisions.

Program Area Clusters

Index

Course Clusters and Instructors

Automotive Technology
Automotive Technology – James Shuman
Collision Repair Technology – Michael Miller

Construction and Building Trades
Carpentry – Timothy Bash
Electrical Operations – Timothy Lutton
HVAC – James Gould
Masonry – Christopher Shirley

Engineering Technologies
Machining Technology – Michael Rescenete
Welding Technology – Louis Toth

Information Technology
Computer Systems Technology – Russ Messenger
Digital Media Technology – Melaney Brubaker
Graphic and Electronic Media – Jon Krecota

Public Services
Cosmetology – Sandra Zulick
Culinary Arts – Dennis Gehly
Health Occupations Technology – Heidi Allison

Academic Specialist
Math – Cathy Jones

Counselors/Support Services
Guidance – Kelly Fox
Learning Facilitator – Robert Piccirillo
Cooperative Education – Keith McCracken

Administration
Director - Eric Palmer
Principal – Michael McDermott

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Detailed Skill Assessments

Index

Detailed Skill Assessment

This page contains links to the ICTC *Detailed Skill Assessment Charts* for all 14 program areas. These charts are designed to prepare you for entrance into an ICTC program area. By completing this assessment with your guidance counselor, you can identify any gaps between what skills you currently possess and those skills necessary for total access to the opportunities offered by the curriculum.

We encourage you and your guidance counselor to complete the chart for the program area or areas that interest you and to share the results with your family. Also, if you plan to enroll in an ICTC program area, please ask your guidance counselor to e-mail or FAX your completed chart to:

bpiccirillo@ictc.edu

FAX: ***855 428 2338***

It is our goal to help you achieve your highest level of success at the ICTC. The information obtained through these *Detailed Skill Assessments* will help your ICTC instructor prepare for your arrival.

Automotive Technology (pdf file)

Carpentry (pdf file)

Collision Repair Technology (pdf file)

Computer Systems Technology (pdf file)

Cosmetology (pdf file)

Culinary Arts (pdf file)

Digital Media Technology (pdf file)

Electrical Occupations (pdf file)

Graphics and Electronic Media (pdf file)

Health Occupations Technology (pdf file)

Heating, Ventilation, Air Conditioning (pdf file)

Machining Technology (pdf file)

Masonry (pdf file)

Welding Technology (pdf file)

Transition & Post Secondary

Transition and
Post-secondary Programs

The Employability Skills Workshop is offered to students in their senior year. This five part program provides students with the following skills and information:

- How to Do a Job Search
- How to Prepare a Resume
- How to Complete Job Application
- How to Write a Cover Letter
- How to Write a Thank You Letter
- How to Prepare for and Participate in a Job Interview

The Senior Career Workshop is a one day session for all seniors and it covers career plans, financial aide and other post-secondary information related to attending college such as common college questions, financial aid, bursar office, and function of advisor, admissions and other pertinent areas related to the enrollment process.

The Junior Career Workshop is a one day session for all juniors and covers the PA Career Guide and looks at careers within the field of their choice. Information related to their career choice such as salary, benefits, work expectations, and employment possibilities are discussed at this time.

The Sophomore Career Workshop is a one day session for all sophomores and focuses on individual strengths, interests, and abilities. These personal attributes are discussed in relation to job requirements in an effort to allow students to consider career options in their high interest areas. Students have the opportunity to consider different aspects of the world of work and personal priorities they have. Students are encouraged to consider careers that are challenging, but yet meet their personal preferences.

Pennsylvania Career, Education, and Work Standards is a three year on-line tutorial which includes:
Self-Assessment; Information About Jobs; Career Decisions; Problem solving; Employer's Expectations; Job Performance; Interpersonal Skills; Teamwork; Increasing Your Value to Your Employer; Leadership; Finding a Job; Job Search Documents; Interviewing for a Job; Financial Responsibility

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Programs and Opportunities

Additional Programs and Opportunities

Westmoreland Community College Placement Testing
Any senior accepted to WCCC is taken to the Indiana center to take their placement tests. They are also assisted by an ICTC School Counselor and a WCCC counselor in planning their first semester schedule.

Scholarships
ICTC has a variety of local scholarships available to students. The applications are available in the ICTC lobby from March 1st through March 31st. After the applications are returned to the ICTC Guidance Office, the individual scholarship sponsors interview students to pick the winner.

Postsecondary Schools Visits and Presentations
Schools are invited to present information to students. The ICTC hosts approximately 16 post-secondary visits during the first semester.

Dual Enrollment
Students can earn college credits while attending ICTC by dually enrolling in classes at the Pennsylvania Highlands Community College or the Penn College of Technology depending on their program area.

Articulation Agreements
ICTC has articulation agreements with a variety of post-secondary institutions. These agreements provide students advanced standing for work completed at ICTC.

ICTC is actively involved in the Pennsylvania Department of Education's ***Students Occupationally and Academically Ready*** (SOAR) initiative. By instituting the state wide Programs of Study for each of our program areas, ICTC is preparing our students to acquire postsecondary education credits leading to an industry-recognized credential or certificate at the postsecondary level or an associate or baccalaureate degree.

SOAR
Students Occupationally and Academically Ready

Link to SOAR

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School Wide Enrichment

Index

ICTC School Wide Enrichment

SkillsUSA

SkillsUSA is a partnership of students, teachers and industry working together to ensure America has a skilled work force. SkillsUSA is a national nonprofit organization serving teachers and high school and college students who are preparing for careers in trade, technical and skilled service occupations.

ICTC National Technical Honor Society

The ICTC Chapter of the National Technical Honor Society's goal is to honor student achievement and leadership, promote educational excellence, and enhance career opportunities. Students who maintain at least a 94% overall grade point average, show leadership skills, are involved in community service activities, exhibit a positive attitude and good citizenship are recommended by their instructor and are invited to be part of the ICTC NTHS.

National Home Builders Association Student Chapter

With the cooperation and support of the Indiana-Armstrong Builders Association, the students enrolled in the masonry, carpentry, HVAC, and electrical occupation programs are eligible to become members. The goal of membership is to maintain high technical and academic standards while exchanging information and experiences with members of the local, state, and national organizations.

Automotive Technology

Print this Program of Study

Automotive Technology

***Recommendations to fully access all components of this Program of Study**:

Academic

- Algebra I
- Algebra II
- Geometry
- Chemistry
- Physics
- 11th Grade Reading and Comprension Levels
- Oral and Written Communication
- Basic Computer Skills - Hardware and Software
- Ecology - Impact of the POS on the Environment

Skills

- Equipment Maintenance — Performing routine maintenance on equipment and determining when and what kind of maintenance is needed.
- Repairing — Repairing machines or systems using the needed tools.
- Troubleshooting — Determining causes of operating errors and deciding what to do about it.
- Equipment Selection — Determining the kind of tools and equipment needed to do a job.
- Quality Control Analysis — Conducting tests and inspections of products, services, or processes to evaluate quality or performance.
- Operation and Control — Controlling operations of equipment or systems.
- Operation Monitoring — Watching gauges, dials, or other indicators to make sure a machine is working properly.
- Critical Thinking — Using logic and reasoning to identify the strengths and weaknesses of alternative solutions, conclusions or approaches to problems.
- Active Listening — Giving full attention to what other people are saying, taking time to understand the points being made, asking questions as appropriate, and not interrupting at inappropriate times.
- Complex Problem Solving — Identifying complex problems and reviewing related information to develop and evaluate options and implement solutions.

Abilities

- Arm-Hand Steadiness — The ability to keep your hand and arm steady while moving your arm or while holding your arm and hand in one position.
- Control Precision — The ability to quickly and repeatedly adjust the controls of a machine or a vehicle to exact positions.
- Finger Dexterity — The ability to make precisely coordinated movements of the fingers of one or both hands to grasp, manipulate, or assemble very small objects.
- Problem Sensitivity — The ability to tell when something is wrong or is likely to go wrong. It does not involve solving the problem, only recognizing there is a problem.

Industry Certifications Available to Qualified Students:

PENNDOT
PA Safety Inspection Mechanic Certification

ASE NATEF

S/P2 Safety and Pollution Prevention

Explore on your own!! Visit . . .

O*NET OnLine
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http://www.onetonline.org/link/summary/49-3023.01

pennsylvania DEPARTMENT OF EDUCATION

PDE: Programs of Study Framework

- Manual Dexterity — The ability to quickly move your hand, your hand together with your arm, or your two hands to grasp, manipulate, or assemble objects.
- Multilimb Coordination — The ability to coordinate two or more limbs (for example, two arms, two legs, or one leg and one arm) while sitting, standing, or lying down. It does not involve performing the activities while the whole body is in motion.
- Near Vision — The ability to see details at close range (within a few feet of the observer).
- Hearing Sensitivity — The ability to detect or tell the differences between sounds that vary in pitch and loudness.
- Deductive Reasoning — The ability to apply general rules to specific problems to produce answers that make sense.
- Extent Flexibility — The ability to bend, stretch, twist, or reach with your body, arms, and/or legs.

* o*net™ OnLine

SOAR Students Occupationally and Academically Ready

Link to SOAR

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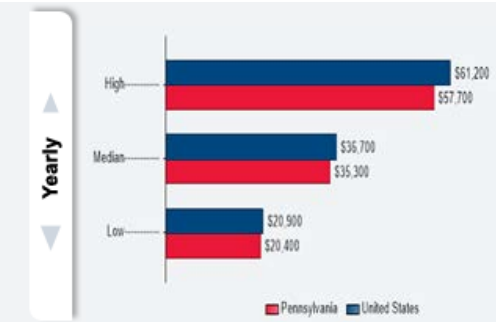
Automotive Technology

CIP Code

47.0604 Automobile/Automotive Mechanics Technology/Technician - Employment Outlook

This is an instructional program that prepares individuals to apply technical knowledge and skills to engage in the servicing and maintenance of all types of automobiles and light trucks. This program includes instruction in the diagnosis and testing, including computer analysis, of malfunctions in and repair of engines, fuel, electrical, cooling and brake systems, drive trains and suspension systems. Instruction is also given in the adjustment and repair of individual components and systems such as fuel system components and air conditioning, and includes the use of technical repair information and the procedures for state inspection.

<table>
<tr><td>Median wages (2013)</td><td>$17.65 hourly, $36,710 annual</td></tr>
<tr><td>State wages</td><td>


"High" indicates 90% of workers earn less and 10% earn more.
"Median" indicates 50% of workers earn less and 50% earn more.
"Low" indicates 10% of workers earn less and 90% earn more.
"N/A" indicates the data is not available.

Notes: Yearly wage data applies only to workers with full-time, year-round schedules. For salary information for part-time or part-year workers, use hourly wage data
</td></tr>
<tr><td>Employment (2012)</td><td>701,000 employees</td></tr>
<tr><td>Projected growth (2012-2022)</td><td>Average (8% to 14%)</td></tr>
<tr><td>Projected job openings (2012-2022)</td><td>237,600</td></tr>
<tr><td>State trends</td><td>
<table>
<tr><th rowspan="2">United States</th><th colspan="2">Employment</th><th rowspan="2">Percent Change</th><th rowspan="2">Projected Annual Job Openings</th></tr>
<tr><th>2012</th><th>2022</th></tr>
<tr><td>Automotive Service Technicians and Mechanics</td><td>701,100</td><td>761,500</td><td>+9%</td><td>23,760</td></tr>
<tr><th rowspan="2">Pennsylvania</th><th colspan="2">Employment</th><th rowspan="2">Percent Change</th><th rowspan="2">Projected Annual Job Openings</th></tr>
<tr><th>2012</th><th>2022</th></tr>
<tr><td>Automotive Service Technicians and Mechanics</td><td>37,470</td><td>39,780</td><td>+6%</td><td>1,180</td></tr>
</table>
Projected Annual Job Openings refers to the average annual job openings due to growth and net replacement.
</td></tr>
</table>

http://www.onetonline.org/link/summary/49-3023.01

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Automotive Technology

CIP Code: 47.0604	AUTOMOBILE/AUTOMOTIVE MECHANICS TECHNOLOGY/TECHNICIAN - Detailed Program Description
Objective of this Program of Study	To appreciate the complexities of the automotive industry, students will learn various repair procedures to accommodate today's computer-monitored, fuel-efficient, environmentally-friendly automobiles. Specialized training will include the repair and maintenance of internal combustion engines, including ignition, cooling, fuel injection, fuel systems, computer diagnostics and electrical systems. Students enrolled in the Automotive Technology (AT) program enjoy the benefits of a fully comprehensive Automotive Service Excellence (ASE) certified program. The course of study, facilities and program equipment have been evaluated by the National Automotive Technicians Education Foundation (NATEF) and meets the ASE standards of quality for the training of automobile technicians. Automotive Technology is a field of change. There is unlimited growth opportunity for students willing to pursue the most up-to-date training available in future automotive technologies.
Occupational Objectives Offered	*Automobile Technician *Heavy Duty Truck Technician * - Requires post-secondary training
Planned Courses To view the task list for this Program of Study use this link: POS Framework	Orientation Safety Tools and Fasteners Certifications NATEF Brakes NATEF Suspension and Steering Systems NATEF Electrical/Electronic Systems NATEF Engine Performance NATEF Automatic Transmission and Transaxle NATEF Manual Drive Train and Axles NATEF Engine Repair NATEF Heating and Air Conditioning Expect all planned courses in this Program of Study to include an academic component. Homework and testing will require skills in: • Mathematics • Reading • Writing • Science • Research • Oral presentation • Computer use Click on the ***Detailed Skill Assessment*** link at the top of this page for more information.
Classroom: Academic Instruction, Textbook, and Tests	Academic Instruction: 1-2 hours per day Textbook: *Automotive Technology 5th Edition* by Jack Erjavec Academic Testing: 1-2 per week
Certification Tests	PA Skills (NOCTI) PA Safety Inspection Mechanic SP/2 Mechanical Safety SP/2 Mechanical Pollution Prevention
Co-operative Education	Available to seniors on instructor's recommendation

Work Activities	• Getting Information — Observing, receiving, and otherwise obtaining information from all relevant sources. • Operating Vehicles, Mechanized Devices, or Equipment — Running, maneuvering, navigating, or driving vehicles or mechanized equipment, such as forklifts, passenger vehicles, aircraft, or water craft. • Making Decisions and Solving Problems — Analyzing information and evaluating results to choose the best solution and solve problems. • Repairing and Maintaining Mechanical Equipment — Servicing, repairing, adjusting, and testing machines, devices, moving parts, and equipment that operate primarily on the basis of mechanical (not electronic) principles. • Updating and Using Relevant Knowledge — Keeping up-to-date technically and applying new knowledge to your job. • Inspecting Equipment, Structures, or Material — Inspecting equipment, structures, or materials to identify the cause of errors or other problems or defects. • Controlling Machines and Processes — Using either control mechanisms or direct physical activity to operate machines or processes (not including computers or vehicles). • Identifying Objects, Actions, and Events — Identifying information by categorizing, estimating, recognizing differences or similarities, and detecting changes in circumstances or events. • Interacting With Computers — Using computers and computer systems (including hardware and software) to program, write software, set up functions, enter data, or process information. • Repairing and Maintaining Electronic Equipment — Servicing, repairing, calibrating, regulating, fine-tuning, or testing machines, devices, and equipment that operate primarily on the basis of electrical or electronic (not mechanical) principles
Work Environment	• Exposed to Contaminants — 98% responded “Every day.” • In an Enclosed Vehicle or Equipment — 88% responded “Every day.” • Spend Time Standing — 74% responded “Continually or almost continually.” • Wear Common Protective or Safety Equipment such as Safety Shoes, Glasses, Gloves, Hearing Protection, Hard Hats, or Life Jackets — 72% responded “Every day.” • Importance of Being Exact or Accurate — 68% responded “Extremely important.” • Spend Time Using Your Hands to Handle, Control, or Feel Objects, Tools, or Controls — 83% responded “Continually or almost continually.” • Frequency of Decision Making — 69% responded “Every day.” • Indoors, Not Environmentally Controlled — 76% responded “Every day.” • Sounds, Noise Levels Are Distracting or Uncomfortable — 72% responded “Every day.” • Freedom to Make Decisions — 65% responded “A lot of freedom.”
Uniform Requirements	Uniform rental = $50.00 per year Hard leather safety shoes or boots provided by the student Safety glasses are supplied by the program area (first pair is free)
Advanced Standing/Articulation Agreements	Pennsylvania State Wide Articulation Agreement - Link to: SOAR University of Northwestern Ohio

Automotive Technology - Detailed Skill Assessment

GoTo Fillable PDF

Detailed Skill Assessment

If your are thinking about enrolling at ICTC, please e-mail this completed chart to bpiccirillo@ictc.edu

Name:	**School:**	**Grade:**

Academics:	**Present Level**	**If there is a gap, indicate Planned Action**
Algebra I		
Algebra II		
Geometry		
Chemistry		
Physics		
11th Grade Reading and Comprension Levels		
Oral and Written Communication		
Basic Computer Skills - Hardware and Software		
Ecology - Impact of the POS on the Environment		
Abilities: (see glossary below)		
Trunk Strength		
Visual Color Discrimination		
Depth Perception		
Oral Expression		
Selective Attention		
Written Comprehension		
Auditory Attention		
Category Flexibility		
Far Vision		
Memorization		
Response Orientation		
Sound Localization		
Speech Clarity		
Speech Recognition		
Fluency of Ideas		
Speed of Closure		

	Present Level	If there is a gap, indicate Planned Action
Static Strength		
Speed of Limb Movement		
Time Sharing		
Written Expression		
Dynamic Strength		
Gross Body Coordination		
Originality		
Rate Control		
Stamina		
Wrist-Finger Speed		
Gross Body Equilibrium		
Number Facility		
Glare Sensitivity		
Mathematical Reasoning		
Peripheral Vision		
Spatial Orientation		
Night Vision		
Explosive Strength		
Dynamic Flexibility		

Glossary

Arm-Hand Steadiness — The ability to keep your hand and arm steady while moving your arm or while holding your arm and hand in one position.

Control Precision — The ability to quickly and repeatedly adjust the controls of a machine or a vehicle to exact positions.

Finger Dexterity — The ability to make precisely coordinated movements of the fingers of one or both hands to grasp, manipulate, or assemble very small objects.

Problem Sensitivity — The ability to tell when something is wrong or is likely to go wrong. It does not involve solving the problem, only recognizing there is a problem.

Manual Dexterity — The ability to quickly move your hand, your hand together with your arm, or your two hands to grasp, manipulate, or assemble objects.

Multilimb Coordination — The ability to coordinate two or more limbs (for example, two arms, two legs, or one leg and one arm) while sitting, standing, or lying down. It does not involve performing the activities while the whole body is in motion.

Near Vision — The ability to see details at close range (within a few feet of the observer).

Hearing Sensitivity — The ability to detect or tell the differences between sounds that vary in pitch and loudness.

Deductive Reasoning — The ability to apply general rules to specific problems to produce answers that make sense.

Extent Flexibility — The ability to bend, stretch, twist, or reach with your body, arms, and/or legs.

Flexibility of Closure — The ability to identify or detect a known pattern (a figure, object, word, or sound) that is hidden in other distracting material.

Inductive Reasoning — The ability to combine pieces of information to form general rules or conclusions (includes finding a relationship among seemingly unrelated events).

Information Ordering — The ability to arrange things or actions in a certain order or pattern according to a specific rule or set of rules (e.g., patterns of numbers, letters, words, pictures, mathematical operations).

Perceptual Speed — The ability to quickly and accurately compare similarities and differences among sets of letters, numbers, objects, pictures, or patterns. The things to be compared may be presented at the same time or one after the other. This ability also includes comparing a presented object with a remembered object.

Reaction Time — The ability to quickly respond (with the hand, finger, or foot) to a signal (sound, light, picture) when it appears.

Visualization — The ability to imagine how something will look after it is moved around or when its parts are moved or rearranged.

Oral Comprehension — The ability to listen to and understand information and ideas presented through spoken words and sentences.

Trunk Strength — The ability to use your abdominal and lower back muscles to support part of the body repeatedly or continuously over time without 'giving out' or fatiguing.

Visual Color Discrimination — The ability to match or detect differences between colors, including shades of color and brightness.

Depth Perception — The ability to judge which of several objects is closer or farther away from you, or to judge the distance between you and an object.

Oral Expression — The ability to communicate information and ideas in speaking so others will understand.

Selective Attention — The ability to concentrate on a task over a period of time without being distracted.

Written Comprehension — The ability to read and understand information and ideas presented in writing.

Auditory Attention — The ability to focus on a single source of sound in the presence of other distracting sounds.

Category Flexibility — The ability to generate or use different sets of rules for combining or grouping things in different ways.

Far Vision — The ability to see details at a distance.

Memorization — The ability to remember information such as words, numbers, pictures, and procedures.

Response Orientation — The ability to choose quickly between two or more movements in response to two or more different signals (lights, sounds, pictures). It includes the speed with which the correct response is started with the hand, foot, or other body part.

Sound Localization — The ability to tell the direction from which a sound originated.

Speech Clarity — The ability to speak clearly so others can understand you.

Speech Recognition — The ability to identify and understand the speech of another person.

Fluency of Ideas — The ability to come up with a number of ideas about a topic (the number of ideas is important, not their quality, correctness, or creativity).

Speed of Closure — The ability to quickly make sense of, combine, and organize information into meaningful patterns.

Static Strength — The ability to exert maximum muscle force to lift, push, pull, or carry objects.

Speed of Limb Movement — The ability to quickly move the arms and legs.

Time Sharing — The ability to shift back and forth between two or more activities or sources of information (such as speech, sounds, touch, or other sources).

Written Expression — The ability to communicate information and ideas in writing so others will understand.

Dynamic Strength — The ability to exert muscle force repeatedly or continuously over time. This involves muscular endurance and resistance to muscle fatigue.

Gross Body Coordination — The ability to coordinate the movement of your arms, legs, and torso together when the whole body is in motion.

Originality — The ability to come up with unusual or clever ideas about a given topic or situation, or to develop creative ways to solve a problem.

Rate Control — The ability to time your movements or the movement of a piece of equipment in anticipation of changes in the speed and/or direction of a moving object or scene.

Stamina — The ability to exert yourself physically over long periods of time without getting winded or out of breath.

Wrist-Finger Speed — The ability to make fast, simple, repeated movements of the fingers, hands, and wrists.

Gross Body Equilibrium — The ability to keep or regain your body balance or stay upright when in an unstable position.

Number Facility — The ability to add, subtract, multiply, or divide quickly and correctly.

Glare Sensitivity — The ability to see objects in the presence of glare or bright lighting.

Mathematical Reasoning — The ability to choose the right mathematical methods or formulas to solve a problem.

Peripheral Vision — The ability to see objects or movement of objects to one's side when the eyes are looking ahead.

Spatial Orientation — The ability to know your location in relation to the environment or to know where other objects are in relation to you.

Night Vision — The ability to see under low light conditions.

Explosive Strength — The ability to use short bursts of muscle force to propel oneself (as in jumping or sprinting), or to throw an object.

Dynamic Flexibility — The ability to quickly and repeatedly bend, stretch, twist, or reach out with your body, arms, and/or legs.

Carpentry

Print this Program of Study

Carpentry

***Recommendations to fully access all components of this Program of Study**:

Academic

- Algebra I
- Algebra II
- Geometry
- Physics
- 11th Grade Reading and Comprehension Levels
- Oral and Written Communication
- Basic Computer Skills - Software
- Ecology - Impact of the POS on the Environment

Skills

- Active Listening — Giving full attention to what other people are saying, taking time to understand the points being made, asking questions as appropriate, and not interrupting at inappropriate times.
- Monitoring — Monitoring/Assessing performance of yourself, other individuals, or organizations to make improvements or take corrective action.
- Speaking — Talking to others to convey information effectively.
- Active Learning — Understanding the implications of new information for both current and future problem-solving and decision-making.
- Complex Problem Solving — Identifying complex problems and reviewing related information to develop and evaluate options and implement solutions.
- Coordination — Adjusting actions in relation to others' actions.
- Critical Thinking — Using logic and reasoning to identify the strengths and weaknesses of alternative solutions, conclusions or approaches to problems.
- Judgment and Decision Making — Considering the relative costs and benefits of potential actions to choose the most appropriate one.
- Reading Comprehension — Understanding written sentences and paragraphs in work related documents.
- Time Management — Managing one's own time and the time of others.

Abilities

- Manual Dexterity — The ability to quickly move your hand, your hand together with your arm, or your two hands to grasp, manipulate, or assemble objects.
- Problem Sensitivity — The ability to tell when something is wrong or is likely to go wrong. It does not involve solving the problem, only recognizing there is a problem.
- Trunk Strength — The ability to use your abdominal and lower back muscles to support part of the body repeatedly or continuously over time without 'giving out' or fatiguing.
- Visualization — The ability to imagine how something will look after it is moved around or when its parts are moved or rearranged.
- Information Ordering — The ability to arrange things

Industry Certifications Available to Qualified Students:

Bobcat, MEDIC First Aid, PBA Pennsylvania Builders Association, Member NAHB National Association of Home Builders, nccer, OSHA

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PDE: Programs of Study Framework

or actions in a certain order or pattern according to a specific rule or set of rules (e.g., patterns of numbers, letters, words, pictures, mathematical operations).
- Near Vision — The ability to see details at close range (within a few feet of the observer).
- Arm-Hand Steadiness — The ability to keep your hand and arm steady while moving your arm or while holding your arm and hand in one position.
- Deductive Reasoning — The ability to apply general rules to specific problems to produce answers that make sense.
- Multilimb Coordination — The ability to coordinate two or more limbs (for example, two arms, two legs, or one leg and one arm) while sitting, standing, or lying down. It does not involve performing the activities while the whole body is in motion.
- Oral Comprehension — The ability to listen to and understand information and ideas presented through spoken words and sentences.

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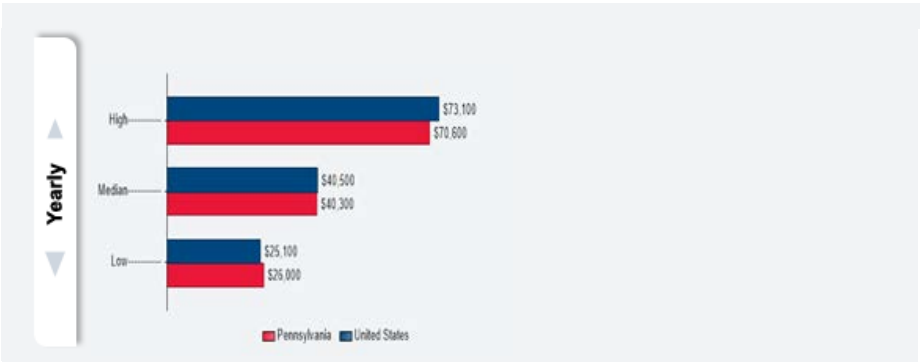
SOAR Students Occupationally and Academically Ready

Link to SOAR

This document is intended to provide an overview of the program and is to be used as an informative tool to assist districts, parents, and students in the decision making process for program placement and transition planning. It is not intended to be and should not be used as a screening tool for student placement.

Carpentry

CIP Code
46.0201 Carpentry/Carpenter - Employment Outlook
The carpentry program is designed to prepare individuals to apply technical knowledge and skills to lay out, fabricate, erect, install and repair structures and fixtures using hand and power tools. This program includes instruction in common systems of framing, construction materials, measuring, estimating, blueprint reading and finish carpentry techniques.

Median wages (2013)	$19.47 hourly, $40,500 annual
State wages	 • "High" indicates 90% of workers earn less and 10% earn more. • "Median" indicates 50% of workers earn less and 50% earn more. • "Low" indicates 10% of workers earn less and 90% earn more. • "N/A" indicates the data is not available. **Notes:** Yearly wage data applies only to workers with full-time, year-round schedules. For salary information for part-time or part-year workers, use hourly wage data.
Employment (2012)	901,000 employees
Projected growth (2012-2022)	Much faster than average (22% or higher)
Projected job openings (2012-2022)	329,200

State trends

United States	Employment		Percent Change	Projected Annual Job Openings
	2012	2022		
Carpenters	901,200	1,119,400	+24%	32,920
Pennsylvania	**Employment**		**Percent Change**	**Projected Annual Job Openings**
	2012	2022		
Carpenters	50,860	59,570	+17%	1,500

Projected Annual Job Openings refers to the average annual job openings due to growth and net replacement.

http://www.onetonline.org/link/summary/47-2031.01

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Carpentry

CIP Code: 46.0201	CARPENTRY/CARPENTER - Detailed Program Description
Objective of this Program of Study	Opportunity for success in the carpentry field is driven by knowledge and ability, enhanced by focused education and training. Students possessing creativity, independence, motivation, pride and enthusiasm for learning may want to explore carpentry as their career. Students receive instruction in all phases of residential carpentry beginning with design and layout and working through the final stages of interior and exterior finishing and trim installations. Students gain the entry-level foundation skills to enter either immediate employment or post-secondary training allowing them to choose from a variety of other carpentry-related fields. Carpentry-related theory and skills are taught using a competency-based instructional framework requiring students to demonstrate their ability to safely perform specific job-related tasks in order to prepare for the carpentry job market. Rapid advancement in technology impacts carpentry through improved tools, equipment and materials available. Carpentry students will become proficient in the use of the many new techniques, tools and equipment available in today's technological society. Field trips, on-site project experiences and repeated training in primary skill areas will prepare students for the career of a lifetime. The students may attain an Occupational Safety and Health Administration (OSHA) ten hour training course in "Construction Safety & Health" as well as a training course on a Bobcat VersaHandler Telescopic Fork Lift.
Occupational Objectives Offered	*Carpenter *Construction Carpenter *Construction Management * - Requires post-secondary training
Planned Courses To view the task list for this Program of Study use this link: POS Framework	Safety/Occupational Orientation Hand Tools Power Tools Blueprint Reading Site Preparation and Layout Footings and Foundations Framing - Floor Construction Framing - Wall Construction Framing – Roof Construction Exterior Finish Interior Finish Estimation Related Wood and Wood Products Cabinets and Countertops Emerging Technology OSHA First Aid Expect all planned courses in this Program of Study to include an academic component. Homework and testing will require skills in: • Mathematics • Reading • Writing • Science • Research • Oral presentation • Computer use Click on the ***Detailed Skill Assessment*** link at the top of this page for more information.

Classroom: Academic Instruction, Textbook, and Tests	Academic Instruction: 3 hours per week Textbooks:*Carpentry: Trainee Guide Levels 1 & 2 5th Edition*; *Core Curriculum: Introductory Craft Skills 4th Edition* Academic Testing: 1-2 per week
Certification Tests	PA Skills (NOCTI) OSHA National Association of Home Builders Pennsylvania Home Builders National Center for Construction Education and Research Bobcat Medic First Aid, CPR, AED
Co-operative Education	Available to seniors on instructor's recommendation
Work Activities	• Getting Information — Observing, receiving, and otherwise obtaining information from all relevant sources. • Inspecting Equipment, Structures, or Material — Inspecting equipment, structures, or materials to identify the cause of errors or other problems or defects. • Performing General Physical Activities — Performing physical activities that require considerable use of your arms and legs and moving your whole body, such as climbing, lifting, balancing, walking, stooping, and handling of materials. • Handling and Moving Objects — Using hands and arms in handling, installing, positioning, and moving materials, and manipulating things. • Organizing, Planning, and Prioritizing Work — Developing specific goals and plans to prioritize, organize, and accomplish your work. • Operating Vehicles, Mechanized Devices, or Equipment — Running, maneuvering, navigating, or driving vehicles or mechanized equipment, such as forklifts, passenger vehicles, aircraft, or water craft. • Communicating with Supervisors, Peers, or Subordinates — Providing information to supervisors, co-workers, and subordinates by telephone, in written form, e-mail, or in person. • Identifying Objects, Actions, and Events — Identifying information by categorizing, estimating, recognizing differences or similarities, and detecting changes in circumstances or events. • Coordinating the Work and Activities of Others — Getting members of a group to work together to accomplish tasks. • Monitor Processes, Materials, or Surroundings — Monitoring and reviewing information from materials, events, or the environment, to detect or assess problems
Work Environment	• Face-to-Face Discussions — 86% responded “Every day.” • Wear Common Protective or Safety Equipment such as Safety Shoes, Glasses, Gloves, Hearing Protection, Hard Hats, or Life Jackets — 81% responded “Every day.” • Spend Time Standing — 68% responded “Continually or almost continually.” • Work With Work Group or Team — 67% responded “Extremely important.” • Frequency of Decision Making — 78% responded “Every day.” • Telephone — 81% responded “Every day.” • Exposed to Hazardous Equipment — 68% responded “Every day.” • Coordinate or Lead Others — 56% responded “Extremely important.” • Freedom to Make Decisions — 59% responded “A lot of freedom.” • Contact With Others — 59% responded “Constant contact with others.”
Uniform Requirements	Hard leather shoes or boots provided by the student Safety glasses are supplied by the program area (first pair is free) Shirt and long pants appropriate for indoor and outdoor carpentry work
Advanced Standing/Articlation Agreements	Pennsylvania State Wide Articulation Agreement - Link to: SOAR

Carpentry -
Detailed Skill Assessment

GoTo Fillable PDF
Detailed Skill Assessment

If your are thinking about enrolling at ICTC, please e-mail this completed chart to bpiccirillo@ictc.edu

Name:	**School:**	**Grade:**

Academics:	**Present Level**	**If there is a gap, indicate Planned Action**
Algebra I		
Algebra II		
Geometry		
Physics		
11th Grade Reading and Comprension Levels		
Oral and Written Communication		
Basic Computer Skills - Software		
Ecology - Impact of the POS on the Environment		
Abilities: (see glossary below)		
Manual Dexterity		
Problem Sensitivity		
Trunk Strength		
Visualization —		
Information Ordering		
Near Vision		
Arm-Hand Steadiness		
Deductive Reasoning		
Multilimb Coordination		
Oral Comprehension		
Oral Expression		
Stamina		
Static Strength		
Category Flexibility		
Depth Perception		
Extent Flexibility		
Far Vision		

	Present Level	If there is a gap, indicate Planned Action
Finger Dexterity		
Inductive Reasoning		
Speech Recognition		
Control Precision		
Dynamic Strength		
Gross Body Coordination		
Gross Body Equilibrium		
Mathematical Reasoning		
Number Facility.		
Perceptual Speed		
Selective Attention		
Speech Clarity		
Speed of Limb Movement		
Visual Color Discrimination		
Written Comprehension		
Auditory Attention		
Flexibility of Closure		
Fluency of Ideas		
Originality		
Reaction Time		
Hearing Sensitivity		
Spatial Orientation		
Response Orientation		
Written Expression		
Explosive Strength		
Memorization		
Speed of Closure		
Rate Control		
Time Sharing		
Glare Sensitivity		
Peripheral Vision		
Sound Localization		
Wrist-Finger Speed		

	Present Level	If there is a gap, indicate Planned Action
Night Vision		
Dynamic Flexibility		

Glossary

Manual Dexterity — The ability to quickly move your hand, your hand together with your arm, or your two hands to grasp, manipulate, or assemble objects.

Problem Sensitivity — The ability to tell when something is wrong or is likely to go wrong. It does not involve solving the problem, only recognizing there is a problem.

Trunk Strength — The ability to use your abdominal and lower back muscles to support part of the body repeatedly or continuously over time without 'giving out' or fatiguing.

Visualization — The ability to imagine how something will look after it is moved around or when its parts are moved or rearranged.

Information Ordering — The ability to arrange things or actions in a certain order or pattern according to a specific rule or set of rules (e.g., patterns of numbers, letters, words, pictures, mathematical operations).

Near Vision — The ability to see details at close range (within a few feet of the observer).

Arm-Hand Steadiness — The ability to keep your hand and arm steady while moving your arm or while holding your arm and hand in one position.

Deductive Reasoning — The ability to apply general rules to specific problems to produce answers that make sense.

Multilimb Coordination — The ability to coordinate two or more limbs (for example, two arms, two legs, or one leg and one arm) while sitting, standing, or lying down. It does not involve performing the activities while the whole body is in motion.

Oral Comprehension — The ability to listen to and understand information and ideas presented through spoken words and sentences.

Oral Expression — The ability to communicate information and ideas in speaking so others will understand.

Stamina — The ability to exert yourself physically over long periods of time without getting winded or out of breath.

Static Strength — The ability to exert maximum muscle force to lift, push, pull, or carry objects.

Category Flexibility — The ability to generate or use different sets of rules for combining or grouping things in different ways.

Depth Perception — The ability to judge which of several objects is closer or farther away from you, or to judge the distance between you and an object.

Extent Flexibility — The ability to bend, stretch, twist, or reach with your body, arms, and/or legs.

Far Vision — The ability to see details at a distance.

Finger Dexterity — The ability to make precisely coordinated movements of the fingers of one or both hands to grasp, manipulate, or assemble very small objects.

Inductive Reasoning — The ability to combine pieces of information to form general rules or conclusions (includes finding a relationship among seemingly unrelated events).

Speech Recognition — The ability to identify and understand the speech of another person.

Control Precision — The ability to quickly and repeatedly adjust the controls of a machine or a vehicle to exact positions.

Dynamic Strength — The ability to exert muscle force repeatedly or continuously over time. This involves muscular endurance and resistance to muscle fatigue.

Gross Body Coordination — The ability to coordinate the movement of your arms, legs, and torso together when the whole body is in motion.

Gross Body Equilibrium — The ability to keep or regain your body balance or stay upright when in an unstable position.

Mathematical Reasoning — The ability to choose the right mathematical methods or formulas to solve a problem.

Number Facility — The ability to add, subtract, multiply, or divide quickly and correctly.

Perceptual Speed — The ability to quickly and accurately compare similarities and differences among sets of letters, numbers, objects, pictures, or patterns. The things to be compared may be presented at the same time or one after the other. This ability also includes comparing a presented object with a remembered object.

Selective Attention — The ability to concentrate on a task over a period of time without being distracted.

Speech Clarity — The ability to speak clearly so others can understand you.

Speed of Limb Movement — The ability to quickly move the arms and legs.

Visual Color Discrimination — The ability to match or detect differences between colors, including shades of color and brightness.

Written Comprehension — The ability to read and understand information and ideas presented in writing.

Auditory Attention — The ability to focus on a single source of sound in the presence of other distracting sounds.

Flexibility of Closure — The ability to identify or detect a known pattern (a figure, object, word, or sound) that is hidden in other distracting material.

Fluency of Ideas — The ability to come up with a number of ideas about a topic (the number of ideas is important, not their quality, correctness, or creativity).

Originality — The ability to come up with unusual or clever ideas about a given topic or situation, or to develop creative ways to solve a problem.

Reaction Time — The ability to quickly respond (with the hand, finger, or foot) to a signal (sound, light, picture) when it appears.

Hearing Sensitivity — The ability to detect or tell the differences between sounds that vary in pitch and loudness.

Spatial Orientation — The ability to know your location in relation to the environment or to know where other objects are in relation to you.

Response Orientation — The ability to choose quickly between two or more movements in response to two or more different signals (lights, sounds, pictures). It includes the speed with which the correct response is started with the hand, foot, or other body part.

Written Expression — The ability to communicate information and ideas in writing so others will understand.

Explosive Strength — The ability to use short bursts of muscle force to propel oneself (as in jumping or sprinting), or to throw an object.

Memorization — The ability to remember information such as words, numbers, pictures, and procedures.

Speed of Closure — The ability to quickly make sense of, combine, and organize information into meaningful patterns.

Rate Control — The ability to time your movements or the movement of a piece of equipment in anticipation of changes in the speed and/or direction of a moving object or scene.

Time Sharing — The ability to shift back and forth between two or more activities or sources of information (such as speech, sounds, touch, or other sources).

Glare Sensitivity — The ability to see objects in the presence of glare or bright lighting.

Peripheral Vision — The ability to see objects or movement of objects to one's side when the eyes are looking ahead.

Sound Localization — The ability to tell the direction from which a sound originated.

Wrist-Finger Speed — The ability to make fast, simple, repeated movements of the fingers, hands, and wrists.

Night Vision — The ability to see under low light conditions.

Dynamic Flexibility — The ability to quickly and repeatedly bend, stretch, twist, or reach out with your body, arms, and/or legs.

Collision Repair Technology

Print this Program of Study

Collision Repair Technology

***Recommendations to fully access all components of this Program of Study**:

Academic

- Algebra I
- Algebra II
- Geometry
- Chemistry
- Physics
- Basic Computer Skills - Hardware and Software

- 11th Grade Reading and Comprehension Levels
- Oral and Written Communication
- Ecology- Impact of the POS on the Environment

Skills

- Repairing — Repairing machines or systems using the needed tools.
- Active Listening — Giving full attention to what other people are saying, taking time to understand the points being made, asking questions as appropriate, and not interrupting at inappropriate times.
- Complex Problem Solving — Identifying complex problems and reviewing related information to develop and evaluate options and implement solutions.
- Monitoring — Monitoring/Assessing performance of yourself, other individuals, or organizations to make improvements or take corrective action.
- Operation and Control — Controlling operations of equipment or systems.
- Speaking — Talking to others to convey information effectively.

Abilities

- Oral Comprehension — The ability to listen to and understand information and ideas presented through spoken words and sentences.
- Information Ordering — The ability to arrange things or actions in a certain order or pattern according to a specific rule or set of rules (e.g., patterns of numbers, letters, words, pictures, mathematical operations).
- Manual Dexterity — The ability to quickly move your hand, your hand together with your arm, or your two hands to grasp, manipulate, or assemble objects.
- Near Vision — The ability to see details at close range (within a few feet of the observer).
- Category Flexibility — The ability to generate or use different sets of rules for combining or grouping things in different ways.
- Control Precision — The ability to quickly and repeatedly adjust the controls of a machine or a vehicle to exact positions.
- Oral Expression — The ability to communicate information and ideas in speaking so others will understand.
- Trunk Strength — The ability to use your abdominal and lower back muscles to support part of the body repeatedly or continuously over time without 'giving out'

Industry Certifications Available to Qualified Students:

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PDE: Programs of Study Framework

or fatiguing.
- Visualization — The ability to imagine how something will look after it is moved around or when its parts are moved or rearranged.
- Arm-Hand Steadiness — The ability to keep your hand and arm steady while moving your arm or while holding your arm and hand in one position.

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SOAR Students Occupationally and Academically Ready

Link to SOAR

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Collision Repair Technology

CIP Code

47.0603 Autobody/Collision and Repair Technology/Technician - Employment Outlook

This is an instructional program that prepares individuals to apply technical knowledge and skills to repair damaged automotive vehicles such as automobiles and light trucks. Students learn to examine damaged vehicles and estimate cost of repairs; remove, repair and replace upholstery, accessories, electrical and hydraulic window and seat operating equipment and trim to gain access to vehicle body and fenders; remove and replace glass; repair dented areas; replace excessively damaged fenders, panels and grills; straighten bent frames or unibody structures using hydraulic jacks and pulling devices; and file, grind and sand repaired surfaces using power tools and hand tools. Students refinish surfaces by painting with primer and a finish coat.

Median wages (2013)	$18.68 hourly, $38,850 annual
State wages	 • "High" indicates 90% of workers earn less and 10% earn more. • "Median" indicates 50% of workers earn less and 50% earn more. • "Low" indicates 10% of workers earn less and 90% earn more. • "N/A" indicates the data is not available. **Notes:** Yearly wage data applies only to workers with full-time, year-round schedules. For salary information for part-time or part-year workers, use hourly wage data.
Employment (2012)	154,000 employees
Projected growth (2012-2022)	Average (8% to 14%)
Projected job openings (2012-2022)	50,100

State trends

United States	Employment		Percent Change	Projected Annual Job Openings
	2012	2022		
Automotive Body and Related Repairers	154,200	174,700	+13%	5,010
Pennsylvania	**Employment**		**Percent Change**	**Projected Annual Job Openings**
	2012	**2022**		
Automotive Body and Related Repairers	7,010	7,590	+8%	190

Projected Annual Job Openings refers to the average annual job openings due to growth and net replacement.

http://www.onetonline.org/link/summary/49-3021.00

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Collision Repair Technology

CIP Code: 47.0603	AUTOBODY/COLLISION AND REPAIR TECHNOLOGY/TECHNICIAN - - Detailed Program Description
Objective of this Program of Study	The Collision Repair Technology (CRT) program is designed to instruct students in the development of eye-hand coordination skills, and the operation of power and air operated equipment associated with tools and procedures used in the repair of damaged automotive vehicles. Students who are creative, meticulous, proud of their work and fascinated with automobiles will enjoy seeing their reflection in the finish of a CRT project. CRT students learn to apply automotive finishes in a high quality paint booth. They also learn the art of air brushing and customizing. Students are taught cost estimating, frame straightening, Metal-Inert-Gas (MIG) welding, reshaping metal parts and replacing body component parts. Instruction and “hands on” practice is available to the students in the areas of: MIG welding, plasma cutting, automotive panel replacement, frame and unibody diagnosis, measuring and repair, computerized estimating, automotive paint systems, overall paint and blending procedures. Glass procedures with urethane, gasket sealed glass, fixed and movable replacement procedures. At the Indiana County Technology Center (ICTC), the CRT program is primarily concerned with preparing students to enter the field of collision repair. Students have the opportunity to learn automotive skills and knowledge, as well as reading, writing, language, math and study skills needed for employment in the field. Qualified second year students have the opportunity to earn a Certificate of Completion in refinishing systems from the PPG Research Center. Senior students have the opportunity to receive a PPG Blue Level Industry Certification after successfully completing a written and performance assessment.
Occupational Objectives Offered	* Collision Estimator Collision Repair Technician * - Requires post-secondary training
Planned Courses To view the task list for this Program of Study use this link: POS Framework	ORIENTATION SAFETY PRINCIPLES OF DESIGN AND CONSTRUCTION NON-STRUCTURAL REPAIR – PREPARATION METAL STRAIGHTENING USING BODY FILLERS STATIONARY GLASS REPLACEMENT RESTORING CORROSION PROTECTION WELDING AND CUTTING - MIG (GMAW) WELDING CUTTING AND HEATING PROCESSES PREPARING THE SURFACE FOR REFINISHING DETAILING PLASTIC REPAIR - IDENTIFICATION AND REPAIR DECISIONS PANEL REPLACEMENT AND ALIGNMENT WORKING WITH TRIM AND HARDWARE MOVEABLE GLASS AND HARDWARE FULL OR PARTIAL PANEL REPLACEMENT REFINISHING - SAFETY AND ENVIRONMENTAL PRACTICES UNDERSTANDING AUTOMOTIVE FINISHES PREPARING THE SURFACE FOR REFINISHING PREPARING THE EQUIPMENT, PAINT AREA, AND REFINISH MATERIALS FINISH DEFECTS: CAUSES AND CURES ELECTRICAL AND ELECTRONIC SYSTEMS RESTRAINT SYSTEMS PRINCIPLES OF DESIGN AND CONSTRUCTION STRUCTURAL REPAIR - DAMAGE ANALYSIS STRAIGHTENING STRUCTURAL PARTS TINTING APPLYING THE FINISH BLENDING SOLVING PAINT APPLICATION PROBLEMS ESTIMATING - ANALYZING DAMAGE CREATING A DAMAGE REPORT MANUALLY

	ADHESIVE REPAIR, PLASTIC WELDING REPAIRS, PLASTIC MECHANICAL AND ELECTRICAL REPAIR - STEERING AND SUSPENSION BRAKE SYSTEMS HEATING and AIR CONDITIONING DRIVE TRAINS FUEL, INTAKE AND EXHAUST SYSTEMS Expect all planned courses in this Program of Study to include an academic component. Homework and testing will require skills in: • Mathematics • Reading • Writing • Science • Research • Oral presentation • Computer use Click on the ***Detailed Skill Assessment*** link at the top of this page for more information.
Classroom: Academic Instruction, Textbook, and Tests	Academic Instruction: 1-2 hours per week Textbook: *Automotive Technology 5th Edition* by Jack Erjavec Academic Testing: *Autobody Repair Technology 4th Edition*
Certification Tests	PA Skills (NOCTI) PPG Certification Test S/P2 Safety and Pollution Prevention
Co-operative Education	Instructors recommendation - ICTC requirements - Employability skills
Work Activities	• Updating and Using Relevant Knowledge — Keeping up-to-date technically and applying new knowledge to your job. • Getting Information — Observing, receiving, and otherwise obtaining information from all relevant sources. • Inspecting Equipment, Structures, or Material — Inspecting equipment, structures, or materials to identify the cause of errors or other problems or defects. • Making Decisions and Solving Problems — Analyzing information and evaluating results to choose the best solution and solve problems. • Communicating with Supervisors, Peers, or Subordinates — Providing information to supervisors, co-workers, and subordinates by telephone, in written form, e-mail, or in person. • Handling and Moving Objects — Using hands and arms in handling, installing, positioning, and moving materials, and manipulating things. • Identifying Objects, Actions, and Events — Identifying information by categorizing, estimating, recognizing differences or similarities, and detecting changes in circumstances or events. • Monitor Processes, Materials, or Surroundings — Monitoring and reviewing information from materials, events, or the environment, to detect or assess problems. • Operating Vehicles, Mechanized Devices, or Equipment — Running, maneuvering, navigating, or driving vehicles or mechanized equipment, such as forklifts, passenger vehicles, aircraft, or water craft. • Performing General Physical Activities — Performing physical activities that require considerable use of your arms and legs and moving your whole body, such as climbing, lifting, balancing, walking, stooping, and handling of materials.
Work Environment	• Spend Time Using Your Hands to Handle, Control, or Feel Objects, Tools, or Controls — 89% responded “Continually or almost continually.” • Importance of Being Exact or Accurate — 78% responded “Extremely important.” • Spend Time Standing — 73% responded “Continually or almost continually.” • Exposed to Contaminants — 80% responded “Every day.” • Wear Common Protective or Safety Equipment such as Safety Shoes, Glasses, Gloves, Hearing Protection, Hard Hats, or Life Jackets — 56% responded “Every day.” • Exposed to Hazardous Conditions — 63% responded “Every day.” • Time Pressure — 43% responded “Every day.” • Freedom to Make Decisions — 40% responded “A lot of freedom.” • Impact of Decisions on Co-workers or Company Results — 56% responded “Very important results.” • Sounds, Noise Levels Are Distracting or Uncomfortable — 39% responded “Every day.”
Uniform Requirements	Uniform rental = $50.00 per year Hard leather shoes or boots provided by the student Safety glasses are supplied by the program area (first pair is free)
Advanced	Pennsylvania State Wide Articulation Agreement - Link to: SOAR

Standing/Articulation Agreements	

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Collision Repair Technology - Detailed Skill Assessment

GoTo Fillable PDF

Detailed Skill Assessment

If your are thinking about enrolling at ICTC, please e-mail this completed chart to bpiccirillo@ictc.edu

Name:	**School:**	**Grade:**

Academics:	**Present Level**	**If there is a gap, indicate Planned Action**
Algebra I		
Algebra II		
Geometry		
Chemistry		
Physics		
Basic Computer Skills - Hardware and Software		
11th Grade Reading and Comprehension Levels		
Oral and Written Communication		
Ecology - Impact of the POS on the Environment		
Abilities: (see glossary below)		
Oral Comprehension		
Information Ordering		
Manual Dexterity		
Near Vision		
Category Flexibility		
Control Precision		
Oral Expression		
Trunk Strength		
Visualization		
Arm-Hand Steadiness		
Depth Perception		
Far Vision		
Finger Dexterity		
Multilimb Coordination		
Problem Sensitivity		
Speech Recognition		

	Present Level	If there is a gap, indicate Planned Action
Static Strength		
Visual Color Discrimination		
Deductive Reasoning		
Extent Flexibility		
Flexibility of Closure		
Selective Attention		
Fluency of Ideas		
Reaction Time		
Speech Clarity		
Written Comprehension		
Auditory Attention		
Hearing Sensitivity		
Inductive Reasoning		
Originality		
Perceptual Speed		
Speed of Limb Movement		
Dynamic Strength		
Stamina		
Wrist-Finger Speed		
Mathematical Reasoning		
Number Facility		
Rate Control		
Response Orientation		
Speed of Closure		
Time Sharing		
Memorization		
Peripheral Vision		
Spatial Orientation		
Written Expression		
Explosive Strength		
Glare Sensitivity		
Gross Body Coordination		
Gross Body Equilibrium		

	Present Level	If there is a gap, indicate Planned Action
Night Vision		
Sound Localization		
Dynamic Flexibility		

Glossary

Oral Comprehension — The ability to listen to and understand information and ideas presented through spoken words and sentences.

Information Ordering — The ability to arrange things or actions in a certain order or pattern according to a specific rule or set of rules (e.g., patterns of numbers, letters, words, pictures, mathematical operations).

Manual Dexterity — The ability to quickly move your hand, your hand together with your arm, or your two hands to grasp, manipulate, or assemble objects.

Near Vision — The ability to see details at close range (within a few feet of the observer).

Category Flexibility — The ability to generate or use different sets of rules for combining or grouping things in different ways.

Control Precision — The ability to quickly and repeatedly adjust the controls of a machine or a vehicle to exact positions.

Oral Expression — The ability to communicate information and ideas in speaking so others will understand.

Trunk Strength — The ability to use your abdominal and lower back muscles to support part of the body repeatedly or continuously over time without 'giving out' or fatiguing.

Visualization — The ability to imagine how something will look after it is moved around or when its parts are moved or rearranged.

Arm-Hand Steadiness — The ability to keep your hand and arm steady while moving your arm or while holding your arm and hand in one position.

Depth Perception — The ability to judge which of several objects is closer or farther away from you, or to judge the distance between you and an object.

Far Vision — The ability to see details at a distance.

Finger Dexterity — The ability to make precisely coordinated movements of the fingers of one or both hands to grasp, manipulate, or assemble very small objects.

Multilimb Coordination — The ability to coordinate two or more limbs (for example, two arms, two legs, or one leg and one arm) while sitting, standing, or lying down. It does not involve performing the activities while the whole body is in motion.

Problem Sensitivity — The ability to tell when something is wrong or is likely to go wrong. It does not involve solving the problem, only recognizing there is a problem.

Speech Recognition — The ability to identify and understand the speech of another person.

Static Strength — The ability to exert maximum muscle force to lift, push, pull, or carry objects.

Visual Color Discrimination — The ability to match or detect differences between colors, including shades of color and brightness.

Deductive Reasoning — The ability to apply general rules to specific problems to produce answers that make sense.

Extent Flexibility — The ability to bend, stretch, twist, or reach with your body, arms, and/or legs.

Flexibility of Closure — The ability to identify or detect a known pattern (a figure, object, word, or sound) that is hidden in other distracting material.

Selective Attention — The ability to concentrate on a task over a period of time without being distracted.

Fluency of Ideas — The ability to come up with a number of ideas about a topic (the number of ideas is important, not their quality, correctness, or creativity).

Reaction Time — The ability to quickly respond (with the hand, finger, or foot) to a signal (sound, light, picture) when it appears.

Speech Clarity — The ability to speak clearly so others can understand you.

Written Comprehension — The ability to read and understand information and ideas presented in writing.

Auditory Attention — The ability to focus on a single source of sound in the presence of other distracting sounds.

Hearing Sensitivity — The ability to detect or tell the differences between sounds that vary in pitch and loudness.

Inductive Reasoning — The ability to combine pieces of information to form general rules or conclusions (includes finding a relationship among seemingly unrelated events).

Originality — The ability to come up with unusual or clever ideas about a given topic or situation, or to develop creative ways to solve a problem.

Perceptual Speed — The ability to quickly and accurately compare similarities and differences among sets of letters, numbers, objects, pictures, or patterns. The things to be compared may be presented at the same time or one after the other. This ability also includes comparing a presented object with a remembered object.

Speed of Limb Movement — The ability to quickly move the arms and legs.

Dynamic Strength — The ability to exert muscle force repeatedly or continuously over time. This involves muscular endurance and resistance to muscle fatigue.

Stamina — The ability to exert yourself physically over long periods of time without getting winded or out of breath.

Wrist-Finger Speed — The ability to make fast, simple, repeated movements of the fingers, hands, and wrists.

Mathematical Reasoning — The ability to choose the right mathematical methods or formulas to solve a problem.

Number Facility — The ability to add, subtract, multiply, or divide quickly and correctly.

Rate Control — The ability to time your movements or the movement of a piece of equipment in anticipation of changes in the speed and/or direction of a moving object or scene.

Response Orientation — The ability to choose quickly between two or more movements in response to two or more different signals (lights, sounds, pictures). It includes the speed with which the correct response is started with the hand, foot, or other body part.

Speed of Closure — The ability to quickly make sense of, combine, and organize information into meaningful patterns.

Time Sharing — The ability to shift back and forth between two or more activities or sources of information (such as speech, sounds, touch, or other sources).

Memorization — The ability to remember information such as words, numbers, pictures, and procedures.

Peripheral Vision — The ability to see objects or movement of objects to one's side when the eyes are looking ahead.

Spatial Orientation — The ability to know your location in relation to the environment or to know where other objects are in relation to you.

Written Expression — The ability to communicate information and ideas in writing so others will understand.

Explosive Strength — The ability to use short bursts of muscle force to propel oneself (as in jumping or sprinting), or to throw an object.

Glare Sensitivity — The ability to see objects in the presence of glare or bright lighting.

Gross Body Coordination — The ability to coordinate the movement of your arms, legs, and torso together when the whole body is in motion.

Gross Body Equilibrium — The ability to keep or regain your body balance or stay upright when in an unstable position.

Night Vision — The ability to see under low light conditions.

Sound Localization — The ability to tell the direction from which a sound originated.

Dynamic Flexibility — The ability to quickly and repeatedly bend, stretch, twist, or reach out with your body, arms, and/or legs

Computer Systems Technology

Print this Program of Study

Computer Systems Technology

***Recommendations to fully access all components of this Program of Study (POS)**:

Academic

- Advanced Computer Skills - Hardware and Software
- Algebra I
- Algebra II
- Geometry
- 11th Grade Reading and Comprehension Levels
- Oral and Written Communication
- Ecology - Impact of the POS on the Environment

Skills

- Critical Thinking — Using logic and reasoning to identify the strengths and weaknesses of alternative solutions, conclusions or approaches to problems.
- Active Listening — Giving full attention to what other people are saying, taking time to understand the points being made, asking questions as appropriate, and not interrupting at inappropriate times.
- Judgment and Decision Making — Considering the relative costs and benefits of potential actions to choose the most appropriate one.
- Reading Comprehension — Understanding written sentences and paragraphs in work related documents.
- Active Learning — Understanding the implications of new information for both current and future problem-solving and decision-making.
- Complex Problem Solving — Identifying complex problems and reviewing related information to develop and evaluate options and implement solutions.
- Monitoring — Monitoring/Assessing performance of yourself, other individuals, or organizations to make improvements or take corrective action.
- Speaking — Talking to others to convey information effectively.
- Systems Analysis — Determining how a system should work and how changes in conditions, operations, and the environment will affect outcomes.
- Troubleshooting — Determining causes of operating errors and deciding what to do about it.

Abilities

- Deductive Reasoning — The ability to apply general rules to specific problems to produce answers that make sense.
- Oral Comprehension — The ability to listen to and understand information and ideas presented through spoken words and sentences.
- Problem Sensitivity — The ability to tell when something is wrong or is likely to go wrong. It does not involve solving the problem, only recognizing there is a problem.
- Inductive Reasoning — The ability to combine pieces of information to form general rules or conclusions (includes finding a relationship among seemingly unrelated events).
- Oral Expression — The ability to communicate

Industry Certifications Available to Qualified Students:

CompTIA A+ | CompTIA Network+ | CompTIA Server+ | CompTIA Security+

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PDE: Programs of Study Framework

information and ideas in speaking so others will understand.
- Written Comprehension — The ability to read and understand information and ideas presented in writing.
- Information Ordering — The ability to arrange things or actions in a certain order or pattern according to a specific rule or set of rules (e.g., patterns of numbers, letters, words, pictures, mathematical operations).
- Near Vision — The ability to see details at close range (within a few feet of the observer).
- Speech Clarity — The ability to speak clearly so others can understand you.
- Speech Recognition — The ability to identify and understand the speech of another person.

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SOAR Students Occupationally and Academically Ready

Link to SOAR

This document is intended to provide an overview of the program and is to be used as an informative tool to assist districts, parents, and students in the decision making process for program placement and transition planning. It is not intended to be and should not be used as a screening tool for student placement.

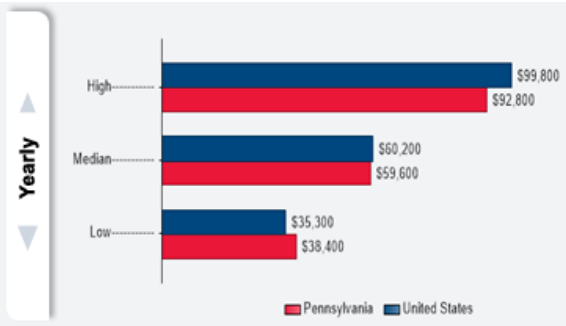
Computer Systems Technology

CIP Code

11.0901 Computer Systems Networking and Telecommunications - Employment Outlook

This is an instructional program that focuses on the design, implementation and management of linked systems of computers, peripherals and associated software and prepares individuals with the technical skills required to support networks and network users. This program includes instruction in networks technologies and standards: system design, architecture, operating systems, security, communications protocols, client support, messaging services, network management, trouble shooting and server optimization.

Those completing the program may be employed as a network administrator, network specialist, network technician, webmaster, client services analyst (end user) or network operator.

Median wages (2013)	$28.93 hourly, $60,180 annual
State wages	 • "High" indicates 90% of workers earn less and 10% earn more. • "Median" indicates 50% of workers earn less and 50% earn more. • "Low" indicates 10% of workers earn less and 90% earn more. • "N/A" indicates the data is not available. **Notes:** Yearly wage data applies only to workers with full-time, year-round schedules. For salary information for part-time or part-year workers, use hourly wage data.
Employment (2012)	175,000 employees
Projected growth (2012-2022)	Slower than average (3% to 7%)
Projected job openings (2012-2022)	39,600

State trends

United States	Employment		Percent Change	Projected Annual Job Openings
	2012	2022		
Computer Network Support Specialists	174,600	186,800	+7%	3,960
Pennsylvania	**Employment**		**Percent Change**	**Projected Annual Job Openings**
	2012	**2022**		
Computer Network Support Specialists	5,680	6,280	+11%	150

Projected Annual Job Openings refers to the average annual job openings due to growth and net replacement.

http://www.onetonline.org/link/summary/15-1152.00

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Computer Systems Technology

CIP Code: 11.0901	COMPUTER SYSTEMS NETWORKING AND TELECOMMUNICATIONS - - Detailed Program Description
Objective of this Program of Study	The Computer Systems Technology (CST) program at the ICTC is designed to provide students with training for relevant certifications in the Information technology (IT) field. Employers welcome potential employees who have professional credentials or degrees. CST helps students gain the practical experience and knowledge needed to pass entry-level certification exams such as: A+, Network+ Server+, and Security+.
Occupational Objectives Offered	*Computer Programmer *Computer Systems Engineer *Computer/Network Systems Administrator/Manager *Security Analyst *Security Specialist *System Network Analyst * - Requires post-secondary training
Planned Courses To view the task list for this Program of Study use this link: POS Framework	Demonstrate Knowledge of Personal and Environmental Safety Demonstrate Knowledge of Computer Hardware Demonstrate Knowledge of Troubleshooting, Repair and Maintenance Demonstrate Knowledge of Operating Systems and Software Security (PC) Introduction to Networking Communication and Professionalism Demonstrate Knowledge of Network Technologies Demonstrate Knowledge of Network Media and Topologies Demonstrate Knowledge of Network Devices Demonstrate Knowledge of Network Management Demonstrate Knowledge of Network Tools and Troubleshooting Security Fundamentals Server Hardware Installation and configuration of NOSs Disaster Planning and Data Recovery Systems Security (PC) Network Infrastructure Access Control (PC) Assessments and Audits (PC) Cryptography (PC) Organizational Security (PC) Expect all planned courses in this Program of Study to include an academic component. Homework and testing will require skills in: • Mathematics • Reading • Writing • Science • Research • Oral presentation • Computer use Click on the ***Detailed Skill Assessment*** link at the top of this page for more information.
Classroom: Academic Instruction, Textbook, and Tests	Academic Instruction: 1 hour per day Textbooks:*A+ Guide to Managing and Maintaining Your PC 7th Edition; Security+ Guide to Network Security Fundamentals Fourth Edition; Network+ Guide to Networks Sixth Edition; Server+ Guide to Advanced Hardware Support 1st Edition*

	Academic Testing: 1-2 per week
Certification Tests	PA Skills (NOCTI) CompTIA A+ CompTIA Network+ CompTIA Server+ CompTIA Security+ *
Co-operative Education	Available to seniors on instructor's recommendation
Work Activities	• Interacting With Computers — Using computers and computer systems (including hardware and software) to program, write software, set up functions, enter data, or process information. • Updating and Using Relevant Knowledge — Keeping up-to-date technically and applying new knowledge to your job. • Getting Information — Observing, receiving, and otherwise obtaining information from all relevant sources. • Communicating with Supervisors, Peers, or Subordinates — Providing information to supervisors, co-workers, and subordinates by telephone, in written form, e-mail, or in person. • Establishing and Maintaining Interpersonal Relationships — Developing constructive and cooperative working relationships with others, and maintaining them over time. • Making Decisions and Solving Problems — Analyzing information and evaluating results to choose the best solution and solve problems. • Analyzing Data or Information — Identifying the underlying principles, reasons, or facts of information by breaking down information or data into separate parts. • Processing Information — Compiling, coding, categorizing, calculating, tabulating, auditing, or verifying information or data. • Organizing, Planning, and Prioritizing Work — Developing specific goals and plans to prioritize, organize, and accomplish your work. • Evaluating Information to Determine Compliance with Standards — Using relevant information and individual judgment to determine whether events or processes comply with laws, regulations, or standards.
Work Environment	• Electronic Mail — 94% responded “Every day.” • Telephone — 93% responded “Every day.” • Indoors, Environmentally Controlled — 84% responded “Every day.” • Face-to-Face Discussions — 80% responded “Every day.” • Contact With Others — 79% responded “Constant contact with others.” • Work With Work Group or Team — 68% responded “Extremely important.” • Importance of Being Exact or Accurate — 64% responded “Extremely important.” • Structured versus Unstructured Work — 57% responded “Some freedom.” • Freedom to Make Decisions — 49% responded “A lot of freedom.” • Time Pressure — 40% responded “Once a week or more but not every day.”
Uniform Requirements	Clean Casual attire
Advanced Standing/Articulation Agreements	Pennsylvania State Wide Articulation Agreement - Link to: SOAR Dual Enrollment – Pennsylvania Highlands Community College

Computer Systems Technology - Detailed Skill Assessment

GoTo Fillable PDF

Detailed Skill Assessment

If your are thinking about enrolling at ICTC, please e-mail this completed chart to bpiccirillo@ictc.edu

Name:	**School:**	**Grade:**

Academics:	**Present Level**	**If there is a gap, indicate Planned Action**
Advanced Computer Skills - Hardware/Software		
Algebra I		
Algebra II		
Geometry		
Physics		
11th Grade Reading and Comprehension Levels		
Oral and Written Communication		
Ecology - Impact of the POS on the Environment		
Abilities: (see glossary below)		
Deductive Reasoning		
Oral Comprehension		
Problem Sensitivity		
Inductive Reasoning		
Oral Expression		
Written Comprehension		
Information Ordering		
Near Vision		
Speech Clarity		
Speech Recognition		
Written Expression		
Selective Attention		
Category Flexibility		
Finger Dexterity		
Flexibility of Closure		
Fluency of Ideas		
Visualization		

	Present Level	If there is a gap, indicate Planned Action
Far Vision		
Arm-Hand Steadiness		
Originality		
Perceptual Speed		
Speed of Closure		
Memorization		
Visual Color Discrimination		
Manual Dexterity		
Mathematical Reasoning		
Multilimb Coordination		
Auditory Attention		
Control Precision		
Number Facility		
Time Sharing		
Depth Perception		
Extent Flexibility		
Hearing Sensitivity		
Static Strength		
Wrist-Finger Speed		
Sound Localization		
Spatial Orientation		
Trunk Strength		

Glossary

Deductive Reasoning — The ability to apply general rules to specific problems to produce answers that make sense.

Oral Comprehension — The ability to listen to and understand information and ideas presented through spoken words and sentences.

Problem Sensitivity — The ability to tell when something is wrong or is likely to go wrong. It does not involve solving the problem, only recognizing there is a problem.

Inductive Reasoning — The ability to combine pieces of information to form general rules or conclusions (includes finding a relationship among seemingly unrelated events).

Oral Expression — The ability to communicate information and ideas in speaking so others will understand.

Written Comprehension — The ability to read and understand information and ideas presented in writing.

Information Ordering — The ability to arrange things or actions in a certain order or pattern according to a specific rule or set of rules (e.g., patterns of numbers, letters, words, pictures, mathematical operations).

Near Vision — The ability to see details at close range (within a few feet of the observer).

Speech Clarity — The ability to speak clearly so others can understand you.

Speech Recognition — The ability to identify and understand the speech of another person.

Written Expression — The ability to communicate information and ideas in writing so others will understand.

Selective Attention — The ability to concentrate on a task over a period of time without being distracted.

Category Flexibility — The ability to generate or use different sets of rules for combining or grouping things in different ways.

Finger Dexterity — The ability to make precisely coordinated movements of the fingers of one or both hands to grasp, manipulate, or assemble very small objects.

Flexibility of Closure — The ability to identify or detect a known pattern (a figure, object, word, or sound) that is hidden in other distracting material.

Fluency of Ideas — The ability to come up with a number of ideas about a topic (the number of ideas is important, not their quality, correctness, or creativity).

Visualization — The ability to imagine how something will look after it is moved around or when its parts are moved or rearranged.

Far Vision — The ability to see details at a distance.

Arm-Hand Steadiness — The ability to keep your hand and arm steady while moving your arm or while holding your arm and hand in one position.

Originality — The ability to come up with unusual or clever ideas about a given topic or situation, or to develop creative ways to solve a problem.

Perceptual Speed — The ability to quickly and accurately compare similarities and differences among sets of letters, numbers, objects, pictures, or patterns. The things to be compared may be presented at the same time or one after the other. This ability also includes comparing a presented object with a remembered object.

Speed of Closure — The ability to quickly make sense of, combine, and organize information into meaningful patterns.

Memorization — The ability to remember information such as words, numbers, pictures, and procedures.

Visual Color Discrimination — The ability to match or detect differences between colors, including shades of color and brightness.

Manual Dexterity — The ability to quickly move your hand, your hand together with your arm, or your two hands to grasp, manipulate, or assemble objects.

Mathematical Reasoning — The ability to choose the right mathematical methods or formulas to solve a problem.

Multilimb Coordination — The ability to coordinate two or more limbs (for example, two arms, two legs, or one leg and one arm) while sitting, standing, or lying down. It does not involve performing the activities while the whole body is in motion.

Auditory Attention — The ability to focus on a single source of sound in the presence of other distracting sounds.

Control Precision — The ability to quickly and repeatedly adjust the controls of a machine or a vehicle to exact positions.

Number Facility — The ability to add, subtract, multiply, or divide quickly and correctly.

Time Sharing — The ability to shift back and forth between two or more activities or sources of information (such as speech, sounds, touch, or other sources).

Depth Perception — The ability to judge which of several objects is closer or farther away from you, or to judge the distance between you and an object.

Extent Flexibility — The ability to bend, stretch, twist, or reach with your body, arms, and/or legs.

Hearing Sensitivity — The ability to detect or tell the differences between sounds that vary in pitch and loudness.

Static Strength — The ability to exert maximum muscle force to lift, push, pull, or carry objects.

Wrist-Finger Speed — The ability to make fast, simple, repeated movements of the fingers, hands, and wrists.

Sound Localization — The ability to tell the direction from which a sound originated.

Spatial Orientation — The ability to know your location in relation to the environment or to know where other objects are in relation to you.

Trunk Strength — The ability to use your abdominal and lower back muscles to support part of the body repeatedly or continuously over time without 'giving out' or fatiguing

Cosmetology

Print this Program of Study

Cosmetology

***Recommendations to fully access all components of this Tech Prep Program**:

Academic

- Chemistry
- Algebra I
- Algebra II
- Geometry
- Biology
- 11th Grade Reading and Comprehension Levels
- Oral and Written Communication
- Basic Computer Skills

Skills

- Active Listening — Giving full attention to what other people are saying, taking time to understand the points being made, asking questions as appropriate, and not interrupting at inappropriate times.
- Service Orientation — Actively looking for ways to help people.
- Critical Thinking — Using logic and reasoning to identify the strengths and weaknesses of alternative solutions, conclusions or approaches to problems.
- Speaking — Talking to others to convey information effectively.
- Active Learning — Understanding the implications of new information for both current and future problem-solving and decision-making.
- Judgment and Decision Making — Considering the relative costs and benefits of potential actions to choose the most appropriate one.
- Social Perceptiveness — Being aware of others' reactions and understanding why they react as they do.
- Complex Problem Solving — Identifying complex problems and reviewing related information to develop and evaluate options and implement solutions.
- Coordination — Adjusting actions in relation to others' actions.
- Monitoring — Monitoring/Assessing performance of yourself, other individuals, or organizations to make improvements or take corrective action.

Abilities

- Arm-Hand Steadiness — The ability to keep your hand and arm steady while moving your arm or while holding your arm and hand in one position.
- Manual Dexterity — The ability to quickly move your hand, your hand together with your arm, or your two hands to grasp, manipulate, or assemble objects.
- Finger Dexterity — The ability to make precisely coordinated movements of the fingers of one or both hands to grasp, manipulate, or assemble very small objects.
- Oral Comprehension — The ability to listen to and understand information and ideas presented through spoken words and sentences.
- Near Vision — The ability to see details at close range (within a few feet of the observer).

Industry Certifications Available to Qualified Students:

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pennsylvania
DEPARTMENT OF EDUCATION

PDE: Programs of Study Framework

- Oral Expression — The ability to communicate information and ideas in speaking so others will understand.
- Originality — The ability to come up with unusual or clever ideas about a given topic or situation, or to develop creative ways to solve a problem.
- Speech Recognition — The ability to identify and understand the speech of another person.
- Visualization — The ability to imagine how something will look after it is moved around or when its parts are moved or rearranged.
- Fluency of Ideas — The ability to come up with a number of ideas about a topic (the number of ideas is important, not their quality, correctness, or creativity).

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SOAR Students Occupationally and Academically Ready

Link to SOAR

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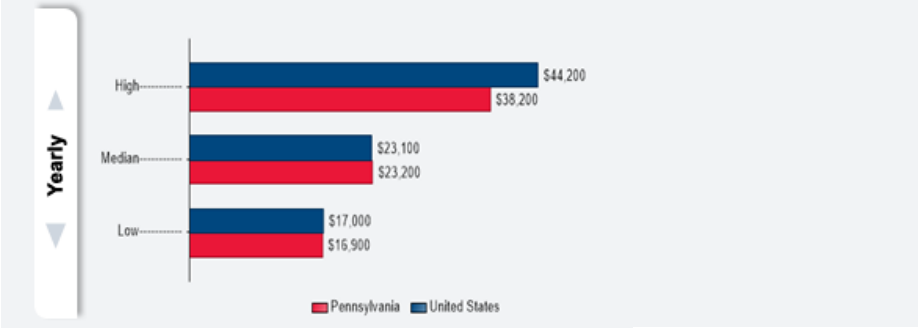
Cosmetology

CIP Code
12.0401 Cosmetology/Cosmetologist, General - Employment Outlook
Provide beauty services, such as shampooing, cutting, coloring, and styling hair, and massaging and treating scalp. May apply makeup, dress wigs, perform hair removal, and provide nail and skin care services.

Median wages (2013)	$11.12 hourly, $23,140 annual
State wages	 • "High" indicates 90% of workers earn less and 10% earn more. • "Median" indicates 50% of workers earn less and 50% earn more. • "Low" indicates 10% of workers earn less and 90% earn more. • "N/A" indicates the data is not available. **Notes:** Yearly wage data applies only to workers with full-time, year-round schedules. For salary information for part-time or part-year workers, use hourly wage data.
Employment (2012)	611,000 employees
Projected growth (2012-2022)	Average (8% to 14%)
Projected job openings (2012-2022)	220,600

State trends

United States	Employment		Percent Change	Projected Annual Job Openings
	2012	2022		
Hairdressers, Hairstylists, and Cosmetologists	611,200	688,700	+13%	22,060

Pennsylvania	Employment		Percent Change	Projected Annual Job Openings
	2012	2022		
Hairdressers, Hairstylists, and Cosmetologists	37,750	42,010	+11%	1,310

Projected Annual Job Openings refers to the average annual job openings due to growth and net replacement.

http://www.onetonline.org/link/summary/39-5012.00

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Cosmetology

CIP Code: 12.0401	COSMETOLOGY/COSMETOLOGIST, GENERAL - Detailed Program Description
Objective of this Tech Prep Program	The Cosmetology field combines talent, art, science and business, leading to a choice of rewarding careers. The Indiana County Technology Center (ICTC) Cosmetology (COSMO) program offers a state-of-the-art facility meeting all licensing requirements of the Pennsylvania State Board of Cosmetology. COSMO students learn anatomy, cosmetic chemistry, bacteriology and sanitation. Students are taught the professional hair, skin, and nail procedures. In the student-operated patron clinic, COSMO students gain practical work experience and essential communication skills as they cut, style and color the customer's hair; apply skin care treatments and makeup; perform manicures and pedicures; manage the salon including scheduling appointments, ordering supplies; stocking inventory; and selling products. All areas of this licensed profession are taught for a successful transition to the Cosmetology field. The COSMO program prepares students for the Pennsylvania State Board of Cosmetology License exams and provides a foundation for further training in business management, education, electrolysis, advanced aesthetics and nail technology. Enrolled students will have the opportunity to earn the required 1,250 hours necessary to attain a cosmetology license.
Occupational Objectives Offered	Hairdresser/Hairstylist/Cosmetologist *Vocational Education Teachers - Secondary *Vocational Education Teachers – Postsecondary *General and Operations Manager *Salon Owner * - Requires post-secondary training
Planned Courses To view the task list for this Program of Study use this link: POS Framework	Identify Principles of Cosmetology Science Demonstrate Professional Practices Care for Hair and Scalp Manicuring Perm Wave Chemical Relaxing Facials Treatments Superfluous Hair Removal Hair Cutting Hair Coloring Hair Styling Expect all planned courses in this Program of Study to include an academic component. Homework and testing will require skills in: • Mathematics • Reading • Writing • Science • Research • Oral presentation • Computer use Click on the ***Detailed Skill Assessment*** link at the top of this page for more information.
Classroom: Academic Instruction, Textbook, and Tests	Academic Instruction: 1-2 hours per day Textbook:*Milady's Standard Cosmetology 2012 Edition* Academic Testing: 1-3 per week
Certification Tests	PA Skills (NOCTI) State Board of Cosmetology Licensing Exam

Clinical Hours	Clinical hours are earned inside the Program of Study
Work Activities	• Performing for or Working Directly with the Public — Performing for people or dealing directly with the public. This includes serving customers in restaurants and stores, and receiving clients or guests. • Thinking Creatively — Developing, designing, or creating new applications, ideas, relationships, systems, or products, including artistic contributions. • Updating and Using Relevant Knowledge — Keeping up-to-date technically and applying new knowledge to your job. • Assisting and Caring for Others — Providing personal assistance, medical attention, emotional support, or other personal care to others such as coworkers, customers, or patients. • Getting Information — Observing, receiving, and otherwise obtaining information from all relevant sources. • Establishing and Maintaining Interpersonal Relationships — Developing constructive and cooperative working relationships with others, and maintaining them over time. • Performing General Physical Activities — Performing physical activities that require considerable use of your arms and legs and moving your whole body, such as climbing, lifting, balancing, walking, stooping, and handling of materials. • Making Decisions and Solving Problems — Analyzing information and evaluating results to choose the best solution and solve problems. • Provide Consultation and Advice to Others — Providing guidance and expert advice to management or other groups on technical, systems-, or process-related topics. • Handling and Moving Objects — Using hands and arms in handling, installing, positioning, and moving materials, and manipulating things.
Work Environment	• Freedom to Make Decisions — 100% responded “A lot of freedom.” • Structured versus Unstructured Work — 100% responded “A lot of freedom.” • Face-to-Face Discussions — 96% responded “Every day.” • Spend Time Standing — 92% responded “Continually or almost continually.” • Telephone — 92% responded “Every day.” • Contact With Others — 96% responded “Constant contact with others.” • Spend Time Making Repetitive Motions — 81% responded “Continually or almost continually.” • Spend Time Using Your Hands to Handle, Control, or Feel Objects, Tools, or Controls — 82% responded “Continually or almost continually.” • Deal With External Customers — 79% responded “Extremely important.” • Exposed to Contaminants — 78% responded “Every day.”
Uniform Requirements	Purchased from ICTC (approx. $385.00): • Smock and pants • Kit • Textbook Student supplied: • Plain white cotton turtle neck or plain white cotton crew neck tee shirt under the uniform or smock • White neutral undergarments • White/neutral socks • All white leather shoes
Advanced Standing/Articulation Agreements	Douglas Education Center Indiana Cosmetology Academy

Cosmetology -
Detailed Skill Assessment

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Detailed Skill Assessment

If your are thinking about enrolling at ICTC, please e-mail this completed chart to bpiccirillo@ictc.edu

Name:	**School:**	**Grade:**

Academics:	**Present Level**	**If there is a gap, indicate Planned Action**
Chemistry		
Algebra I		
Algebra II		
Geometry		
Biology		
11th Grade Reading and Comprension Levels		
Oral and Written Communication		
Basic Computer Skills - Software		
Abilities: (see glossary below)		
Arm-Hand Steadiness		
Manual Dexterity		
Finger Dexterity		
Oral Comprehension		
Near Vision		
Oral Expression		
Originality		
Speech Recognition		
Visualization		
Fluency of Ideas		
Speech Clarity		
Trunk Strength		
Multilimb Coordination		
Problem Sensitivity		
Selective Attention		
Visual Color Discrimination		
Deductive Reasoning		

	Present Level	If there is a gap, indicate Planned Action
Inductive Reasoning		
Extent Flexibility		
Flexibility of Closure		
Information Ordering		
Time Sharing		
Written Comprehension		
Category Flexibility		
Control Precision		
Written Expression		
Auditory Attention		
Mathematical Reasoning		
Perceptual Speed		
Far Vision		
Stamina		
Depth Perception		
Dynamic Strength		
Speed of Closure		
Number Facility		
Wrist-Finger Speed		
Memorization		
Static Strength		
Hearing Sensitivity		
Gross Body Coordination		
Gross Body Equilibrium		
Glare Sensitivity		
Speed of Limb Movement		

Glossary

Arm-Hand Steadiness — The ability to keep your hand and arm steady while moving your arm or while holding your arm and hand in one position.

Manual Dexterity — The ability to quickly move your hand, your hand together with your arm, or your two hands to grasp, manipulate, or assemble objects.

Finger Dexterity — The ability to make precisely coordinated movements of the fingers of one or both hands to grasp, manipulate, or assemble very small objects.

Oral Comprehension — The ability to listen to and understand information and ideas presented through spoken words and sentences.

Near Vision — The ability to see details at close range (within a few feet of the observer).

Oral Expression — The ability to communicate information and ideas in speaking so others will understand.

Originality — The ability to come up with unusual or clever ideas about a given topic or situation, or to develop creative ways to solve a problem.

Speech Recognition — The ability to identify and understand the speech of another person.

Visualization — The ability to imagine how something will look after it is moved around or when its parts are moved or rearranged.

Fluency of Ideas — The ability to come up with a number of ideas about a topic (the number of ideas is important, not their quality, correctness, or creativity).

Speech Clarity — The ability to speak clearly so others can understand you.

Trunk Strength — The ability to use your abdominal and lower back muscles to support part of the body repeatedly or continuously over time without 'giving out' or fatiguing.

Multilimb Coordination — The ability to coordinate two or more limbs (for example, two arms, two legs, or one leg and one arm) while sitting, standing, or lying down. It does not involve performing the activities while the whole body is in motion.

Problem Sensitivity — The ability to tell when something is wrong or is likely to go wrong. It does not involve solving the problem, only recognizing there is a problem.

Selective Attention — The ability to concentrate on a task over a period of time without being distracted.

Visual Color Discrimination — The ability to match or detect differences between colors, including shades of color and brightness.

Deductive Reasoning — The ability to apply general rules to specific problems to produce answers that make sense.

Inductive Reasoning — The ability to combine pieces of information to form general rules or conclusions (includes finding a relationship among seemingly unrelated events).

Extent Flexibility — The ability to bend, stretch, twist, or reach with your body, arms, and/or legs.

Flexibility of Closure — The ability to identify or detect a known pattern (a figure, object, word, or sound) that is hidden in other distracting material.

Information Ordering — The ability to arrange things or actions in a certain order or pattern according to a specific rule or set of rules (e.g., patterns of numbers, letters, words, pictures, mathematical operations).

Time Sharing — The ability to shift back and forth between two or more activities or sources of information (such as speech, sounds, touch, or other sources).

Written Comprehension — The ability to read and understand information and ideas presented in writing.

Category Flexibility — The ability to generate or use different sets of rules for combining or grouping things in different ways.

Control Precision — The ability to quickly and repeatedly adjust the controls of a machine or a vehicle to exact positions.

Written Expression — The ability to communicate information and ideas in writing so others will understand.

Auditory Attention — The ability to focus on a single source of sound in the presence of other distracting sounds.

Mathematical Reasoning — The ability to choose the right mathematical methods or formulas to solve a problem.

Perceptual Speed — The ability to quickly and accurately compare similarities and differences among sets of letters, numbers, objects, pictures, or patterns. The things to be compared may be presented at the same time or one after the other. This ability also includes comparing a presented object with a remembered object.

Far Vision — The ability to see details at a distance.

Stamina — The ability to exert yourself physically over long periods of time without getting winded or out of breath.

Depth Perception — The ability to judge which of several objects is closer or farther away from you, or to judge the distance between you and an object.

Dynamic Strength — The ability to exert muscle force repeatedly or continuously over time. This involves muscular endurance and resistance to muscle fatigue.

Speed of Closure — The ability to quickly make sense of, combine, and organize information into meaningful patterns.

Number Facility — The ability to add, subtract, multiply, or divide quickly and correctly.

Wrist-Finger Speed — The ability to make fast, simple, repeated movements of the fingers, hands, and wrists.

Memorization — The ability to remember information such as words, numbers, pictures, and procedures.

Static Strength — The ability to exert maximum muscle force to lift, push, pull, or carry objects.

Hearing Sensitivity — The ability to detect or tell the differences between sounds that vary in pitch and loudness.

Gross Body Coordination — The ability to coordinate the movement of your arms, legs, and torso together when the whole body is in motion.

Gross Body Equilibrium — The ability to keep or regain your body balance or stay upright when in an unstable position.

Glare Sensitivity — The ability to see objects in the presence of glare or bright lighting.

Speed of Limb Movement — The ability to quickly move the arms and legs.

Culinary Arts

Print this Program of Study

Culinary Arts

***Recommendations to fully access all components of this Program of Study**:

Academic

- Algebra I
- Algebra II
- Geometry
- Biology
- Chemistry
- 11th Grade Reading and Comprehension Levels
- Oral and Written Communication
- Basic Computer Skills

Skills

- Time Management — Managing one's own time and the time of others.
- Monitoring — Monitoring/Assessing performance of yourself, other individuals, or organizations to make improvements or take corrective action.
- Judgment and Decision Making — Considering the relative costs and benefits of potential actions to choose the most appropriate one.
- Operation Monitoring — Watching gauges, dials, or other indicators to make sure a machine is working properly.
- Quality Control Analysis — Conducting tests and inspections of products, services, or processes to evaluate quality or performance.
- Reading Comprehension — Understanding written sentences and paragraphs in work related documents.
- Service Orientation — Actively looking for ways to help people.
- Speaking — Talking to others to convey information effectively.
- Active Learning — Understanding the implications of new information for both current and future problem-solving and decision-making.
- Active Listening — Giving full attention to what other people are saying, taking time to understand the points being made, asking questions as appropriate, and not interrupting at inappropriate times.

Abilities

- Information Ordering — The ability to arrange things or actions in a certain order or pattern according to a specific rule or set of rules (e.g., patterns of numbers, letters, words, pictures, mathematical operations).
- Near Vision — The ability to see details at close range (within a few feet of the observer).
- Oral Comprehension — The ability to listen to and understand information and ideas presented through spoken words and sentences.
- Problem Sensitivity — The ability to tell when something is wrong or is likely to go wrong. It does not involve solving the problem, only recognizing there is a problem.
- Arm-Hand Steadiness — The ability to keep your hand and arm steady while moving your arm or while holding your arm and hand in one position.
- Manual Dexterity — The ability to quickly move your

Industry Certifications Available to Qualified Students:

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American Culinary Federation Education Foundation

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pennsylvania
DEPARTMENT OF EDUCATION

PDE: Programs of Study Framework

hand, your hand together with your arm, or your two hands to grasp, manipulate, or assemble objects.
- Speech Clarity — The ability to speak clearly so others can understand you.
- Time Sharing — The ability to shift back and forth between two or more activities or sources of information (such as speech, sounds, touch, or other sources).
- Deductive Reasoning — The ability to apply general rules to specific problems to produce answers that make sense.
- Inductive Reasoning — The ability to combine pieces of information to form general rules or conclusions (includes finding a relationship among seemingly unrelated events).

*

Link to SOAR

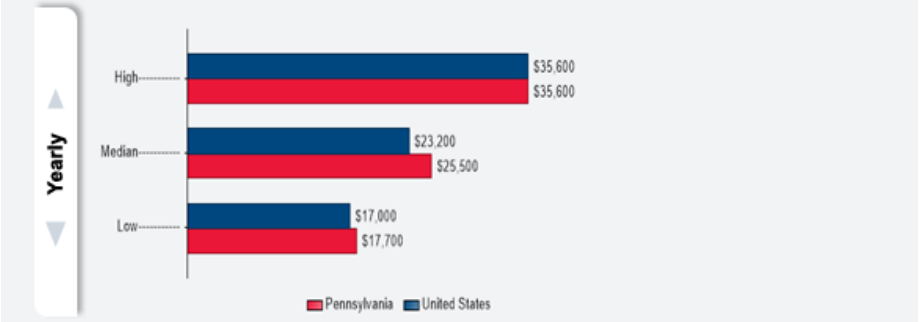
This document is intended to provide an overview of the program and is to be used as an informative tool to assist districts, parents, and students in the decision making process for program placement and transition planning. It is not intended to be and should not be used as a screening tool for student placement.

Culinary Arts

CIP Code

12.0508 Institutional Food Workers - Employment Outlook

This is an instructional program that prepares students for employment related to institutional, commercial or self-owned food establishments or other food industry occupations. Instruction and specialized learning experiences include theory, laboratory and work experience related to planning, selecting, preparing and serving of quantity food and food products; nutritive values; use and care of commercial equipment; safety; and sanitation precautions. Instructional skills are provided to individuals desiring to become employed in all areas of the food service industry at entry level.

Median wages (2013)	$11.14 hourly, $23,170 annual
State wages	 • "High" indicates 90% of workers earn less and 10% earn more. • "Median" indicates 50% of workers earn less and 50% earn more. • "Low" indicates 10% of workers earn less and 90% earn more. • "N/A" indicates the data is not available. **Notes:** Yearly wage data applies only to workers with full-time, year-round schedules. For salary information for part-time or part-year workers, use hourly wage data.
Employment (2012)	409,000 employees
Projected growth (2012-2022)	Average (8% to 14%)
Projected job openings (2012-2022)	134,600

State trends

United States	Employment		Percent Change	Projected Annual Job Openings
	2012	2022		
Cooks, Institution and Cafeteria	408,900	462,800	+13%	13,460
Pennsylvania	**Employment**		**Percent Change**	**Projected Annual Job Openings**
	2012	**2022**		
Cooks, Institution and Cafeteria	20,310	22,320	+10%	600

Projected Annual Job Openings refers to the average annual job openings due to growth and net replacement.

http://www.onetonline.org/link/summary/35-2012.00

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Culinary Arts

CIP Code: 12.0508	INSTITUTIONAL FOOD WORKERS - Detailed Program Description
Objective of this Program of Study	Culinary Arts (CART) offers a wide range of career opportunities for those who enjoy preparing exciting cuisines and have an eye toward business ventures. This comprehensive program prepares students for positions in the rapidly-growing food service industry. The students' education is enhanced by participating in various catering projects and the operation of our full-service restaurant ---- these hands-on learning experiences help students refine table service and dining room management techniques. Career opportunities in restaurants, resorts, country clubs, hotels and motels as well as on cruise ships and airlines are abundant. According to the National Restaurant Association, the food service industry and career opportunities are experiencing rapid growth in all segments of the industry. They expect to employ 12.5 million persons by the end of the year -10 percent of the total work force in the United States. Sanitation is one of the most important areas of concern in the restaurant industry today. In our Culinary Arts program the student can receive their ServSafe Certification which is a requirement in the food servoice industry.
Occupational Objectives Offered	Cook Pastry Chef * Food Service Manager * Chef Baker * - Requires post-secondary training
Planned Courses To view the task list for this Program of Study use this link: POS Framework	DEMONSTRATE SAFETY PROCEDURES DEMONSTRATE SANITATION PROCEDURES DEMONSTRATE SKILL IN GARDE MANGER DEMONSTRATE USE AND CARE OF CUTTING TOOLS & UTENSILS DEMONSTRATE USE AND CARE OF MECHANICAL FOOD PREPARATION EQUIPMENT DEMONSTRATE STANDARDIZED RECIPES DEMONSTRATE KNOWLEDGE OF NUTRITION PREPARE VEGETABLES AND FRUITS PREPARE PASTA AND RICE PREPARE SALADS, FRUITS, AND SALAD DRESSINGS PREPARE STOCKS, SOUPS AND SAUCES IDENTIFY PREPARE AND COOK MEATS DEMONSTRATE SKILL IN BASIC BAKING PRACTICES PLAN AND COST MENUS PERFORM "FRONT- OF- THE- HOUSE" OPERATIONS DEMONSTRATE KNOWLEDGE OF THE FOOD SERVICE INDUSTRY PURCHASING, RECEIVING AND STORAGE PROCEDURES PREPARE BREAKFAST FOODS PREPARE CHEESE PERFORM INSTITUTIONAL FOOD SERVICE PROCEDURES PERFORM DINING ROOM SERVICE PURCHASING, RECEIVING AND STORAGE PROCEDURES DEMONSTRATE KNOWLEDGE OF BEVERAGES PROPERLY ADD SEASONINGS TO FOODS DEMONSTRATE SKILL IN THE USE OF A PERSONAL COMPUTER VIRTUAL BUSINESS RESTAURANT HUMAN RELATIONS SKILLS PREPARE INTERNATIONAL CUISINE Expect all planned courses in this Program of Study to include an academic component. Homework and testing will require skills in: • Mathematics

	• Reading • Writing • Science • Research • Oral presentation • Computer use Click on the ***Detailed Skill Assessment*** link at the top of this page for more information.
Classroom: Academic Instruction, Textbook, and Tests	Academic Instruction: 3 hours per week Textbooks: *Becoming a Restaurant and Foodservice Professional; On Cooking: A Textbook of Culinary Fundamentals; On Baking: A Textbook of Baking & Pastry; Serve Safe Essentials* Academic Testing: 1 per week
Certification Tests	PA Skills (NOCTI) ACF Junior Culinarian Certification ServSafe
Co-operative Education	Available to seniors on instructor's recommendation
Work Activities	• Getting Information — Observing, receiving, and otherwise obtaining information from all relevant sources. • Establishing and Maintaining Interpersonal Relationships — Developing constructive and cooperative working relationships with others, and maintaining them over time. • Evaluating Information to Determine Compliance with Standards — Using relevant information and individual judgment to determine whether events or processes comply with laws, regulations, or standards. • Communicating with Supervisors, Peers, or Subordinates — Providing information to supervisors, co-workers, and subordinates by telephone, in written form, e-mail, or in person. • Identifying Objects, Actions, and Events — Identifying information by categorizing, estimating, recognizing differences or similarities, and detecting changes in circumstances or events. • Inspecting Equipment, Structures, or Material — Inspecting equipment, structures, or materials to identify the cause of errors or other problems or defects. • Monitor Processes, Materials, or Surroundings — Monitoring and reviewing information from materials, events, or the environment, to detect or assess problems. • Organizing, Planning, and Prioritizing Work — Developing specific goals and plans to prioritize, organize, and accomplish your work. • Making Decisions and Solving Problems — Analyzing information and evaluating results to choose the best solution and solve problems. • Handling and Moving Objects — Using hands and arms in handling, installing, positioning, and moving materials, and manipulating things.
Work Environment	• Spend Time Standing — 85% responded “Continually or almost continually.” • Time Pressure — 83% responded “Every day.” • Work With Work Group or Team — 67% responded “Extremely important.” • Contact With Others — 65% responded “Constant contact with others.” • Responsible for Others' Health and Safety — 49% responded “Very high responsibility.” • Responsibility for Outcomes and Results — 63% responded “Very high responsibility.” • Face-to-Face Discussions — 55% responded “Every day.” • Deal With External Customers — 27% responded “Very important.” • Physical Proximity — 44% responded “Very close (near touching).” • Indoors, Environmentally Controlled — 75% responded “Every day.”
Uniform Requirements	Uniform Rental: $70.00 per year Non-slip shoes that cover the entire foot provided by the student
Advanced Standing/Articulation Agreements	Pennsylvania State Wide Articulation Agreement - Link to: SOAR Internship at Nemacolin Woodlands Resort through Westmoreland County Community College

Culinary Arts -
Detailed Skill Assessment

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Detailed Skill Assessment

If your are thinking about enrolling at ICTC, please e-mail this completed chart to bpiccirillo@ictc.edu

Name:	**School:**	**Grade:**

Academics:	**Present Level**	**If there is a gap, indicate Planned Action**
Algebra I		
Algebra II		
Geometry		
Chemistry		
11th Grade Reading and Comprension Levels		
Oral and Written Communication		
Basic Computer Skills - Software		
Ecology - Impact of the POS on the Environment		
Abilities: (see glossary below)		
Information Ordering		
Near Vision		
Oral Comprehension		
Problem Sensitivity		
Arm-Hand Steadiness		
Manual Dexterity		
Speech Clarity		
Time Sharing		
Deductive Reasoning		
Inductive Reasoning		
Oral Expression		
Selective Attention		
Speech Recognition		
Written Comprehension		
Category Flexibility		
Control Precision		
Finger Dexterity		

	Present Level	If there is a gap, indicate Planned Action
Multilimb Coordination		
Originality		
Perceptual Speed		
Trunk Strength		
Auditory Attention		
Far Vision		
Fluency of Ideas		
Hearing Sensitivity		
Stamina		
Written Expression		
Mathematical Reasoning		
Number Facility		
Visual Color Discrimination		
Visualization		
Extent Flexibility		
Flexibility of Closure		
Reaction Time		
Wrist-Finger Speed		
Memorization		
Rate Control		
Dynamic Strength		
Gross Body Coordination		
Speed of Closure		
Speed of Limb Movement		
Static Strength		
Depth Perception		
Gross Body Equilibrium		
Response Orientation.		
Dynamic Flexibility		

Glossary

Information Ordering — The ability to arrange things or actions in a certain order or pattern according to a specific rule or set of rules (e.g., patterns of numbers, letters, words, pictures, mathematical operations).

Near Vision — The ability to see details at close range (within a few feet of the observer).

Oral Comprehension — The ability to listen to and understand information and ideas presented through spoken words and sentences.

Problem Sensitivity — The ability to tell when something is wrong or is likely to go wrong. It does not involve solving the problem, only recognizing there is a problem.

Arm-Hand Steadiness — The ability to keep your hand and arm steady while moving your arm or while holding your arm and hand in one position.

Manual Dexterity — The ability to quickly move your hand, your hand together with your arm, or your two hands to grasp, manipulate, or assemble objects.

Speech Clarity — The ability to speak clearly so others can understand you.

Time Sharing — The ability to shift back and forth between two or more activities or sources of information (such as speech, sounds, touch, or other sources).

Deductive Reasoning — The ability to apply general rules to specific problems to produce answers that make sense.

Inductive Reasoning — The ability to combine pieces of information to form general rules or conclusions (includes finding a relationship among seemingly unrelated events).

Oral Expression — The ability to communicate information and ideas in speaking so others will understand.

Selective Attention — The ability to concentrate on a task over a period of time without being distracted.

Speech Recognition — The ability to identify and understand the speech of another person.

Written Comprehension — The ability to read and understand information and ideas presented in writing.

Category Flexibility — The ability to generate or use different sets of rules for combining or grouping things in different ways.

Control Precision — The ability to quickly and repeatedly adjust the controls of a machine or a vehicle to exact positions.

Finger Dexterity — The ability to make precisely coordinated movements of the fingers of one or both hands to grasp, manipulate, or assemble very small objects.

Multilimb Coordination — The ability to coordinate two or more limbs (for example, two arms, two legs, or one leg and one arm) while sitting, standing, or lying down. It does not involve performing the activities while the whole body is in motion.

Originality — The ability to come up with unusual or clever ideas about a given topic or situation, or to develop creative ways to solve a problem.

Perceptual Speed — The ability to quickly and accurately compare similarities and differences among sets of letters, numbers, objects, pictures, or patterns. The things to be compared may be presented at the same time or one after the other. This ability also includes comparing a presented object with a remembered object.

Trunk Strength — The ability to use your abdominal and lower back muscles to support part of the body repeatedly or continuously over time without 'giving out' or fatiguing.

Auditory Attention — The ability to focus on a single source of sound in the presence of other distracting sounds.

Far Vision — The ability to see details at a distance.

Fluency of Ideas — The ability to come up with a number of ideas about a topic (the number of ideas is important, not their quality, correctness, or creativity).

Hearing Sensitivity — The ability to detect or tell the differences between sounds that vary in pitch and loudness.

Stamina — The ability to exert yourself physically over long periods of time without getting winded or out of breath.

Written Expression — The ability to communicate information and ideas in writing so others will understand.

4Mathematical Reasoning — The ability to choose the right mathematical methods or formulas to solve a problem.

Number Facility — The ability to add, subtract, multiply, or divide quickly and correctly.

Visual Color Discrimination — The ability to match or detect differences between colors, including shades of color and brightness.

Visualization — The ability to imagine how something will look after it is moved around or when its parts are moved or rearranged.

Extent Flexibility — The ability to bend, stretch, twist, or reach with your body, arms, and/or legs.

Flexibility of Closure — The ability to identify or detect a known pattern (a figure, object, word, or sound) that is hidden in other distracting material.

Reaction Time — The ability to quickly respond (with the hand, finger, or foot) to a signal (sound, light, picture) when it appears.

Wrist-Finger Speed — The ability to make fast, simple, repeated movements of the fingers, hands, and wrists.

Memorization — The ability to remember information such as words, numbers, pictures, and procedures.

Rate Control — The ability to time your movements or the movement of a piece of equipment in anticipation of changes in the speed and/or direction of a moving object or scene.

Dynamic Strength — The ability to exert muscle force repeatedly or continuously over time. This involves muscular endurance and resistance to muscle fatigue.

Gross Body Coordination — The ability to coordinate the movement of your arms, legs, and torso together when the whole body is in motion.

Speed of Closure — The ability to quickly make sense of, combine, and organize information into meaningful patterns.

Speed of Limb Movement — The ability to quickly move the arms and legs.

Static Strength — The ability to exert maximum muscle force to lift, push, pull, or carry objects.

Depth Perception — The ability to judge which of several objects is closer or farther away from you, or to judge the distance between you and an object.

Gross Body Equilibrium — The ability to keep or regain your body balance or stay upright when in an unstable position.

Response Orientation — The ability to choose quickly between two or more movements in response to two or more different signals (lights, sounds, pictures). It includes the speed with which the correct response is started with the hand, foot, or other body part.

Dynamic Flexibility — The ability to quickly and repeatedly bend, stretch, twist, or reach out with your body, arms, and/or legs.

Digital Media Technology

Print this Program of Study

Digital Media Technology

***Recommendations to fully access all components of this Program of Study**:

Academic

- Advanced Computer Skills - Hardware and Software
- Algebra I
- Algebra II
- Geometry
- 11th Grade Reading and Comprension Levels
- Oral and Written Communication
- Ecology - Impact of the POS on the Environment

Skills

- Critical Thinking — Using logic and reasoning to identify the strengths and weaknesses of alternative solutions, conclusions or approaches to problems.
- Monitoring — Monitoring/Assessing performance of yourself, other individuals, or organizations to make improvements or take corrective action.
- Operation Monitoring — Watching gauges, dials, or other indicators to make sure a machine is working properly.
- Reading Comprehension — Understanding written sentences and paragraphs in work related documents.
- Active Listening — Giving full attention to what other people are saying, taking time to understand the points being made, asking questions as appropriate, and not interrupting at inappropriate times.
- Writing — Communicating effectively in writing as appropriate for the needs of the audience.
- Speaking — Talking to others to convey information effectively.
- Complex Problem Solving — Identifying complex problems and reviewing related information to develop and evaluate options and implement solutions.
- Coordination — Adjusting actions in relation to others' actions.
- Judgment and Decision Making — Considering the relative costs and benefits of potential actions to choose the most appropriate one.

Abilities

- Information Ordering — The ability to arrange things or actions in a certain order or pattern according to a specific rule or set of rules (e.g., patterns of numbers, letters, words, pictures, mathematical operations).
- Near Vision — The ability to see details at close range (within a few feet of the observer).
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DEPARTMENT OF EDUCATION

PDE: Programs of Study Framework

understand.
- Written Comprehension — The ability to read and understand information and ideas presented in writing.
- Written Expression — The ability to communicate information and ideas in writing so others will understand.
- Deductive Reasoning — The ability to apply general rules to specific problems to produce answers that make sense.
- Control Precision — The ability to quickly and repeatedly adjust the controls of a machine or a vehicle to exact positions.
- Far Vision — The ability to see details at a distance.

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SOAR
Students Occupationally and Academically Ready

Link to SOAR

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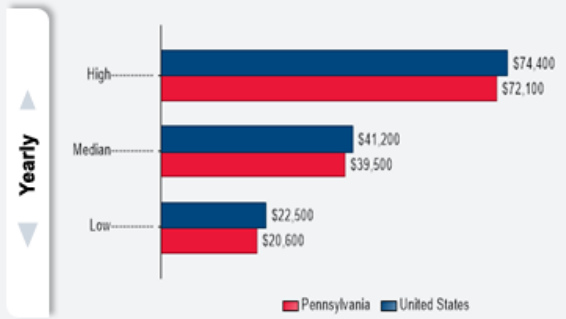
Digital Media Technology

CIP Code

10.9999 Communications Technologies/Technicians and Support Services - Employment Outlook

This program prepares individuals to apply knowledge and skills in the field of multimedia technology. Multimedia technology specialists provide services in a variety of areas associated with typography, web and graphic design, video, audio, television production, animation, and photography. Instruction in this program includes, but is not limited to, audio/visual technology, troubleshooting techniques, computer operation and maintenance, data transmission and management, oral and written communication, math and physics, concept development, layout and design, computer graphics, image capture, audio, video, web related technologies and animation.

Median wages (2013)	$19.83 hourly, $41,250 annual
State wages	 • "High" indicates 90% of workers earn less and 10% earn more. • "Median" indicates 50% of workers earn less and 50% earn more. • "Low" indicates 10% of workers earn less and 90% earn more. • "N/A" indicates the data is not available. **Notes:** Yearly wage data applies only to workers with full-time, year-round schedules. For salary information for part-time or part-year workers, use hourly wage data.
Employment (2012)	68,000 employees
Projected growth (2012-2022)	Average (8% to 14%)
Projected job openings (2012-2022)	21,500
State trends	See table below

United States	Employment		Percent Change	Projected Annual Job Openings
	2012	2022		
Audio and Video Equipment Technicians	67,700	76,900	+14%	2,150
Pennsylvania	**Employment**		**Percent Change**	**Projected Annual Job Openings**
	2012	**2022**		
Audio and Video Equipment Technicians	2,570	2,930	+14%	80

Projected Annual Job Openings refers to the average annual job openings due to growth and net replacement.

http://www.onetonline.org/link/summary/27-4011.00

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Digital Media Technology

CIP Code: 10.9999	Communications Technologies/Technicians & Support Services, Other - - Detailed Program Description
Objective of this Program of Study	When you use your IPad, IPod or Smartphone, take a digital photo, stream music from the web, order your favorite food at a kiosk, or watch a blockbuster movie in 3D; you have experienced the world of digital media. The evolving world of digital media in our society has created a demand for professionals in web design, multimedia, digital video production, and digital photography. Students interested in pursuing one of these careers will benefit from attending the Digital Media Technology program. Areas of concentration include Video Production, Web Development, Image Editing, and Photography. The curriculum allows for practical learning experiences where students apply their skills by managing school wide or nonprofit organization projects. From mega websites like Facebook and YouTube to applications and games on your mobile device, digital media is found just about everywhere in today's culture. Students preparing for careers in web development will design and develop websites to be presented on multiple media platforms. Students will plan, design, and develop websites using Adobe Dreamweaver software concentrating on the visual aspects of design. Students preparing for careers in video production will gain experience with high definition video cameras, lighting, scripting, audio, and editing techniques. Students will use Adobe Premiere software to create persuasive, informational, or entertainment videos. Advanced skills in special effects can be achieved through Adobe After Effects software. Students will produce videos for broadcast, DVD production, and podcasts. All students will use Adobe Photoshop software to prepare graphics for the web or video productions. Finally, students will create a digital portfolio to showcase their work.
Occupational Objectives Offered	Camera Operator *Marketing/Advertising/Public Relations Multimedia Artist/Animator Photographer Video/Film Producer Web Page Developer/Designer * - Requires post-secondary training
Planned Courses	COMMUNICATION TECHNOLOGY AND SAFETY PROCEDURES. COMPUTER SYSTEM SET UP BASIC COMPUTER APPLICATIONS ELECTRONIC COMMUNICATION APPLICATIONS WORD PROCESSING DESIGN & LAYOUT PHOTOGRAPHY, CINEMATOGRAPHY, AND IMAGE CAPTURE ADOBE PHOTOSHOP CS6 LEADERSHIP AND ACCOUNTABILITY SKILLS IN COMMUNICATION TECHNOLOGY COMMUNICATION TECHNOLOGY SYSTEMS OPERATION, INFORMATION, AND SOFTWARE WEB COLLABORATION DESIGN & LAYOUT COMMUNICATION NETWORK COMPONENTS WEB DESIGN APPLICATIONS FOR COMMUNICATIONS TECHNOLOGY VIDEO AND AUDIO PRODUCTION PROJECT MANAGEMENT ADOBE DREAMWEAVER CS6 ADOBE PREMIERE CS6 KNOWLEDGE OF ETHICAL, CULTURAL, AND SOCIETAL ISSUES RELATED TO COMMUNICATION TECHNOLOGY COMMUNICATION TECHNOLOGY SYSTEMS OPERATION, INFORMATION, AND SOFTWARE INFORMATION LOCATION, EVALUATION AND COLLECTION FROM A VARIETY OF SOURCES MULTIMEDIA PRESENTATION WEB DESIGN APPLICATIONS FOR COMMUNICATIONS TECHNOLOGY CROSS PLATFORM CELLULAR TELEHONE COMMUNICATION ADOBE AFTER EFFECTS CS6

	Expect all planned courses in this Program of Study to include an academic component. Homework and testing will require skills in: • Mathematics • Reading • Writing • Science • Research • Oral presentation • Computer use Click on the ***Detailed Skill Assessment*** link at the top of this page for more information.
Classroom: Academic Instruction, Textbook, and Tests	Academic Instruction: 1-2 hours per week Textbook:*Adobe Photoshop CS6 Revealed; Adobe Flash CS6 Revealed; Adobe Dreamweaver CS6 Revealed; Adobe Premiere CS6 Revealed* Academic Testing: 1-2 per week
Certification Tests	PA Skills (NOCTI) Adobe Photoshop
Co-operative Education	Available to seniors on instructor's recommendation
Work Activities	• Interacting With Computers — Using computers and computer systems (including hardware and software) to program, write software, set up functions, enter data, or process information. • Identifying Objects, Actions, and Events — Identifying information by categorizing, estimating, recognizing differences or similarities, and detecting changes in circumstances or events. • Getting Information — Observing, receiving, and otherwise obtaining information from all relevant sources. • Making Decisions and Solving Problems — Analyzing information and evaluating results to choose the best solution and solve problems. • Controlling Machines and Processes — Using either control mechanisms or direct physical activity to operate machines or processes (not including computers or vehicles). • Scheduling Work and Activities — Scheduling events, programs, and activities, as well as the work of others. • Updating and Using Relevant Knowledge — Keeping up-to-date technically and applying new knowledge to your job. • Monitor Processes, Materials, or Surroundings — Monitoring and reviewing information from materials, events, or the environment, to detect or assess problems. • Communicating with Supervisors, Peers, or Subordinates — Providing information to supervisors, co-workers, and subordinates by telephone, in written form, e-mail, or in person. • Inspecting Equipment, Structures, or Material — Inspecting equipment, structures, or materials to identify the cause of errors or other problems or defects
Work Environment	• Indoors, Environmentally Controlled — 95% responded “Every day.” • Electronic Mail — 71% responded “Every day.” • Face-to-Face Discussions — 52% responded “Every day.” • Contact With Others — 47% responded “Constant contact with others.” • Spend Time Sitting — 51% responded “Continually or almost continually.” • Telephone — 56% responded “Every day.” • Freedom to Make Decisions — 43% responded “Some freedom.” • Importance of Being Exact or Accurate — 42% responded “Extremely important.” • Spend Time Using Your Hands to Handle, Control, or Feel Objects, Tools, or Controls — 42% responded “Continually or almost continually.” • Responsibility for Outcomes and Results — 35% responded “Very high responsibility.”
Uniform Requirements	Business casual dress for client meetings and school related activities.
Advanced Standing/Articulation Agreements	Pennsylvania State Wide Articulation Agreement - Link to: SOAR

Digital Media Technology - Detailed Skill Assessment

GoTo Fillable PDF

Detailed Skill Assessment

If your are thinking about enrolling at ICTC, please e-mail this completed chart to bpiccirillo@ictc.edu

Name:	**School:**	**Grade:**

Academics:	**Present Level**	**If there is a gap, indicate Planned Action**
Advanced Computer Skills - Hardware/Software		
Algebra I		
Algebra II		
Geometry		
11th Grade Reading and Comprehension Levels		
Oral and Written Communication		
Ecology - Impact of the POS on the Environment		
Abilities: (see glossary below)		
Information Ordering		
Near Vision		
Oral Comprehension		
Problem Sensitivity		
Oral Expression		
Written Comprehension		
Written Expression		
Deductive Reasoning		
Control Precision		
Far Vision		
Flexibility of Closure		
Inductive Reasoning		
Speech Clarity		
Finger Dexterity		
Selective Attention		
Arm-Hand Steadiness		
Category Flexibility		
Manual Dexterity		

	Present Level	If there is a gap, indicate Planned Action
Speech Recognition		
Visual Color Discrimination		
Visualization		
Auditory Attention		
Fluency of Ideas		
Time Sharing		
Hearing Sensitivity		
Originality		
Perceptual Speed		
Mathematical Reasoning		
Speed of Closure		
Memorization		
Multilimb Coordination		
Depth Perception		
Number Facility		
Rate Control		
Reaction Time		
Response Orientation		
Stamina		
Static Strength		
Trunk Strength		

Glossary

Information Ordering — The ability to arrange things or actions in a certain order or pattern according to a specific rule or set of rules (e.g., patterns of numbers, letters, words, pictures, mathematical operations).

Near Vision — The ability to see details at close range (within a few feet of the observer).

Oral Comprehension — The ability to listen to and understand information and ideas presented through spoken words and sentences.

Problem Sensitivity — The ability to tell when something is wrong or is likely to go wrong. It does not involve solving the problem, only recognizing there is a problem.

Oral Expression — The ability to communicate information and ideas in speaking so others will understand.

Written Comprehension — The ability to read and understand information and ideas presented in writing.

Written Expression — The ability to communicate information and ideas in writing so others will understand.

Deductive Reasoning — The ability to apply general rules to specific problems to produce answers that make sense.

Control Precision — The ability to quickly and repeatedly adjust the controls of a machine or a vehicle to exact positions.

Far Vision — The ability to see details at a distance.

Flexibility of Closure — The ability to identify or detect a known pattern (a figure, object, word, or sound) that is hidden in other distracting material.

Inductive Reasoning — The ability to combine pieces of information to form general rules or conclusions (includes finding a relationship among seemingly unrelated events).

Speech Clarity — The ability to speak clearly so others can understand you.

Finger Dexterity — The ability to make precisely coordinated movements of the fingers of one or both hands to grasp, manipulate, or assemble very small objects.

Selective Attention — The ability to concentrate on a task over a period of time without being distracted.

Arm-Hand Steadiness — The ability to keep your hand and arm steady while moving your arm or while holding your arm and hand in one position.

Category Flexibility — The ability to generate or use different sets of rules for combining or grouping things in different ways.

Manual Dexterity — The ability to quickly move your hand, your hand together with your arm, or your two hands to grasp, manipulate, or assemble objects.

Speech Recognition — The ability to identify and understand the speech of another person.

Visual Color Discrimination — The ability to match or detect differences between colors, including shades of color and brightness.

Visualization — The ability to imagine how something will look after it is moved around or when its parts are moved or rearranged.

Auditory Attention — The ability to focus on a single source of sound in the presence of other distracting sounds.

Fluency of Ideas — The ability to come up with a number of ideas about a topic (the number of ideas is important, not their quality, correctness, or creativity).

Time Sharing — The ability to shift back and forth between two or more activities or sources of information (such as speech, sounds, touch, or other sources).

Hearing Sensitivity — The ability to detect or tell the differences between sounds that vary in pitch and loudness.

Originality — The ability to come up with unusual or clever ideas about a given topic or situation, or to develop creative ways to solve a problem.

Perceptual Speed — The ability to quickly and accurately compare similarities and differences among sets of letters, numbers, objects, pictures, or patterns. The things to be compared may be presented at the same time or one after the other. This ability also includes comparing a presented object with a remembered object.

Mathematical Reasoning — The ability to choose the right mathematical methods or formulas to solve a problem.

Speed of Closure — The ability to quickly make sense of, combine, and organize information into meaningful patterns.

Memorization — The ability to remember information such as words, numbers, pictures, and procedures.

Multilimb Coordination — The ability to coordinate two or more limbs (for example, two arms, two legs, or one leg and one arm) while sitting, standing, or lying down. It does not involve performing the activities while the whole body is in motion.

Depth Perception — The ability to judge which of several objects is closer or farther away from you, or to judge the distance between you and an object.

Number Facility — The ability to add, subtract, multiply, or divide quickly and correctly.

Rate Control — The ability to time your movements or the movement of a piece of equipment in anticipation of changes in the speed and/or direction of a moving object or scene.

Reaction Time — The ability to quickly respond (with the hand, finger, or foot) to a signal (sound, light, picture) when it appears.

Response Orientation — The ability to choose quickly between two or more movements in response to two or more different signals (lights, sounds, pictures). It includes the speed with which the correct response is started with the hand, foot, or other body part.

Stamina — The ability to exert yourself physically over long periods of time without getting winded or out of breath.

Static Strength — The ability to exert maximum muscle force to lift, push, pull, or carry objects.

Trunk Strength — The ability to use your abdominal and lower back muscles to support part of the body repeatedly or continuously over time without 'giving out' or fatiguing.

Electrical Occupations

Print this Program of Study

Electrical Occupations

***Recommendations to fully access all components of this Program of Study**:

Academic

- Physics
- Algebra I
- Algebra II
- Geometry
- Basic Computer Skills - Hardware and Software
- 11th Grade Reading and Comprension Levels
- Oral and Written Communication
- Chemistry
- Ecology - Impact of the POS on the Environment

Skills

- Active Listening — Giving full attention to what other people are saying, taking time to understand the points being made, asking questions as appropriate, and not interrupting at inappropriate times.
- Monitoring — Monitoring/Assessing performance of yourself, other individuals, or organizations to make improvements or take corrective action.
- Critical Thinking — Using logic and reasoning to identify the strengths and weaknesses of alternative solutions, conclusions or approaches to problems.
- Operation Monitoring — Watching gauges, dials, or other indicators to make sure a machine is working properly.
- Troubleshooting — Determining causes of operating errors and deciding what to do about it.
- Complex Problem Solving — Identifying complex problems and reviewing related information to develop and evaluate options and implement solutions.
- Coordination — Adjusting actions in relation to others' actions.
- Judgment and Decision Making — Considering the relative costs and benefits of potential actions to choose the most appropriate one.
- Operation and Control — Controlling operations of equipment or systems.
- Quality Control Analysis — Conducting tests and inspections of products, services, or processes to evaluate quality or performance.

Abilities

- Arm-Hand Steadiness — The ability to keep your hand and arm steady while moving your arm or while holding your arm and hand in one position.
- Multilimb Coordination — The ability to coordinate two or more limbs (for example, two arms, two legs, or one leg and one arm) while sitting, standing, or lying down. It does not involve performing the activities while the whole body is in motion.
- Near Vision — The ability to see details at close range (within a few feet of the observer).
- Problem Sensitivity — The ability to tell when something is wrong or is likely to go wrong. It does

Industry Certifications Available to Qualified Students:

Bobcat

MEDIC First Aid

PBA Pennsylvania Builders Association

Member NAHB National Association of Home Builders

OSHA

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http://www.onetonline.org/link/summary/49-9051.00

pennsylvania DEPARTMENT OF EDUCATION

PDE: Programs of Study Framework

not involve solving the problem, only recognizing there is a problem.
- Oral Comprehension — The ability to listen to and understand information and ideas presented through spoken words and sentences.
- Control Precision — The ability to quickly and repeatedly adjust the controls of a machine or a vehicle to exact positions.
- Deductive Reasoning — The ability to apply general rules to specific problems to produce answers that make sense.
- Information Ordering — The ability to arrange things or actions in a certain order or pattern according to a specific rule or set of rules (e.g., patterns of numbers, letters, words, pictures, mathematical operations).
- Manual Dexterity — The ability to quickly move your hand, your hand together with your arm, or your two hands to grasp, manipulate, or assemble objects.
- Finger Dexterity — The ability to make precisely coordinated movements of the fingers of one or both hands to grasp, manipulate, or assemble very small objects.

* O*NET™ OnLine

SOAR Students Occupationally and Academically Ready

Link to SOAR

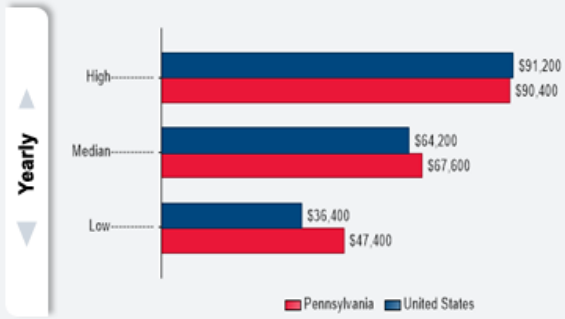
This document is intended to provide an overview of the program and is to be used as an informative tool to assist districts, parents, and students in the decision making process for program placement and transition planning. It is not intended to be and should not be used as a screening tool for student placement.

Electrical Occupations

CIP Code

46.0399 Electrical and Power Transmission Installers, Other - Employment Outlook

This is an instructional program that prepares individuals to apply technical knowledge and skills necessary to install, operate, maintain and repair electrically energized residential, commercial and industrial systems, DC and AC motors, controls and electrical distribution panels. Instruction emphasizes practical application of mathematics, science, circuit diagrams and use of electrical codes and includes blueprint reading, sketching and other subjects essential for employment in the electrical occupations. Reading and interpretation of commercial and residential construction wiring codes and specifications, installation and maintenance of wiring, service and distribution networks within large construction complexes are also critical components of the program.

Median wages (2013)	$30.85 hourly, $64,170 annual
State wages	 • "High" indicates 90% of workers earn less and 10% earn more. • "Median" indicates 50% of workers earn less and 50% earn more. • "Low" indicates 10% of workers earn less and 90% earn more. • "N/A" indicates the data is not available. **Notes:** Yearly wage data applies only to workers with full-time, year-round schedules. For salary information for part-time or part-year workers, use hourly wage data.
Employment (2012)	115,000 employees
Projected growth (2012-2022)	Average (8% to 14%)
Projected job openings (2012-2022)	49,900

State trends

United States	Employment		Percent Change	Projected Annual Job Openings
	2012	2022		
Electrical Power-Line Installers and Repairers	114,500	124,700	+9%	4,990
Pennsylvania	**Employment**		**Percent Change**	**Projected Annual Job Openings**
	2012	**2022**		
Electrical Power-Line Installers and Repairers	3,810	4,380	+15%	190

Projected Annual Job Openings refers to the average annual job openings due to growth and net replacement.

http://www.onetonline.org/link/summary/49-9051.00

This document is intended to provide an overview of the program and is to be used as an informative tool to assist districts, parents, and students in the decision making process for program placement and transition planning. It is not intended to be and should not be used as a screening tool for student placement.

Electrical Occupations

CIP Code: 46.0399	ELECTRICAL AND POWER TRANSMISSION INSTALLERS, OTHER - Detailed Program Description
Objective of this Program of Study	The Electrical Occupations (EO) program enables students to gain the necessary foundational skills to become a residential and/or commercial electrician. The basic electrical theory for residential wiring includes 100 & 200 amp services, branch circuits and is based on the latest National Electric Code (NEC). A modern residence blueprint serves as the basis for the wiring schematics and cable layouts. Focus is on the technical skills required to perform electrical installations. Topics covered include Arc Fault Circuit Interrupter and Ground Fault Circuit Interrupter NEC requirements, calculating conductor sizes and voltage drop, determining appliance circuit requirements, sizing service, grounding service and equipment. This program introduces students to the basics of three-phase wiring for commercial environments. Students learn to apply the latest NEC for wiring a commercial building in a step-by-step process. EO students will apply electrical standards to appliance circuits, branch-circuit installation, special systems, reading electrical and architectural drawings and calculating circuit loads for on-the-job assessments. Throughout the EO training at the ICTC, students will have practical applications and trouble-shooting projects to apply NEC theory. The students may attain an Occupational Safety and Health Administration (OSHA) ten hour training course in “Construction Safety & Health” as well as a training course on a Bobcat VersaHandler Telescopic Fork Lift.
Occupational Objectives Offered	*Electrical Engineering *Electrician Commercial *Electrician Maintenance *Lineman Apprentice Electrician Residential Manufactured Housing * - Requires post-secondary training
Planned Courses To view the task list for this Program of Study use this link: POS Framework	BASIC SAFETY HAND TOOLS POWER TOOLS RACEWAYS TESTING EQUIPMENT NATIONAL ELECTRICAL CODE ELECTRICAL THEORY BLUEPRINT READING ANCHORS AND SUPPORTS RESIDENTIAL CABLING TECHNOLOGY SWITCHES AND RECEPTACLES CIRCUITS FIXTURES TESTING EQUIPMENT ELECTRICAL SERVICE GREEN TECHNOLOGY MOTORS POWER TOOLS WIRED DEVICES THREE PHASE TRANSFORMERS MOTORS RENOVATIONS Expect all planned courses in this Program of Study to include an academic component. Homework and testing will require skills in: • Mathematics • Reading • Writing

	• Science • Research • Oral presentation • Computer use Click on the ***Detailed Skill Assessment*** link at the top of this page for more information.
Classroom: Academic Instruction, Textbook, and Tests	Academic Instruction: 1 hours per day Textbook:*Residential Construction Academy House Wiring 3rd Edition; Residential Construction Academy Electrical Principles 3rd Edition; National Electrical Code 2014* Academic Testing: 1 per week
Certification Tests	PA Skills (NOCTI) OSHA Medic First Aid Bobcat Pennsylvania Builders Association National Association of Home Builders
Co-operative Education	Available to seniors on instructor's recommendation
Work Activities	• Operating Vehicles, Mechanized Devices, or Equipment — Running, maneuvering, navigating, or driving vehicles or mechanized equipment, such as forklifts, passenger vehicles, aircraft, or water craft. • Communicating with Supervisors, Peers, or Subordinates — Providing information to supervisors, co-workers, and subordinates by telephone, in written form, e-mail, or in person. • Getting Information — Observing, receiving, and otherwise obtaining information from all relevant sources. • Inspecting Equipment, Structures, or Material — Inspecting equipment, structures, or materials to identify the cause of errors or other problems or defects. • Controlling Machines and Processes — Using either control mechanisms or direct physical activity to operate machines or processes (not including computers or vehicles). • Handling and Moving Objects — Using hands and arms in handling, installing, positioning, and moving materials, and manipulating things. • Making Decisions and Solving Problems — Analyzing information and evaluating results to choose the best solution and solve problems. • Monitor Processes, Materials, or Surroundings — Monitoring and reviewing information from materials, events, or the environment, to detect or assess problems. • Training and Teaching Others — Identifying the educational needs of others, developing formal educational or training programs or classes, and teaching or instructing others. • Identifying Objects, Actions, and Events — Identifying information by categorizing, estimating, recognizing differences or similarities, and detecting changes in circumstances or events
Work Environment	• Face-to-Face Discussions — 99% responded “Every day.” • Wear Common Protective or Safety Equipment such as Safety Shoes, Glasses, Gloves, Hearing Protection, Hard Hats, or Life Jackets — 89% responded “Every day.” • Outdoors, Exposed to Weather — 79% responded “Every day.” • Frequency of Decision Making • Responsible for Others' Health and Safety — 77% responded “Very high responsibility.” • Exposed to Hazardous Conditions — 81% responded “Every day.” • Exposed to High Places — 81% responded “Every day.” • Sounds, Noise Levels Are Distracting or Uncomfortable • Telephone — 57% responded “Every day.” • Importance of Being Exact or Accurate — 55% responded “Extremely important.”
Uniform Requirements	Closed toe shoes No loose clothing Clothing considered “work clothing” able to become dirty or torn Safety glasses (first pair provided)
Advanced Standing/ Articulation Agreements	Pennsylvania State Wide Articulation Agreement - Link to: SOAR

This document is intended to provide an overview of the program and is to be used as an informative tool to assist districts, parents, and students in the decision making process for program placement and transition planning. It is not intended to be and should not be used as a screening tool for student placement.

Electical Occupations - Detailed Skill Assessment

GoTo Fillable PDF

Detailed Skill Assessment

If your are thinking about enrolling at ICTC, please e-mail this completed chart to bpiccirillo@ictc.edu

Name:	**School:**	**Grade:**

Academics:	**Present Level**	**If there is a gap, indicate Planned Action**
Physics		
Algebra I		
Algebra II		
Geometry		
Basic Computer Skills - Hardware and Software		
11th Grade Reading and Comprehension Levels		
Oral and Written Communication		
Chemistry		
Ecology - Impact of the POS on the Environment		
Abilities: (see glossary below)		
Information Ordering		
Near Vision		
Oral Comprehension		
Problem Sensitivity		
Oral Expression		
Written Comprehension		
Written Expression		
Deductive Reasoning		
Control Precision		
Far Vision		
Flexibility of Closure		
Inductive Reasoning		
Speech Clarity		
Finger Dexterity		
Selective Attention		
Arm-Hand Steadiness		

	Present Level	If there is a gap, indicate Planned Action
Category Flexibility		
Manual Dexterity		
Speech Recognition		
Visual Color Discrimination		
Visualization		
Auditory Attention		
Fluency of Ideas		
Time Sharing		
Hearing Sensitivity		
Originality		
Perceptual Speed		
Mathematical Reasoning		
Speed of Closure		
Memorization		
Multilimb Coordination		
Depth Perception		
Number Facility		
Rate Control		
Reaction Time		
Response Orientation		
Stamina		
Static Strength		
Trunk Strength		

Glossary

Arm-Hand Steadiness — The ability to keep your hand and arm steady while moving your arm or while holding your arm and hand in one position.

Multilimb Coordination — The ability to coordinate two or more limbs (for example, two arms, two legs, or one leg and one arm) while sitting, standing, or lying down. It does not involve performing the activities while the whole body is in motion.

Near Vision — The ability to see details at close range (within a few feet of the observer).

Problem Sensitivity — The ability to tell when something is wrong or is likely to go wrong. It does not involve solving the problem, only recognizing there is a problem.

Oral Comprehension — The ability to listen to and understand information and ideas presented through spoken words and sentences.

Control Precision — The ability to quickly and repeatedly adjust the controls of a machine or a vehicle to exact positions.

Deductive Reasoning — The ability to apply general rules to specific problems to produce answers that make sense.

Information Ordering — The ability to arrange things or actions in a certain order or pattern according to a specific rule or set of rules (e.g., patterns of numbers, letters, words, pictures, mathematical operations).

Manual Dexterity — The ability to quickly move your hand, your hand together with your arm, or your two hands to grasp, manipulate, or assemble objects.

Finger Dexterity — The ability to make precisely coordinated movements of the fingers of one or both hands to grasp, manipulate, or assemble very small objects.

Inductive Reasoning — The ability to combine pieces of information to form general rules or conclusions (includes finding a relationship among seemingly unrelated events).

Oral Expression — The ability to communicate information and ideas in speaking so others will understand.

Speech Clarity — The ability to speak clearly so others can understand you.

Speech Recognition — The ability to identify and understand the speech of another person.

Category Flexibility — The ability to generate or use different sets of rules for combining or grouping things in different ways.

Gross Body Equilibrium — The ability to keep or regain your body balance or stay upright when in an unstable position.

Reaction Time — The ability to quickly respond (with the hand, finger, or foot) to a signal (sound, light, picture) when it appears.

Static Strength — The ability to exert maximum muscle force to lift, push, pull, or carry objects.

Visual Color Discrimination — The ability to match or detect differences between colors, including shades of color and brightness.

Depth Perception — The ability to judge which of several objects is closer or farther away from you, or to judge the distance between you and an object.

Far Vision — The ability to see details at a distance.

Flexibility of Closure — The ability to identify or detect a known pattern (a figure, object, word, or sound) that is hidden in other distracting material.

Perceptual Speed — The ability to quickly and accurately compare similarities and differences among sets of letters, numbers, objects, pictures, or patterns. The things to be compared may be presented at the same time or one after the other. This ability also includes comparing a presented object with a remembered object.

Rate Control — The ability to time your movements or the movement of a piece of equipment in anticipation of changes in the speed and/or direction of a moving object or scene.

Selective Attention — The ability to concentrate on a task over a period of time without being distracted.

Visualization — The ability to imagine how something will look after it is moved around or when its parts are moved or rearranged.

Written Comprehension — The ability to read and understand information and ideas presented in writing.

Written Expression — The ability to communicate information and ideas in writing so others will understand.

Extent Flexibility — The ability to bend, stretch, twist, or reach with your body, arms, and/or legs.

Stamina — The ability to exert yourself physically over long periods of time without getting winded or out of breath.

Time Sharing — The ability to shift back and forth between two or more activities or sources of information (such as speech, sounds, touch, or other sources).

Trunk Strength — The ability to use your abdominal and lower back muscles to support part of the body repeatedly or continuously over time without 'giving out' or fatiguing.

Fluency of Ideas — The ability to come up with a number of ideas about a topic (the number of ideas is important, not their quality, correctness, or creativity).

Glare Sensitivity — The ability to see objects in the presence of glare or bright lighting.

Gross Body Coordination — The ability to coordinate the movement of your arms, legs, and torso together when the whole body is in motion.

Originality — The ability to come up with unusual or clever ideas about a given topic or situation, or to develop creative ways to solve a problem.

Response Orientation — The ability to choose quickly between two or more movements in response to two or more different signals (lights, sounds, pictures). It includes the speed with which the correct response is started with the hand, foot, or other body part.

Spatial Orientation — The ability to know your location in relation to the environment or to know where other objects are in relation to you.

Auditory Attention — The ability to focus on a single source of sound in the presence of other distracting sounds.

Hearing Sensitivity — The ability to detect or tell the differences between sounds that vary in pitch and loudness.

Speed of Closure — The ability to quickly make sense of, combine, and organize information into meaningful patterns.

Dynamic Strength — The ability to exert muscle force repeatedly or continuously over time. This involves muscular endurance and resistance to muscle fatigue.

Mathematical Reasoning — The ability to choose the right mathematical methods or formulas to solve a problem.

Memorization — The ability to remember information such as words, numbers, pictures, and procedures.

Number Facility — The ability to add, subtract, multiply, or divide quickly and correctly.

Night Vision — The ability to see under low light conditions.

Peripheral Vision — The ability to see objects or movement of objects to one's side when the eyes are looking ahead.

Speed of Limb Movement — The ability to quickly move the arms and legs.

Wrist-Finger Speed — The ability to make fast, simple, repeated movements of the fingers, hands, and wrists.

Sound Localization — The ability to tell the direction from which a sound originated.

Dynamic Flexibility — The ability to quickly and repeatedly bend, stretch, twist, or reach out with your body, arms, and/or legs.

Explosive Strength — The ability to use short bursts of muscle force to propel oneself (as in jumping or sprinting), or to throw an object.

Graphics & Electronic Media

Print this Program of Study

Graphics & Electronic Media

***Recommendations to fully access all components of this Program of Study**:

Academic

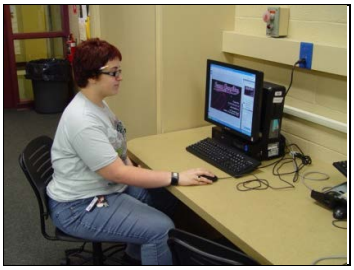
- Advanced Computer Skills - Hardware and Software
- 11th Grade Reading and Comprension Levels
- Oral and Written Communication
- Algebra I
- Algebra II
- Geometry
- Ecology - Impact of the POS on the Environment

Skills

- Active Listening — Giving full attention to what other people are saying, taking time to understand the points being made, asking questions as appropriate, and not interrupting at inappropriate times.
- Operations Analysis — Analyzing needs and product requirements to create a design.
- Speaking — Talking to others to convey information effectively.
- Writing — Communicating effectively in writing as appropriate for the needs of the audience.
- Critical Thinking — Using logic and reasoning to identify the strengths and weaknesses of alternative solutions, conclusions or approaches to problems.
- Reading Comprehension — Understanding written sentences and paragraphs in work related documents.
- Active Learning — Understanding the implications of new information for both current and future problem-solving and decision-making.
- Coordination — Adjusting actions in relation to others' actions.
- Judgment and Decision Making — Considering the relative costs and benefits of potential actions to choose the most appropriate one.
- Complex Problem Solving — Identifying complex problems and reviewing related information to develop and evaluate options and implement solutions.

Abilities

- Originality — The ability to come up with unusual or clever ideas about a given topic or situation, or to develop creative ways to solve a problem.
- Written Comprehension — The ability to read and understand information and ideas presented in writing.
- Fluency of Ideas — The ability to come up with a number of ideas about a topic (the number of ideas is important, not their quality, correctness, or creativity).
- Near Vision — The ability to see details at close range (within a few feet of the observer).
- Written Expression — The ability to communicate information and ideas in writing so others will understand.
- Oral Comprehension — The ability to listen to and understand information and ideas presented through spoken words and sentences.



Industry Certifications Available to Qualified Students:

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pennsylvania
DEPARTMENT OF EDUCATION

PDE: Programs of Study Framework

- Oral Expression — The ability to communicate information and ideas in speaking so others will understand.
- Visualization — The ability to imagine how something will look after it is moved around or when its parts are moved or rearranged.
- Category Flexibility — The ability to generate or use different sets of rules for combining or grouping things in different ways.
- Inductive Reasoning — The ability to combine pieces of information to form general rules or conclusions (includes finding a relationship among seemingly unrelated events).

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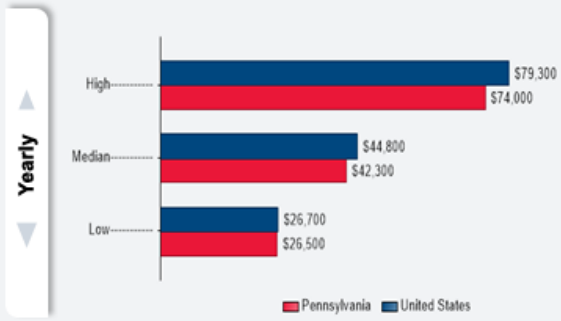
SOAR
Students Occupationally and Academically Ready

Link to SOAR

This document is intended to provide an overview of the program and is to be used as an informative tool to assist districts, parents, and students in the decision making process for program placement and transition planning. It is not intended to be and should not be used as a screening tool for student placement.

Graphics & Electronic Media

CIP Code
50.0402 Commercial and Advertising Art - Employment Outlook
This is an instructional program in the applied visual arts that 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. This program includes instruction in concept design, layout, paste up and techniques such as engraving, etching, silkscreen, lithography, offset, drawing and cartooning, painting, collage and computer graphics.

Median wages (2013)	$21.55 hourly, $44,830 annual
State wages	 • "High" indicates 90% of workers earn less and 10% earn more. • "Median" indicates 50% of workers earn less and 50% earn more. • "Low" indicates 10% of workers earn less and 90% earn more. • "N/A" indicates the data is not available. **Notes:** Yearly wage data applies only to workers with full-time, year-round schedules. For salary information for part-time or part-year workers, use hourly wage data.
Employment (2012)	260,000 employees
Projected growth (2012-2022)	Slower than average (3% to 7%)
Projected job openings (2012-2022)	86,000

State trends

United States	Employment		Percent Change	Projected Annual Job Openings
	2012	2022		
Graphic Designers	259,500	276,900	+7%	8,600
Pennsylvania	**Employment**		**Percent Change**	**Projected Annual Job Openings**
	2012	**2022**		
Graphic Designers	10,690	11,150	+4%	330

Projected Annual Job Openings refers to the average annual job openings due to growth and net replacement.

http://www.onetonline.org/link/summary/27-1024.00

This document is intended to provide an overview of the program and is to be used as an informative tool to assist districts, parents, and students in the decision making process for program placement and transition planning. It is not intended to be and should not be used as a screening tool for student placement.

Graphics & Electronic Media

CIP Code: 50.0402	COMMERCIAL AND ADVERTISING ART - Detailed Program Description
Objective of this Program of Study	Graphics and Electronic Media (GEM) should be viewed as an introduction to a complex and constantly changing career field. The software packages and computer technology available today are able to assist in the production of a variety of media formats which previously were outsourced to printers or design agencies. Students who are motivated by change, technology and creativity find GEM to be the perfect educational setting. They are introduced to the areas of desktop publishing, graphic design, photo editing and illustration. Students learn to use the digital press, large format printer and sign plotter. They are encouraged to enhance their own creativity utilizing the most modern technology available. The program is designed to allow interested students to bring together many areas of creative graphic design and production technologies. Skilled graphic artists have a creative flair required to produce eye-catching publications as well as the talent and confidence to use up-to-date technology to output their creations. The ICTC's GEM program is a certified Graphic Arts Education and Research Foundation PrintED® National Accreditation Program. Qualified GEM students may elect to take the PrintED® Introduction to Graphic Communications, Digital File Preparation, and Advertising & Design certifications.
Occupational Objectives Offered	*Graphic Designer *Desktop Publisher * - Requires post-secondary training
Planned Courses To view the task list for this Program of Study use this link: POS Framework	ORIENTATION INDUSTRY OVERVIEW SAFETY ENVIRONMENTAL HEALTH, SAFETY, AND FIRST AID COLOR THEORY AND APPLICATION COLOR THEORY DESIGN PRINCIPLES TYPOGRAPHY TYPE BASIC MATH DIGITAL IMAGING DIGITAL FILE PREPARATION IMAGE CAPTURE DIGITAL FILE OUTPUT DESIGN, LAYOUT AND PRODUCTION PAGE LAYOUT MEASUREMENT DRAWING AND ILLUSTRATION DIGITAL ILLUSTRATION DIGITAL PHOTOGRAPHY PROFESSIONAL PRACTICES JOB APPLICATION & INTERPERSONAL PRESS OPERATIONS (OFFSET & DIGITAL) BINDERY OPERATIONS Expect all planned courses in this Program of Study to include an academic component. Homework and testing will require skills in: • Mathematics • Reading • Writing • Science • Research • Oral presentation • Computer use

	Click on the ***Detailed Skill Assessment*** link at the top of this page for more information.
Classroom: Academic Instruction, Textbook, and Tests	Academic Instruction: 2-3 hours per week Textbooks: *Photoshop CS6 Revealed;In-Design CS6 Revealed; Illustrator CS6 Revealed; Graphics Design Solutions 2nd Edition; Digital Publishing* Academic Testing: 1 per week
Certification Tests	PA Skills PrintEd Adobe Photoshop
Co-operative Education	Available to seniors on instructor's recommendation
Work Activities	• Thinking Creatively — Developing, designing, or creating new applications, ideas, relationships, systems, or products, including artistic contributions. • Interacting With Computers — Using computers and computer systems (including hardware and software) to program, write software, set up functions, enter data, or process information. • Getting Information — Observing, receiving, and otherwise obtaining information from all relevant sources. • Making Decisions and Solving Problems — Analyzing information and evaluating results to choose the best solution and solve problems. • Communicating with Persons Outside Organization — Communicating with people outside the organization, representing the organization to customers, the public, government, and other external sources. This information can be exchanged in person, in writing, or by telephone or e-mail. • Updating and Using Relevant Knowledge — Keeping up-to-date technically and applying new knowledge to your job. • Organizing, Planning, and Prioritizing Work — Developing specific goals and plans to prioritize, organize, and accomplish your work. • Communicating with Supervisors, Peers, or Subordinates — Providing information to supervisors, co-workers, and subordinates by telephone, in written form, e-mail, or in person. • Establishing and Maintaining Interpersonal Relationships — Developing constructive and cooperative working relationships with others, and maintaining them over time. • Interpreting the Meaning of Information for Others — Translating or explaining what information means and how it can be used.
Work Environment	• Electronic Mail — 100% responded “Every day.” • Indoors, Environmentally Controlled — 97% responded “Every day.” • Telephone — 83% responded “Every day.” • Spend Time Sitting — 66% responded “Continually or almost continually.” • Time Pressure — 62% responded “Every day.” • Face-to-Face Discussions — 62% responded “Every day.” • Level of Competition — 55% responded “Highly competitive.” • Importance of Being Exact or Accurate — 41% responded “Extremely important.” • Duration of Typical Work Week — 57% responded “More than 40 hours.” • Spend Time Making Repetitive Motions — 46% responded “Continually or almost continually.”
Uniform Requirements	Clean casual attire Client meetings require business attire
Advanced Standing/Articulation Agreements	Pennsylvania State Wide Articulation Agreement - Link to: SOAR Douglas Education Center

Graphics and Electronic Media - Detailed Skill Assessment

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Detailed Skill Assessment

If your are thinking about enrolling at ICTC, please e-mail this completed chart to

bpiccirillo@ictc.edu

Name:	**School:**	**Grade:**

Academics:	**Present Level**	**If there is a gap, indicate Planned Action**
Advanced Computer Skills - Hardware/Software		
11th Grade Reading and Comprehension Levels		
Oral and Written Communication		
Algebra I		
Algebra II		
Geometry		
Ecology - Impact of the POS on the Environment		
Abilities: (see glossary below)		
Originality		
Written Comprehension		
Fluency of Ideas		
Near Vision		
Written Expression		
Oral Comprehension		
Oral Expression		
Visualization		
Category Flexibility		
Inductive Reasoning		
Problem Sensitivity		
Speech Clarity		
Deductive Reasoning		
Information Ordering		
Speech Recognition		
Selective Attention		
Finger Dexterity		
Flexibility of Closure		

	Present Level	If there is a gap, indicate Planned Action
Perceptual Speed		
Visual Color Discrimination		
Far Vision		
Time Sharing		
Arm-Hand Steadiness		
Mathematical Reasoning		
Control Precision		
Manual Dexterity		
Number Facility		
Speed of Closure		
Memorization		
Depth Perception		
Auditory Attention		
Hearing Sensitivity		
Trunk Strength		

Glossary

Originality — The ability to come up with unusual or clever ideas about a given topic or situation, or to develop creative ways to solve a problem.

Written Comprehension — The ability to read and understand information and ideas presented in writing.

Fluency of Ideas — The ability to come up with a number of ideas about a topic (the number of ideas is important, not their quality, correctness, or creativity).

Near Vision — The ability to see details at close range (within a few feet of the observer).

Written Expression — The ability to communicate information and ideas in writing so others will understand.

Oral Comprehension — The ability to listen to and understand information and ideas presented through spoken words and sentences.

Oral Expression — The ability to communicate information and ideas in speaking so others will understand.

Visualization — The ability to imagine how something will look after it is moved around or when its parts are moved or rearranged.

Category Flexibility — The ability to generate or use different sets of rules for combining or grouping things in different ways.

Inductive Reasoning — The ability to combine pieces of information to form general rules or conclusions (includes finding a relationship among seemingly unrelated events).

Problem Sensitivity — The ability to tell when something is wrong or is likely to go wrong. It does not involve solving the problem, only recognizing there is a problem.

Speech Clarity — The ability to speak clearly so others can understand you.

Deductive Reasoning — The ability to apply general rules to specific problems to produce answers that make sense.

Information Ordering — The ability to arrange things or actions in a certain order or pattern according to a specific rule or set of rules (e.g., patterns of numbers, letters, words, pictures, mathematical operations).

Speech Recognition — The ability to identify and understand the speech of another person.

Selective Attention — The ability to concentrate on a task over a period of time without being distracted.

Finger Dexterity — The ability to make precisely coordinated movements of the fingers of one or both hands to grasp, manipulate, or assemble very small objects.

Flexibility of Closure — The ability to identify or detect a known pattern (a figure, object, word, or sound) that is hidden in other distracting material.

Perceptual Speed — The ability to quickly and accurately compare similarities and differences among sets of letters, numbers, objects, pictures, or patterns. The things to be compared may be presented at the same time or one after the other. This ability also includes comparing a presented object with a remembered object.

Visual Color Discrimination — The ability to match or detect differences between colors, including shades of color and brightness.

Far Vision — The ability to see details at a distance.

Time Sharing — The ability to shift back and forth between two or more activities or sources of information (such as speech, sounds, touch, or other sources).

Arm-Hand Steadiness — The ability to keep your hand and arm steady while moving your arm or while holding your arm and hand in one position.

Mathematical Reasoning — The ability to choose the right mathematical methods or formulas to solve a problem.

Control Precision — The ability to quickly and repeatedly adjust the controls of a machine or a vehicle to exact positions.

Manual Dexterity — The ability to quickly move your hand, your hand together with your arm, or your two hands to grasp, manipulate, or assemble objects.

Number Facility — The ability to add, subtract, multiply, or divide quickly and correctly.

Speed of Closure — The ability to quickly make sense of, combine, and organize information into meaningful patterns.

Memorization — The ability to remember information such as words, numbers, pictures, and procedures.

Depth Perception — The ability to judge which of several objects is closer or farther away from you, or to judge the distance between you and an object.

Auditory Attention — The ability to focus on a single source of sound in the presence of other distracting sounds.

Hearing Sensitivity — The ability to detect or tell the differences between sounds that vary in pitch and **loudness.**

Trunk Strength — The ability to use your abdominal and lower back muscles to support part of the body repeatedly or continuously over time without 'giving out' or fatiguing.

Health Occupations Technology

Print this Program of Study

Health Occupations Technology

***Recommendations to fully access all components of this Program of Study**:

Academic

- Biology
- Chemistry
- 11th Grade Reading and Comprension Levels
- Oral and Written Communication
- Algebra I
- Algebra II
- Geometry
- Basic Computer Skills - Software

Skills

- Service Orientation — Actively looking for ways to help people.
- Active Listening — Giving full attention to what other people are saying, taking time to understand the points being made, asking questions as appropriate, and not interrupting at inappropriate times.
- Social Perceptiveness — Being aware of others' reactions and understanding why they react as they do.
- Coordination — Adjusting actions in relation to others' actions.
- Monitoring — Monitoring/Assessing performance of yourself, other individuals, or organizations to make improvements or take corrective action.
- Speaking — Talking to others to convey information effectively.
- Critical Thinking — Using logic and reasoning to identify the strengths and weaknesses of alternative solutions, conclusions or approaches to problems.
- Reading Comprehension — Understanding written sentences and paragraphs in work related documents.

Abilities

- Oral Comprehension — The ability to listen to and understand information and ideas presented through spoken words and sentences.
- Problem Sensitivity — The ability to tell when something is wrong or is likely to go wrong. It does not involve solving the problem, only recognizing there is a problem.
- Near Vision — The ability to see details at close range (within a few feet of the observer).
- Oral Expression — The ability to communicate information and ideas in speaking so others will understand.
- Speech Recognition — The ability to identify and understand the speech of another person.
- Written Comprehension — The ability to read and understand information and ideas presented in writing.
- Speech Clarity — The ability to speak clearly so others can understand you.
- Static Strength — The ability to exert maximum muscle force to lift, push, pull, or carry objects.
- Deductive Reasoning — The ability to apply general

Industry Certifications Available to Qualified Students:

NNAAP
National Nurse Aide Assessment Program

Heartsaver
First Aid
CPR
AED

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pennsylvania
DEPARTMENT OF EDUCATION

PDE: Programs of Study Framework

rules to specific problems to produce answers that make sense.
- Inductive Reasoning — The ability to combine pieces of information to form general rules or conclusions (includes finding a relationship among seemingly unrelated events).

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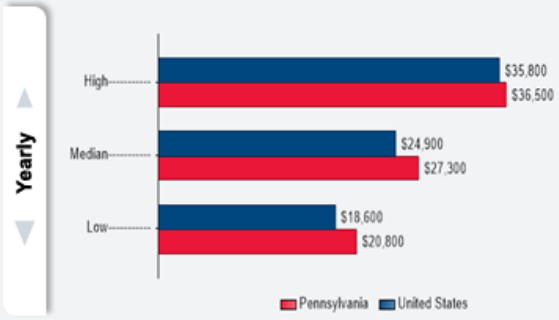
Students Occupationally and Academically Ready

Link to SOAR

This document is intended to provide an overview of the program and is to be used as an informative tool to assist districts, parents, and students in the decision making process for program placement and transition planning. It is not intended to be and should not be used as a screening tool for student placement.

Health Occupations Technology

CIP Code
51.0899 Health/Medical Assisting Services, Other - Employment Outlook
This is a program with a combination of subject matter and experiences designed to prepare individuals for entry level employment in a minimum of three related health occupations under the supervision of a licensed health care professional. Instruction consists of core course content with clinical experiences in one or two health related occupations. The core curriculum consists of planned courses for introduction of health careers, basic anatomy and physiology, medical terminology, legal and ethical aspects of health care and communications, and at least three planned courses for the knowledge and skills for the occupational area such as medical assisting, ward clerk, nursing assisting, etc.

Median wages (2013)	$11.97 hourly, $24,890 annual
State wages	 • "High" indicates 90% of workers earn less and 10% earn more. • "Median" indicates 50% of workers earn less and 50% earn more. • "Low" indicates 10% of workers earn less and 90% earn more. • "N/A" indicates the data is not available. **Notes:** Yearly wage data applies only to workers with full-time, year-round schedules. For salary information for part-time or part-year workers, use hourly wage data.
Employment (2012)	1,480,000 employees
Projected growth (2012-2022)	Faster than average (15% to 21%)
Projected job openings (2012-2022)	593,600

State trends

United States	Employment		Percent Change	Projected Annual Job Openings
	2012	2022		
Nursing Assistants	1,479,800	1,792,000	+21%	59,360
Pennsylvania	**Employment**		**Percent Change**	**Projected Annual Job Openings**
	2012	**2022**		
Nursing Assistants	73,840	81,390	+10%	2,160

Projected Annual Job Openings refers to the average annual job openings due to growth and net replacement.

http://www.onetonline.org/link/summary/31-1014.00

This document is intended to provide an overview of the program and is to be used as an informative tool to assist districts, parents, and students in the decision making process for program placement and transition planning. It is not intended to be and should not be used as a screening tool for student placement.

Health Occupations Technology

CIP Code: 51.0899	HEALTH/MEDICAL ASSISTING SERVICES, OTHER - Detailed Program Description
Objective of this Program of Study	Students who are caring, compassionate and possess critical thinking skills should consider Health Occupations Technology (HOT). Our program is designed for success in an ever demanding healthcare field. The student's knowledge base is increased through lab skills, course work and clinical experiences in several of the areas Skilled Nursing Facilities. Seniors have the privilege to job shadow eight different specialty areas at Indiana Regional Medical Center to help them decide upon future career choices. Students will be enrolled in the Nurse Aide Program. Students who achieve 112 theory hours and 38 clinical hours may be eligible to take the PA Nurse Aide (NA) Competency Exam. Scheduled clinical experiences assist the students to learn through "hands-on" clinical practice. Passing the NA Exam provides immediate entry into the job market. Each student is also provided the opportunity to complete a CPR/First Aid course. Upon completion of this course, the student will be CPR/First Aid certified. A foundational knowledge of medical terminology and abbreviations begins in the first year and builds upon every year until the completion of program. An in-depth Anatomy and Physiology course is available as a foundation before completion of the Nurse Aid Program.
Occupational Objectives Offered	NURSE ASSISTANT MEDICAL ASSISTANT * EMT OR PARAMEDIC * LICENSED PRACTICAL NURSE * MASSAGE THERAPIST * MEDICAL LAB TECHNICIAN * PHYSCIAN'S ASSISTANT * PHYSICAL/OCCUPATIONAL THERAPIST OR ASSISTANT * REGISTERED NURSE * RESPIRATORY THERAPIST * SURGICAL TECHNICIAN * X-RAY TECHNICIAN * - Requires post-secondary training
Planned Courses To view the task list for this Program of Study use this link: POS Framework	PROFESSIONALSIM INFECTION CONTROL EMERGENCY CARE AND DISASTER PREPAREDNESS HUMAN NEEDS AND HUMAN DEVELOPMENT MOVING, LIFTING, AND POSITIONING DEATH AND DYING NURSING ASSISTANT AND CARE TEAM SAFETY AND BODY MECHANICS RESIDENT UNIT URINARY ELIMINATION BOWEL ELIMINATION BASIC NURSING SKILLS COMMON, CHRONIC, AND ACUTE CONDITIONS CONFUSION, DEMENTIA, AND ALZHEIMER'S DISEASE MENTAL HEALTH AND MENTAL ILLNESS REHABILITATION AND RESTORATIVE CARE SAFETY COMMUNICATION HEALTH CARE PROVIDER SKILLS NUTRITION AND HYDRATION BASIC STRUCTURES AND FUNCTIONS OF THE HUMAN BODY & RELATED DISEASES WITH ASSOCIATED TERMINOLOGY COMMON, CHRONIC, AND ACUTE CONDITIONS INFECTION CONTROL MEDICAL TERMINOLOGY

	LAW AND ETHICS Expect all planned courses in this Program of Study to include an academic component. Homework and testing will require skills in: • Mathematics • Reading • Writing • Science • Research • Oral presentation • Computer use Click on the ***Detailed Skill Assessment*** link at the top of this page for more information.
Classroom: Academic Instruction, Textbook, and Tests	Academic Instruction: 1-2 hours per day Textbook: *Hartman's Nursing Assistant Care: Long Term Care and Home Health; Medical Terminology 350 2nd Edition; The Human Body in Health and Illness 4th Edition* Academic Testing: 1-2 per week
Certification Tests	National Nurse Aide Assessment Program CPR First Aid AED
Co-operative Education/Clinical	Very limited, but may be available to seniors on instructor's recommendation Clinical is mandatory for all students.
Work Activities	• Assisting and Caring for Others — Providing personal assistance, medical attention, emotional support, or other personal care to others such as coworkers, customers, or patients. • Communicating with Supervisors, Peers, or Subordinates — Providing information to supervisors, co-workers, and subordinates by telephone, in written form, e-mail, or in person. • Identifying Objects, Actions, and Events — Identifying information by categorizing, estimating, recognizing differences or similarities, and detecting changes in circumstances or events. • Establishing and Maintaining Interpersonal Relationships — Developing constructive and cooperative working relationships with others, and maintaining them over time. • Getting Information — Observing, receiving, and otherwise obtaining information from all relevant sources. • Evaluating Information to Determine Compliance with Standards — Using relevant information and individual judgment to determine whether events or processes comply with laws, regulations, or standards. • Monitor Processes, Materials, or Surroundings — Monitoring and reviewing information from materials, events, or the environment, to detect or assess problems. • Performing General Physical Activities — Performing physical activities that require considerable use of your arms and legs and moving your whole body, such as climbing, lifting, balancing, walking, stooping, and handling of materials. • Inspecting Equipment, Structures, or Material — Inspecting equipment, structures, or materials to identify the cause of errors or other problems or defects. • Making Decisions and Solving Problems — Analyzing information and evaluating results to choose the best solution and solve problems.
Work Environment	• Face-to-Face Discussions — 85% responded "Every day." • Physical Proximity — 71% responded "Very close (near touching)." • Contact With Others — 74% responded "Constant contact with others." • Work With Work Group or Team — 71% responded "Extremely important." • Spend Time Walking and Running — 51% responded "Continually or almost continually." • Wear Common Protective or Safety Equipment such as Safety Shoes, Glasses, Gloves, Hearing Protection, Hard Hats, or Life Jackets — 80% responded "Every day." • Exposed to Disease or Infections — 73% responded "Every day." • Spend Time Standing — 50% responded "Continually or almost continually." • Responsible for Others' Health and Safety — 56% responded "Very high responsibility." • Indoors, Environmentally Controlled — 78% responded "Every day."
Uniform Requirements	Uniform Purchase = approx. $40.00 (Scrub top and pants) Provided by student: A white long or short sleeve t-shirt may be worn under scrub top); white socks; mostly white tennis shoes with white shoe laces
Advanced Standing/Articulation Agreements	Pennsylvania State Wide Articulation Agreement - Link to: SOAR ICTC Practical Nursing Program

This document is intended to provide an overview of the program and is to be used as an informative tool to assist districts, parents, and students in the decision making process for program placement and transition planning. It is not intended to be and should not be used as a screening tool for student placement.

Health Occupations Technology - Detailed Skill Assessment

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Detailed Skill Assessment

If your are thinking about enrolling at ICTC, please e-mail this completed chart to bpiccirillo@ictc.edu

Name:	**School:**	**Grade:**

Academics:	**Present Level**	**If there is a gap, indicate Planned Action**
Biology		
Chemistry		
11th Grade Reading and Comprehension Levels		
Oral and Written Communication		
Algebra I		
Algebra II		
Geometry		
Basic Computer Skills - Software		
Abilities: (see glossary below)		
Oral Comprehension		
Problem Sensitivity		
Near Vision		
Oral Expression		
Speech Recognition		
Written Comprehension		
Speech Clarity		
Static Strength		
Deductive Reasoning		
Inductive Reasoning		
Trunk Strength		
Arm-Hand Steadiness		
Category Flexibility		
Extent Flexibility		
Information Ordering		
Finger Dexterity		
Written Expression		

	Present Level	If there is a gap, indicate Planned Action
Stamina		
Far Vision		
Manual Dexterity		
Selective Attention		
Gross Body Coordination		
Hearing Sensitivity		
Multilimb Coordination		
Visual Color Discrimination		
Flexibility of Closure		
Perceptual Speed		
Speed of Limb Movement		
Time Sharing		
Auditory Attention		
Dynamic Strength		
Fluency of Ideas		
Memorization		
Number Facility		
Originality		
Visualization		
Control Precision		
Depth Perception		
Gross Body Equilibrium		
Mathematical Reasoning		
Speed of Closure		
Explosive Strength		
Reaction Time		
Response Orientation		
Dynamic Flexibility		
Wrist-Finger Speed		
Rate Control		
Sound Localization		

Glossary

Oral Comprehension — The ability to listen to and understand information and ideas presented through spoken words and sentences.

Problem Sensitivity — The ability to tell when something is wrong or is likely to go wrong. It does not involve solving the problem, only recognizing there is a problem.

Near Vision — The ability to see details at close range (within a few feet of the observer).

Oral Expression — The ability to communicate information and ideas in speaking so others will understand.

Speech Recognition — The ability to identify and understand the speech of another person.

Written Comprehension — The ability to read and understand information and ideas presented in writing.

Speech Clarity — The ability to speak clearly so others can understand you.

Static Strength — The ability to exert maximum muscle force to lift, push, pull, or carry objects.

Deductive Reasoning — The ability to apply general rules to specific problems to produce answers that make sense.

Inductive Reasoning — The ability to combine pieces of information to form general rules or conclusions (includes finding a relationship among seemingly unrelated events).

Trunk Strength — The ability to use your abdominal and lower back muscles to support part of the body repeatedly or continuously over time without 'giving out' or fatiguing.

Arm-Hand Steadiness — The ability to keep your hand and arm steady while moving your arm or while holding your arm and hand in one position.

Category Flexibility — The ability to generate or use different sets of rules for combining or grouping things in different ways.

Extent Flexibility — The ability to bend, stretch, twist, or reach with your body, arms, and/or legs.

Information Ordering — The ability to arrange things or actions in a certain order or pattern according to a specific rule or set of rules (e.g., patterns of numbers, letters, words, pictures, mathematical operations).

Finger Dexterity — The ability to make precisely coordinated movements of the fingers of one or both hands to grasp, manipulate, or assemble very small objects.

Written Expression — The ability to communicate information and ideas in writing so others will understand.

Stamina — The ability to exert yourself physically over long periods of time without getting winded or out of breath.

Far Vision — The ability to see details at a distance.

Manual Dexterity — The ability to quickly move your hand, your hand together with your arm, or your two hands to grasp, manipulate, or assemble objects.

Selective Attention — The ability to concentrate on a task over a period of time without being distracted.

Gross Body Coordination — The ability to coordinate the movement of your arms, legs, and torso together when the whole body is in motion.

Hearing Sensitivity — The ability to detect or tell the differences between sounds that vary in pitch and loudness.

Multilimb Coordination — The ability to coordinate two or more limbs (for example, two arms, two legs, or one leg and one arm) while sitting, standing, or lying down. It does not involve performing the activities while the whole body is in motion.

Visual Color Discrimination — The ability to match or detect differences between colors, including shades of color and brightness.

Flexibility of Closure — The ability to identify or detect a known pattern (a figure, object, word, or sound) that is hidden in other distracting material.

Perceptual Speed — The ability to quickly and accurately compare similarities and differences among sets of letters, numbers, objects, pictures, or patterns. The things to be compared may be presented at the same time or one after the other. This ability also includes comparing a presented object with a remembered object.

Speed of Limb Movement — The ability to quickly move the arms and legs.

Time Sharing — The ability to shift back and forth between two or more activities or sources of information (such as speech, sounds, touch, or other sources).

Auditory Attention — The ability to focus on a single source of sound in the presence of other distracting sounds.

Dynamic Strength — The ability to exert muscle force repeatedly or continuously over time. This involves muscular endurance and resistance to muscle fatigue.

Fluency of Ideas — The ability to come up with a number of ideas about a topic (the number of ideas is important, not their quality, correctness, or creativity).

Memorization — The ability to remember information such as words, numbers, pictures, and procedures.

Number Facility — The ability to add, subtract, multiply, or divide quickly and correctly.

Originality — The ability to come up with unusual or clever ideas about a given topic or situation, or to develop creative ways to solve a problem.

Visualization — The ability to imagine how something will look after it is moved around or when its parts are moved or rearranged.

Control Precision — The ability to quickly and repeatedly adjust the controls of a machine or a vehicle to exact positions.

Depth Perception — The ability to judge which of several objects is closer or farther away from you, or to judge the distance between you and an object.

Gross Body Equilibrium — The ability to keep or regain your body balance or stay upright when in an unstable position.

Mathematical Reasoning — The ability to choose the right mathematical methods or formulas to solve a problem.

Speed of Closure — The ability to quickly make sense of, combine, and organize information into meaningful patterns.

Explosive Strength — The ability to use short bursts of muscle force to propel oneself (as in jumping or sprinting), or to throw an object.

Reaction Time — The ability to quickly respond (with the hand, finger, or foot) to a signal (sound, light, picture) when it appears.

Response Orientation — The ability to choose quickly between two or more movements in response to two or more different signals (lights, sounds, pictures). It includes the speed with which the correct response is started with the hand, foot, or other body part.

Dynamic Flexibility — The ability to quickly and repeatedly bend, stretch, twist, or reach out with your body, arms, and/or legs.

Wrist-Finger Speed — The ability to make fast, simple, repeated movements of the fingers, hands, and wrists.

Rate Control — The ability to time your movements or the movement of a piece of equipment in anticipation of changes in the speed and/or direction of a moving object or scene.

Sound Localization — The ability to tell the direction from which a sound originated.

Spatial Orientation — The ability to know your location in relation to the environment or to know where other objects are in relation to you

HVAC

Print this Program of Study

HVAC

***Recommendations to fully access all components of this Program of Study**:

Academic

- Physics
- Advanced Computer Skills - Hardware and Software
- Algebra I
- Algebra II
- Geometry
- Chemistry
- 11th Grade Reading and Comprension Levels
- Oral and Written Communication
- Ecology - Impact of the POS on the Environment

Skills

- Equipment Maintenance — Performing routine maintenance on equipment and determining when and what kind of maintenance is needed.
- Installation — Installing equipment, machines, wiring, or programs to meet specifications.
- Quality Control Analysis — Conducting tests and inspections of products, services, or processes to evaluate quality or performance.
- Troubleshooting — Determining causes of operating errors and deciding what to do about it.
- Operation Monitoring — Watching gauges, dials, or other indicators to make sure a machine is working properly.
- Repairing — Repairing machines or systems using the needed tools.
- Active Listening — Giving full attention to what other people are saying, taking time to understand the points being made, asking questions as appropriate, and not interrupting at inappropriate times.
- Critical Thinking — Using logic and reasoning to identify the strengths and weaknesses of alternative solutions, conclusions or approaches to problems.
- Operation and Control — Controlling operations of equipment or systems.
- Reading Comprehension — Understanding written sentences and paragraphs in work related documents.

Abilities

- Problem Sensitivity — The ability to tell when something is wrong or is likely to go wrong. It does not involve solving the problem, only recognizing there is a problem.
- Finger Dexterity — The ability to make precisely coordinated movements of the fingers of one or both hands to grasp, manipulate, or assemble very small objects.
- Near Vision — The ability to see details at close range (within a few feet of the observer).
- Visualization — The ability to imagine how something will look after it is moved around or when its parts are moved or rearranged.
- Manual Dexterity — The ability to quickly move your

Industry Certifications Available to Qualified Students:

Gastite – The System is the Solution

MEDIC First Aid

PBA Pennsylvania Builders Association

Member NAHB National Association of Home Builders

EPA-608 Certified HVAC Technicians

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pennsylvania DEPARTMENT OF EDUCATION

PDE: Programs of Study Framework

hand, your hand together with your arm, or your two hands to grasp, manipulate, or assemble objects.
- Arm-Hand Steadiness — The ability to keep your hand and arm steady while moving your arm or while holding your arm and hand in one position.
- Deductive Reasoning — The ability to apply general rules to specific problems to produce answers that make sense.
- Extent Flexibility — The ability to bend, stretch, twist, or reach with your body, arms, and/or legs.
- Inductive Reasoning — The ability to combine pieces of information to form general rules or conclusions (includes finding a relationship among seemingly unrelated events).
- Information Ordering — The ability to arrange things or actions in a certain order or pattern according to a specific rule or set of rules (e.g., patterns of numbers, letters, words, pictures, mathematical operations).

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SOAR Students Occupationally and Academically Ready

Link to SOAR

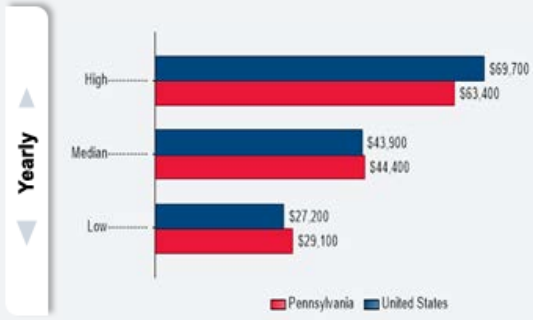
This document is intended to provide an overview of the program and is to be used as an informative tool to assist districts, parents, and students in the decision making process for program placement and transition planning. It is not intended to be and should not be used as a screening tool for student placement.

HVAC

CIP Code

47.0201 Heating, Air Conditioning, Ventilation and Refrigeration Maintenance Technology/Technician - Employment Outlook

This is an instructional program that prepares individuals to apply technical knowledge and skills to install, repair and maintain commercial and domestic heating, air conditioning and refrigeration systems. Instruction includes theory and application of basic principles involved in conditioning of air (cooling and heating); filtering and controlling humidity; operating characteristics of various units and parts; blueprint reading; use of technical reference manuals; the diagnosis of malfunctions; overhaul, repair and adjustment of units and parts such as pumps, compressors, valves, springs and connections; and repair of electric, electronic and pneumatic control systems.

Median wages (2013)	$21.10 hourly, $43,880 annual
State wages	 • "High" indicates 90% of workers earn less and 10% earn more. • "Median" indicates 50% of workers earn less and 50% earn more. • "Low" indicates 10% of workers earn less and 90% earn more. • "N/A" indicates the data is not available. **Notes:** Yearly wage data applies only to workers with full-time, year-round schedules. For salary information for part-time or part-year workers, use hourly wage data.
Employment (2012)	268,000 employees
Projected growth (2012-2022)	Faster than average (15% to 21%)
Projected job openings (2012-2022)	123,700

State trends

United States	Employment		Percent Change	Projected Annual Job Openings
	2012	2022		
Heating, Air Conditioning, and Refrigeration Mechanics and Installers	267,600	323,500	+21%	12,370
Pennsylvania	**Employment**		**Percent Change**	**Projected Annual Job Openings**
	2012	**2022**		
Heating, Air Conditioning, and Refrigeration Mechanics and Installers	12,220	13,670	+12%	460

Projected Annual Job Openings refers to the average annual job openings due to growth and net replacement.

http://www.onetonline.org/link/summary/49-9021.01

This document is intended to provide an overview of the program and is to be used as an informative tool to assist districts, parents, and students in the decision making process for program placement and transition planning. It is not intended to be and should not be used as a screening tool for student placement.

HVAC

CIP Code: 47.0201	HEATING, AIR CONDITIONING, VENTILATION AND REFRIGERATION MAINTENANCE TECHNOLOGY/TECHNICIAN - Detailed Program Description
Objective of this Program of Study	The HVAC/R program will prepare students for an entry-level position as an installer, maintenance, or service technician dealing with aspects of the residential and commercial field. This career area is always growing, has great monetary potential and will always be in demand. The students will become adept at working with specialty tools, pressure/temperature/electrical meters, metal fabricating devices, torches, refrigerants, and live HVAC/R equipment. This program is heavily delivered with hands-on lab projects. The students will reinforce this lab work with classroom theory.
Occupational Objectives Offered	BUSINESS OWNER CONTROLS TECHNICIAN ELECTRICIAN HVAC SERVICE TECHNICIAN REFRIGERATION TECHNICIAN SHEET METAL WORKER
Planned Courses To view the task list for this Program of Study use this link: POS Framework	INTRODUCTION TO HVAC BASIC SAFETY TOOLS FOR HVAC/R PIPING PRACTICES BASIC ELECTRICITY INTRODUCTION TO COOLING AIR DISTRIBUTION SYSTEMS BLUEPRINT READING INTRODUCTION TO HEATING AIR DISTRIBUTION SYSTEMS INTRODUCTION TO HYDRONIC HEAT LEAK DETECTION, EVACUATION, RECOVERY AND CHARGING TROUBLESHOOTING GAS HEATING TROUBLESHOOTING COOLING AIR DISTRIBUTION SYSTEMS HEAT PUMPS COMPUTER FUNDAMENTALS
Classroom: Academic Instruction, Textbook, and Tests	Academic Instruction: 1 hour per day Textbook: *Residential Construction Academy HVAC 1st and 2nd Edition; Refrigeration and Air Conditioning Technology 6th Edition* Academic Testing: 1 per week
Certification Tests	PA Skills (NOCTI) EPA 608 - Refrigerant Recovery EPA 410A - Safety Certification Medic First Aid, CPR, AED
Co-operative Education	Available to seniors on instructor's recommendation
Work Activities	• Repairing and Maintaining Mechanical Equipment — Servicing, repairing, adjusting, and testing machines, devices, moving parts, and equipment that operate primarily on the basis of mechanical (not electronic) principles. • Updating and Using Relevant Knowledge — Keeping up-to-date technically and applying new knowledge to your job.

	• Making Decisions and Solving Problems — Analyzing information and evaluating results to choose the best solution and solve problems. • Getting Information — Observing, receiving, and otherwise obtaining information from all relevant sources. • Handling and Moving Objects — Using hands and arms in handling, installing, positioning, and moving materials, and manipulating things. • Inspecting Equipment, Structures, or Material — Inspecting equipment, structures, or materials to identify the cause of errors or other problems or defects. • Performing General Physical Activities — Performing physical activities that require considerable use of your arms and legs and moving your whole body, such as climbing, lifting, balancing, walking, stooping, and handling of materials. • Controlling Machines and Processes — Using either control mechanisms or direct physical activity to operate machines or processes (not including computers or vehicles). • Repairing and Maintaining Electronic Equipment — Servicing, repairing, calibrating, regulating, fine-tuning, or testing machines, devices, and equipment that operate primarily on the basis of electrical or electronic (not mechanical) principles. • Analyzing Data or Information — Identifying the underlying principles, reasons, or facts of information by breaking down information or data into separate parts.
Work Environment	• Face-to-Face Discussions — 74% responded “Every day.” • Outdoors, Exposed to Weather — 69% responded “Every day.” • Spend Time Using Your Hands to Handle, Control, or Feel Objects, Tools, or Controls — 58% responded “Continually or almost continually.” • Telephone — 72% responded “Every day.” • In an Enclosed Vehicle or Equipment — 79% responded “Every day.” • Indoors, Not Environmentally Controlled — 62% responded “Every day.” • Spend Time Standing — 63% responded “Continually or almost continually.” • Contact With Others — 64% responded “Constant contact with others.” • Exposed to Contaminants — 71% responded “Every day.” • Wear Common Protective or Safety Equipment such as Safety Shoes, Glasses, Gloves, Hearing Protection, Hard Hats, or Life Jackets — 64% responded “Every day.”
Uniform Requirements	Hard leather steel toed shoes or boots provided by the student Safety glasses are supplied by the program area (first pair is free) Gloves Long-sleeved shirts
Advanced Standing/Articulation Agreements	Pennsylvania State Wide Articulation Agreement - Link to: SOAR

HVAC -
Detailed Skill Assessment

GoTo Fillable PDF
Detailed Skill Assessment

If your are thinking about enrolling at ICTC, please e-mail this completed chart to bpiccirillo@ictc.edu

Name:	**School:**	**Grade:**

Academics:	**Present Level**	**If there is a gap, indicate Planned Action**
Physics		
Advanced Computer Skills - Hardware/Software		
Algebra I		
Algebra II		
Geometry		
Chemistry		
11th Grade Reading and Comprehension Levels		
Oral and Written Communication		
Ecology - Impact of the POS on the Environment		
Abilities: (see glossary below)		
Problem Sensitivity		
Finger Dexterity		
Near Vision		
Visualization		
Manual Dexterity		
Arm-Hand Steadiness		
Deductive Reasoning		
Extent Flexibility		
Inductive Reasoning		
Information Ordering		
Multilimb Coordination		
Oral Comprehension		
Perceptual Speed		
Speech Recognition		
Trunk Strength		
Control Precision		

	Present Level	If there is a gap, indicate Planned Action
Oral Expression		
Selective Attention		
Speed of Closure		
Visual Color Discrimination		
Written Comprehension		
Category Flexibility		
Far Vision		
Flexibility of Closure		
Speech Clarity		
Static Strength		
Written Expression		
Depth Perception		
Fluency of Ideas		
Gross Body Equilibrium		
Memorization		
Speed of Limb Movement		
Time Sharing		
Auditory Attention		
Gross Body Coordination		
Hearing Sensitivity		
Mathematical Reasoning		
Reaction Time		
Stamina		
Number Facility		
Originality		
Dynamic Strength		
Response Orientation		
Spatial Orientation		
Rate Control		
Wrist-Finger Speed		
Glare Sensitivity		
Night Vision		
Peripheral Vision		

	Present Level	If there is a gap, indicate Planned Action
Sound Localization		
Explosive Strength		
Dynamic Flexibility		

Glossary

Problem Sensitivity — The ability to tell when something is wrong or is likely to go wrong. It does not involve solving the problem, only recognizing there is a problem.

Finger Dexterity — The ability to make precisely coordinated movements of the fingers of one or both hands to grasp, manipulate, or assemble very small objects.

Near Vision — The ability to see details at close range (within a few feet of the observer).

Visualization — The ability to imagine how something will look after it is moved around or when its parts are moved or rearranged.

Manual Dexterity — The ability to quickly move your hand, your hand together with your arm, or your two hands to grasp, manipulate, or assemble objects.

Arm-Hand Steadiness — The ability to keep your hand and arm steady while moving your arm or while holding your arm and hand in one position.

Deductive Reasoning — The ability to apply general rules to specific problems to produce answers that make sense.

Extent Flexibility — The ability to bend, stretch, twist, or reach with your body, arms, and/or legs.

Inductive Reasoning — The ability to combine pieces of information to form general rules or conclusions (includes finding a relationship among seemingly unrelated events).

Information Ordering — The ability to arrange things or actions in a certain order or pattern according to a specific rule or set of rules (e.g., patterns of numbers, letters, words, pictures, mathematical operations).

Multilimb Coordination — The ability to coordinate two or more limbs (for example, two arms, two legs, or one leg and one arm) while sitting, standing, or lying down. It does not involve performing the activities while the whole body is in motion.

Oral Comprehension — The ability to listen to and understand information and ideas presented through spoken words and sentences.

Perceptual Speed — The ability to quickly and accurately compare similarities and differences among sets of letters, numbers, objects, pictures, or patterns. The things to be compared may be presented at the same time or one after the other. This ability also includes comparing a presented object with a remembered object.

Speech Recognition — The ability to identify and understand the speech of another person.

Trunk Strength — The ability to use your abdominal and lower back muscles to support part of the body repeatedly or continuously over time without 'giving out' or fatiguing.

Control Precision — The ability to quickly and repeatedly adjust the controls of a machine or a vehicle to exact positions.

Oral Expression — The ability to communicate information and ideas in speaking so others will understand.

Selective Attention — The ability to concentrate on a task over a period of time without being distracted.

Speed of Closure — The ability to quickly make sense of, combine, and organize information into meaningful patterns.

Visual Color Discrimination — The ability to match or detect differences between colors, including shades of color and brightness.

Written Comprehension — The ability to read and understand information and ideas presented in writing.

Category Flexibility — The ability to generate or use different sets of rules for combining or grouping things in different ways.

Far Vision — The ability to see details at a distance.

Flexibility of Closure — The ability to identify or detect a known pattern (a figure, object, word, or sound) that is hidden in other distracting material.

Speech Clarity — The ability to speak clearly so others can understand you.

Static Strength — The ability to exert maximum muscle force to lift, push, pull, or carry objects.

Written Expression — The ability to communicate information and ideas in writing so others will understand.

Depth Perception — The ability to judge which of several objects is closer or farther away from you, or to judge the distance between you and an object.

Fluency of Ideas — The ability to come up with a number of ideas about a topic (the number of ideas is important, not their quality, correctness, or creativity).

Gross Body Equilibrium — The ability to keep or regain your body balance or stay upright when in an unstable position.

Memorization — The ability to remember information such as words, numbers, pictures, and procedures.

Speed of Limb Movement — The ability to quickly move the arms and legs.

Time Sharing — The ability to shift back and forth between two or more activities or sources of information (such as speech, sounds, touch, or other sources).

Auditory Attention — The ability to focus on a single source of sound in the presence of other distracting sounds.

Gross Body Coordination — The ability to coordinate the movement of your arms, legs, and torso together when the whole body is in motion.

Hearing Sensitivity — The ability to detect or tell the differences between sounds that vary in pitch and loudness.

Mathematical Reasoning — The ability to choose the right mathematical methods or formulas to solve a problem.

Reaction Time — The ability to quickly respond (with the hand, finger, or foot) to a signal (sound, light, picture) when it appears.

Stamina — The ability to exert yourself physically over long periods of time without getting winded or out of breath.

Number Facility — The ability to add, subtract, multiply, or divide quickly and correctly.

Originality — The ability to come up with unusual or clever ideas about a given topic or situation, or to develop creative ways to solve a problem.

Dynamic Strength — The ability to exert muscle force repeatedly or continuously over time. This involves muscular endurance and resistance to muscle fatigue.

Response Orientation — The ability to choose quickly between two or more movements in response to two or more different signals (lights, sounds, pictures). It includes the speed with which the correct response is started with the hand, foot, or other body part.

Spatial Orientation — The ability to know your location in relation to the environment or to know where other objects are in relation to you.

Rate Control — The ability to time your movements or the movement of a piece of equipment in anticipation of changes in the speed and/or direction of a moving object or scene.

Wrist-Finger Speed — The ability to make fast, simple, repeated movements of the fingers, hands, and wrists.

Glare Sensitivity — The ability to see objects in the presence of glare or bright lighting.

Night Vision — The ability to see under low light conditions.

Peripheral Vision — The ability to see objects or movement of objects to one's side when the eyes are looking ahead.

Sound Localization — The ability to tell the direction from which a sound originated.

Explosive Strength — The ability to use short bursts of muscle force to propel oneself (as in jumping or sprinting), or to throw an object.

Dynamic Flexibility — The ability to quickly and repeatedly bend, stretch, twist, or reach out with your body, arms, and/or legs.

Machining Technology

Print this Program of Study

Machining Technology

***Recommendations to fully access all components of this Program of Study**:

Academic

- Algebra I
- Algebra II
- Geometry
- Calculus
- 11th Grade Reading and Comprension Levels
- Oral and Written Communication
- Advanced Computer Skills - Hardware and Software
- Physics
- Chemistry
- Ecology - Impact of the POS on the Environment

Skills

- Operation Monitoring — Watching gauges, dials, or other indicators to make sure a machine is working properly.
- Critical Thinking — Using logic and reasoning to identify the strengths and weaknesses of alternative solutions, conclusions or approaches to problems.
- Operation and Control — Controlling operations of equipment or systems.
- Active Listening — Giving full attention to what other people are saying, taking time to understand the points being made, asking questions as appropriate, and not interrupting at inappropriate times.
- Coordination — Adjusting actions in relation to others' actions.
- Monitoring — Monitoring/Assessing performance of yourself, other individuals, or organizations to make improvements or take corrective action.
- Reading Comprehension — Understanding written sentences and paragraphs in work related documents.

Abilities

- Arm-Hand Steadiness — The ability to keep your hand and arm steady while moving your arm or while holding your arm and hand in one position.
- Manual Dexterity — The ability to quickly move your hand, your hand together with your arm, or your two hands to grasp, manipulate, or assemble objects.
- Control Precision — The ability to quickly and repeatedly adjust the controls of a machine or a vehicle to exact positions.
- Finger Dexterity — The ability to make precisely coordinated movements of the fingers of one or both hands to grasp, manipulate, or assemble very small objects.
- Multilimb Coordination — The ability to coordinate two or more limbs (for example, two arms, two legs, or one leg and one arm) while sitting, standing, or lying down. It does not involve performing the activities while the whole body is in motion.
- Near Vision — The ability to see details at close range (within a few feet of the observer).

Industry Certifications Available to Qualified Students:

OSHA® TOOLINGU toolingu.com NIMS® National Institute for Metalworking Skills®

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http://www.onetonline.org/link/summary/51-4041.00

pennsylvania DEPARTMENT OF EDUCATION

PDE: Programs of Study Framework

- Information Ordering — The ability to arrange things or actions in a certain order or pattern according to a specific rule or set of rules (e.g., patterns of numbers, letters, words, pictures, mathematical operations).
- Problem Sensitivity — The ability to tell when something is wrong or is likely to go wrong. It does not involve solving the problem, only recognizing there is a problem.
- Reaction Time — The ability to quickly respond (with the hand, finger, or foot) to a signal (sound, light, picture) when it appears.
- Selective Attention — The ability to concentrate on a task over a period of time without being distracted.

*

Link to SOAR

This document is intended to provide an overview of the program and is to be used as an informative tool to assist districts, parents, and students in the decision making process for program placement and transition planning. It is not intended to be and should not be used as a screening tool for student placement.

Machining Technology

CIP Code

48.0501 Machine Tool Technology/Machinist - Employment Outlook

This is an instructional program that prepares individuals to apply technical knowledge and skills in all aspects of shaping metal parts. Instruction involves making computations relating to work dimensions, tooling and feeds and speeds of machining. Emphasis is placed upon bench work and the operation of lathes, power saws, shapers, milling machines, grinders, drills and computer operated equipment (CNC and CIM). Instruction also includes the use of precision measuring instruments such as layout tools, micrometers and gauges; methods of machining and heat treatment of various metals; blueprint reading; and the layout of machine parts. Instruction prepares students to operate all types of hand and computer controlled machines.

http://www.portal.state.pa.us/portal/server.pt/community/programs_of_study/7686/framework/679310

Median wages (2013)	$19.03 hourly, $39,570 annual
State wages	 • "High" indicates 90% of workers earn less and 10% earn more. • "Median" indicates 50% of workers earn less and 50% earn more. • "Low" indicates 10% of workers earn less and 90% earn more. • "N/A" indicates the data is not available. **Notes:** Yearly wage data applies only to workers with full-time, year-round schedules. For salary information for part-time or part-year workers, use hourly wage data.
Employment (2012)	398,000 employees
Projected growth (2012-2022)	Average (8% to 14%)
Projected job openings (2012-2022)	125,900

State trends

United States	Employment		Percent Change	Projected Annual Job Openings
	2012	2022		
Machinists	397,500	432,400	+9%	12,590
Pennsylvania	**Employment**		**Percent Change**	**Projected Annual Job Openings**
	2012	**2022**		
Machinists	20,100	22,560	+12%	710

Projected Annual Job Openings refers to the average annual job openings due to growth and net replacement.

http://www.onetonline.org/link/summary/51-4041.00

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Machining Technology

CIP Code: 48.0501	MACHINE TOOL TECHNOLOGY/MACHINIST - Detailed Program Description
Objective of this Program of Study	Machining Technology (MT) is designed to provide each student with the latest technological skills needed for entry in the metalworking occupations. Students have the opportunity to operate state-of-the-art equipment, such as the Computer Numeric Controlled (CNC) machine They also gain experience with the hands-on operation of standard machine tools used in the industry such as: drill presses, metal saws, lathes, milling machines & surface grinders. Related theory acquaints students with metal cutting applications, material properties, layout work, and construction & assembly of machinery. The application of mathematics and blueprint reading is also emphasized throughout the course as an integral part of all completed projects and competencies. The Indiana County Technology Center's (ICTC) MT program is a fully accredited NIMS (National Institute for Metalworking Skills) training and certification site. Students will have the opportunity to achieve NIMS Level 1 machining credentials as part of the course of study for the MT program. **Tooling U**, a company of the **Society of Manufacturing Engineers (SME)**, is the leading developer of online training for manufacturing companies & educational institutions. The partnerships between Tooling U & ICTC's MT program is based on a blended-learning solution, which combines online training with hands-on instruction & lab work. Tooling U delivers a portion of the knowledge online while the ICTC MT program delivers the needed skills through hands-on learning. If students have patience and are willing to tolerate nothing less than perfection, a career in Machining Technology may be worth a look. The students may attain an Occupational Safety and Health Administration (OSHA) ten hour training course in "General Industry".
Occupational Objectives Offered	MACHINIST APPRENTICE * TOOL & DIE MAKER APPRENTICE * - Requires post-secondary training
Planned Courses To view the task list for this Program of Study use this link: POS Framework	ORIENTATION / SAFETY PERFORMING LAYOUT WORK PART INSPECTION BENCH WORK DRILL PRESSES OPERATE GRINDING MACHINES OPERATING LATHES OPERATE MILLING MACHINES OPERATE POWER SAW MAINTAINING MACHINES AND TOOLS USE OF CHARTS AND REFERENCES SHOP MATH SHOP ESSENTIALS METAL CUTTING PART INSPECTION QUALITY CAREER DECISION MAKING - 10TH GRADE OPERATE POWER SAW METALLURGY BLUEPRINT READING SHOP MATH SHOP ESSENTIALS METAL CUTTING DEMONSTRATE CNC PROGRAMMING HAAS LATHE CONTROL HAAS MILL CONTROL NIMS COMPLETION LIVE WORK / ENRICHMENT

	Expect all planned courses in this Program of Study to include an academic component. Homework and testing will require skills in: • Mathematics • Reading • Writing • Science • Research • Oral presentation • Computer use Click on the ***Detailed Skill Assessment*** link at the top of this page for more information.
Classroom: Academic Instruction, Textbook, and Tests	Academic Instruction: 3-5 hours per week Textbook:*Precision Machining Technology 2nd Edition* Academic Testing: 1 per week
Certification Tests	NIMS Level 1 • Benchwork • Drill Press • Layout • Milling • Surface Grinding • Turning Between Centers • Turning – Chuck • CNC Lathe • CNC Mill • Materials Measurement and Safety
Co-operative Education	Available to seniors on instructor's recommendation
Work Activities	• Getting Information — Observing, receiving, and otherwise obtaining information from all relevant sources. • Controlling Machines and Processes — Using either control mechanisms or direct physical activity to operate machines or processes (not including computers or vehicles). • Making Decisions and Solving Problems — Analyzing information and evaluating results to choose the best solution and solve problems. • Communicating with Supervisors, Peers, or Subordinates — Providing information to supervisors, co-workers, and subordinates by telephone, in written form, e-mail, or in person. • Handling and Moving Objects — Using hands and arms in handling, installing, positioning, and moving materials, and manipulating things. • Inspecting Equipment, Structures, or Material — Inspecting equipment, structures, or materials to identify the cause of errors or other problems or defects. • Processing Information — Compiling, coding, categorizing, calculating, tabulating, auditing, or verifying information or data. • Updating and Using Relevant Knowledge — Keeping up-to-date technically and applying new knowledge to your job. • Performing General Physical Activities — Performing physical activities that require considerable use of your arms and legs and moving your whole body, such as climbing, lifting, balancing, walking, stooping, and handling of materials. • Identifying Objects, Actions, and Events — Identifying information by categorizing, estimating, recognizing differences or similarities, and detecting changes in circumstances or events.
Work Environment	• Wear Common Protective or Safety Equipment such as Safety Shoes, Glasses, Gloves, Hearing Protection, Hard Hats, or Life Jackets — 90% responded “Every day.” • Face-to-Face Discussions — 85% responded “Every day.” • Importance of Being Exact or Accurate — 72% responded “Extremely important.” • Exposed to Hazardous Equipment — 85% responded “Every day.” • Spend Time Using Your Hands to Handle, Control, or Feel Objects, Tools, or Controls — 71% responded “Continually or almost continually.” • Spend Time Standing — 50% responded “Continually or almost continually.” • Sounds, Noise Levels Are Distracting or Uncomfortable — 64% responded “Every day.” • Exposed to Contaminants — 56% responded “Every day.” • Contact With Others — 40% responded “Contact with others most of the time.” • Exposed to Minor Burns, Cuts, Bites, or Stings — 39% responded “Every day.”
Uniform Requirements	Shop apron = *$25.00* Approved safety boots (hard toe) provided by the student Safety glasses are supplied by the program area (first pair is free)

Advanced Standing/Articulation Agreements	Pennsylvania State Wide Articulation Agreement - Link to: SOAR

This document is intended to provide an overview of the program and is to be used as an informative tool to assist districts, parents, and students in the decision making process for program placement and transition planning. It is not intended to be and should not be used as a screening tool for student placement.

Machining Technology - Detailed Skill Assessment

GoTo Fillable PDF

Detailed Skill Assessment

If your are thinking about enrolling at ICTC, please e-mail this completed chart to bpiccirillo@ictc.edu

Name:	**School:**	**Grade:**

Academics:	**Present Level**	**If there is a gap, indicate Planned Action**
Algebra I		
Algebra II		
Geometry		
Calculus		
11th Grade Reading and Comprehension Levels		
Oral and Written Communication		
Advanced Computer Skills - Hardware/Software		
Physics		
Chemistry		
Ecology - Impact of the POS on the Environment		
Abilities: (see glossary below)		
Arm-Hand Steadiness		
Manual Dexterity		
Control Precision		
Finger Dexterity		
Multilimb Coordination		
Near Vision		
Information Ordering		
Problem Sensitivity		
Reaction Time		
Selective Attention		
Visualization		
Deductive Reasoning		
Inductive Reasoning		
Oral Comprehension		
Oral Expression		

	Present Level	If there is a gap, indicate Planned Action
Written Comprehension		
Category Flexibility		
Rate Control		
Speech Recognition		
Depth Perception		
Perceptual Speed		
Speech Clarity		
Extent Flexibility		
Far Vision		
Fluency of Ideas		
Mathematical Reasoning		
Response Orientation		
Trunk Strength		
Wrist-Finger Speed		
Written Expression		
Auditory Attention		
Flexibility of Closure		
Hearing Sensitivity		
Number Facility		
Static Strength		
Time Sharing		
Visual Color Discrimination		
Memorization		
Originality		
Speed of Closure		
Dynamic Strength		
Gross Body Coordination		
Speed of Limb Movement		
Stamina		
Spatial Orientation		
Gross Body Equilibrium		
Sound Localization		
Glare Sensitivity		

	Present Level	If there is a gap, indicate Planned Action
Night Vision		
Peripheral Vision		
Dynamic Flexibility		
Explosive Strength		

Glossary

Arm-Hand Steadiness — The ability to keep your hand and arm steady while moving your arm or while holding your arm and hand in one position.

Manual Dexterity — The ability to quickly move your hand, your hand together with your arm, or your two hands to grasp, manipulate, or assemble objects.

Control Precision — The ability to quickly and repeatedly adjust the controls of a machine or a vehicle to exact positions.

Finger Dexterity — The ability to make precisely coordinated movements of the fingers of one or both hands to grasp, manipulate, or assemble very small objects.

Multilimb Coordination — The ability to coordinate two or more limbs (for example, two arms, two legs, or one leg and one arm) while sitting, standing, or lying down. It does not involve performing the activities while the whole body is in motion.

Near Vision — The ability to see details at close range (within a few feet of the observer).

Information Ordering — The ability to arrange things or actions in a certain order or pattern according to a specific rule or set of rules (e.g., patterns of numbers, letters, words, pictures, mathematical operations).

Problem Sensitivity — The ability to tell when something is wrong or is likely to go wrong. It does not involve solving the problem, only recognizing there is a problem.

Reaction Time — The ability to quickly respond (with the hand, finger, or foot) to a signal (sound, light, picture) when it appears.

Selective Attention — The ability to concentrate on a task over a period of time without being distracted.

Visualization — The ability to imagine how something will look after it is moved around or when its parts are moved or rearranged.

Deductive Reasoning — The ability to apply general rules to specific problems to produce answers that make sense.

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Oral Comprehension — The ability to listen to and understand information and ideas presented through spoken words and sentences.

Oral Expression — The ability to communicate information and ideas in speaking so others will understand.

Written Comprehension — The ability to read and understand information and ideas presented in writing.

Category Flexibility — The ability to generate or use different sets of rules for combining or grouping things in different ways.

Rate Control — The ability to time your movements or the movement of a piece of equipment in anticipation of changes in the speed and/or direction of a moving object or scene.

Speech Recognition — The ability to identify and understand the speech of another person.

Depth Perception — The ability to judge which of several objects is closer or farther away from you, or to judge the distance between you and an object.

Perceptual Speed — The ability to quickly and accurately compare similarities and differences among sets of letters, numbers, objects, pictures, or patterns. The things to be compared may be presented at the same time or one after the other. This ability also includes comparing a presented object with a remembered object.

Speech Clarity — The ability to speak clearly so others can understand you.

Extent Flexibility — The ability to bend, stretch, twist, or reach with your body, arms, and/or legs.

Far Vision — The ability to see details at a distance.

Fluency of Ideas — The ability to come up with a number of ideas about a topic (the number of ideas is important, not their quality, correctness, or creativity).

Mathematical Reasoning — The ability to choose the right mathematical methods or formulas to solve a problem.

Response Orientation — The ability to choose quickly between two or more movements in response to two or more different signals (lights, sounds, pictures). It includes the speed with which the correct response is started with the hand, foot, or other body part.

Trunk Strength — The ability to use your abdominal and lower back muscles to support part of the body repeatedly or continuously over time without 'giving out' or fatiguing.

Wrist-Finger Speed — The ability to make fast, simple, repeated movements of the fingers, hands, and wrists.

Written Expression — The ability to communicate information and ideas in writing so others will understand.

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Static Strength — The ability to exert maximum muscle force to lift, push, pull, or carry objects.

Time Sharing — The ability to shift back and forth between two or more activities or sources of information (such as speech, sounds, touch, or other sources).

Visual Color Discrimination — The ability to match or detect differences between colors, including shades of color and brightness.

Memorization — The ability to remember information such as words, numbers, pictures, and procedures.

Originality — The ability to come up with unusual or clever ideas about a given topic or situation, or to develop creative ways to solve a problem.

Speed of Closure — The ability to quickly make sense of, combine, and organize information into meaningful patterns.

Dynamic Strength — The ability to exert muscle force repeatedly or continuously over time. This involves muscular endurance and resistance to muscle fatigue.

Gross Body Coordination — The ability to coordinate the movement of your arms, legs, and torso together when the whole body is in motion.

Speed of Limb Movement — The ability to quickly move the arms and legs.

Stamina — The ability to exert yourself physically over long periods of time without getting winded or out of breath.

Spatial Orientation — The ability to know your location in relation to the environment or to know where other objects are in relation to you.

Gross Body Equilibrium — The ability to keep or regain your body balance or stay upright when in an unstable position.

Sound Localization — The ability to tell the direction from which a sound originated.

Glare Sensitivity — The ability to see objects in the presence of glare or bright lighting.

Night Vision — The ability to see under low light conditions.

Peripheral Vision — The ability to see objects or movement of objects to one's side when the eyes are looking ahead.

Dynamic Flexibility — The ability to quickly and repeatedly bend, stretch, twist, or reach out with your body, arms, and/or legs.

Explosive Strength — The ability to use short bursts of muscle force to propel oneself (as in jumping or sprinting), or to throw an object.

Masonry

Print this Program of Study

Masonry

***Recommendations to fully access all components of this Program of Study**:

Academic

- Algebra I
- Algebra II
- Geometry
- 11th Grade Reading and Comprension Levels
- Oral and Written Communication
- Physics
- Chemistry
- Basic Computer Skills - Software
- Ecology - Impact of the POS on the Environment

Skills

- Critical Thinking — Using logic and reasoning to identify the strengths and weaknesses of alternative solutions, conclusions or approaches to problems.
- Monitoring — Monitoring/Assessing performance of yourself, other individuals, or organizations to make improvements or take corrective action.
- Coordination — Adjusting actions in relation to others' actions.
- Quality Control Analysis — Conducting tests and inspections of products, services, or processes to evaluate quality or performance.
- Time Management — Managing one's own time and the time of others.
- Judgment and Decision Making — Considering the relative costs and benefits of potential actions to choose the most appropriate one.

Abilities

- Manual Dexterity — The ability to quickly move your hand, your hand together with your arm, or your two hands to grasp, manipulate, or assemble objects.
- Static Strength — The ability to exert maximum muscle force to lift, push, pull, or carry objects.
- Trunk Strength — The ability to use your abdominal and lower back muscles to support part of the body repeatedly or continuously over time without 'giving out' or fatiguing.
- Arm-Hand Steadiness — The ability to keep your hand and arm steady while moving your arm or while holding your arm and hand in one position.
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- Extent Flexibility — The ability to bend, stretch, twist, or reach with your body, arms, and/or legs.
- Multilimb Coordination — The ability to coordinate two or more limbs (for example, two arms, two legs, or one leg and one arm) while sitting, standing, or lying down. It does not involve performing the activities while the whole body is in motion.
- Near Vision — The ability to see details at close range (within a few feet of the observer).

Industry Certifications Available to Qualified Students:

Bobcat

Member NAHB National Association of Home Builders

Pennsylvania Builders Association

MEDIC First Aid

OSHA

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http://www.onetonline.org/link/summary/47-2021.00

pennsylvania DEPARTMENT OF EDUCATION

PDE: Programs of Study Framework

- Visualization — The ability to imagine how something will look after it is moved around or when its parts are moved or rearranged.
- Finger Dexterity — The ability to make precisely coordinated movements of the fingers of one or both hands to grasp, manipulate, or assemble very small objects.

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SOAR Students Occupationally and Academically Ready

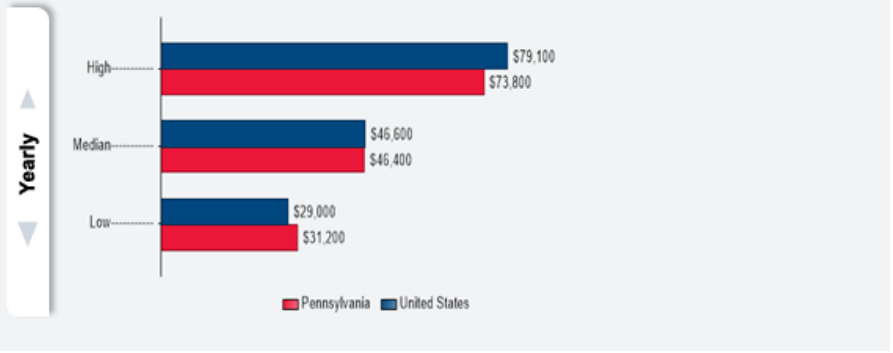
Link to SOAR

This document is intended to provide an overview of the program and is to be used as an informative tool to assist districts, parents, and students in the decision making process for program placement and transition planning. It is not intended to be and should not be used as a screening tool for student placement.

Masonry

CIP Code
46.0101 Mason/Masonry - Employment Outlook
This is an instructional program that prepares individuals to apply technical knowledge and skills in the laying and/or setting of brick, concrete block, glass block, hard tile, marble and related materials using trowels, levels, hammers, chisels and other hand tools.

http://www.portal.state.pa.us/portal/server.pt/community/programs_of_study/7686/framework/679310

Median wages (2013)	$22.41 hourly, $46,610 annual
State wages	 • "High" indicates 90% of workers earn less and 10% earn more. • "Median" indicates 50% of workers earn less and 50% earn more. • "Low" indicates 10% of workers earn less and 90% earn more. • "N/A" indicates the data is not available. **Notes:** Yearly wage data applies only to workers with full-time, year-round schedules. For salary information for part-time or part-year workers, use hourly wage data.
Employment (2012)	71,000 employees
Projected growth (2012-2022)	■■■■ Much faster than average (22% or higher)
Projected job openings (2012-2022)	32.800

State trends

United States	Employment		Percent Change	Projected Annual Job Openings
	2012	2022		
Brickmasons and Blockmasons	71,000	96,200	+36%	3,280
Pennsylvania	**Employment**		**Percent Change**	**Projected Annual Job Openings**
	2012	**2022**		
Brickmasons and Blockmasons	3,370	4,260	+27%	130

Projected Annual Job Openings refers to the average annual job openings due to growth and net replacement.

http://www.onetonline.org/link/summary/47-2021.00

making process for program placement and transition planning. It is not intended to be and should not be used as a screening tool for student placement.

Masonry

CIP Code: 46.0101	MASON/MASONRY - Detailed Program Description
Objective of this Program of Study	Creativity is a key ingredient leading to success in the Masonry (MA) program. A bricklayer takes units of brick, block, or stone and with a trowel, mortar, skilled hands and an eye for perfection molds them into buildings that will last for generations to enjoy. Just look around--every home, school, mall, church and sidewalk are part of a mason's creative genius. Masonry may lead students to careers in bricklaying or stone-masonry and cement-masonry. The masonry program also provides an excellent foundation for a future in architecture and architectural engineering or a position as an estimator, a job foreman, landscape designer or even a self-employed mason. The students may attain an Occupational Safety and Health Administration (OSHA) ten hour training course in "Construction Safety & Health" as well as a training course on a Bobcat VersaHandler Telescopic Fork Lift.
Occupational Objectives Offered	* BRICKLAYER SUPERVISOR * BUILDING INSPECTOR * ESTIMATOR BRICKLAYER CEMENT MASON STONEMASON CONTRACTOR STONEMASON * - Requires post-secondary training
Planned Courses To view the task list for this Program of Study use this link: POS Framework	DEMONSTRATE KNOWLEDGE OF THE MASONRY TRAINING LAB DEMONSTRATE PROPER SAFETY PRACTICES DEMONSTRATE SAFE AND PROPER USE OF MASONRY HAND TOOLS DEMONSTRATE PROPER BRICKLAYING TECHNIQUES DEMONSTRATE PROPER BLOCK LAYING TECHNIQUES MIX AND SPREAD MORTAR CONSTRUCT RESIDENTIAL CHIMNEYS AND FIREPLACES PREPARE A BUILDING SITE DEMONSTRATE THE SAFE USE OF POWER TOOLS PERFORM ARCH CONSTRUCTION ESTIMATE MASONRY WORK READ BLUEPRINTS USE MASONRY FASTENERS POURING CONCRETE FORKLIFT COMPETENCIES
Classroom: Academic Instruction, Textbook, and Tests	Academic Instruction: 1.5 hours per week Textbook:*Residential Construction Academy Masonry* Academic Testing: 1 per week
Certification Tests	PA Skills (NOCTI) OSHA 10 Hour Safety Course PBA Home Builders Certificate Bobcat Training Certification Medic First Aid, CPR, AED
Co-operative Education	Available to seniors on instructor's recommendation
Work Activities	• Handling and Moving Objects — Using hands and arms in handling, installing, positioning, and moving materials, and manipulating things.

	Performing General Physical Activities — Performing physical activities that require considerable use of your arms and legs and moving your whole body, such as climbing, lifting, balancing, walking, stooping, and handling of materials. • Inspecting Equipment, Structures, or Material — Inspecting equipment, structures, or materials to identify the cause of errors or other problems or defects. • Operating Vehicles, Mechanized Devices, or Equipment — Running, maneuvering, navigating, or driving vehicles or mechanized equipment, such as forklifts, passenger vehicles, aircraft, or water craft. • Making Decisions and Solving Problems — Analyzing information and evaluating results to choose the best solution and solve problems. • Organizing, Planning, and Prioritizing Work — Developing specific goals and plans to prioritize, organize, and accomplish your work. • Coordinating the Work and Activities of Others — Getting members of a group to work together to accomplish tasks. • Monitor Processes, Materials, or Surroundings — Monitoring and reviewing information from materials, events, or the environment, to detect or assess problems. • Getting Information — Observing, receiving, and otherwise obtaining information from all relevant sources. • Controlling Machines and Processes — Using either control mechanisms or direct physical activity to operate machines or processes (not including computers or vehicles).
Work Environment	• Outdoors, Exposed to Weather — 98% responded “Every day.” • Spend Time Using Your Hands to Handle, Control, or Feel Objects, Tools, or Controls — 95% responded “Continually or almost continually.” • Spend Time Making Repetitive Motions — 86% responded “Continually or almost continually.” • Spend Time Standing — 84% responded “Continually or almost continually.” • Wear Common Protective or Safety Equipment such as Safety Shoes, Glasses, Gloves, Hearing Protection, Hard Hats, or Life Jackets — 80% responded “Every day.” • Spend Time Bending or Twisting the Body — 82% responded “Continually or almost continually.” • Sounds, Noise Levels Are Distracting or Uncomfortable — 56% responded “Every day.” • Work With Work Group or Team — 52% responded “Extremely important.” • Exposed to High Places — 51% responded “Every day.” • Face-to-Face Discussions — 68% responded “Every day.”
Uniform Requirements	Uniform rental = $50.00 per year Hard leather shoes or boots provided by the student Safety glasses are supplied by the program area (first pair is free)
Advanced Standing/Articulation Agreements	Pennsylvania State Wide Articulation Agreement - Link to: SOAR

Masonry -
Detailed Skill Assessme

GoTo Fillable PDF

Detailed Skill Assessment

If your are thinking about enrolling at ICTC, please e-mail this completed chart to bpiccirillo@ictc.edu

Name:	**School:**	**Grade:**

Academics:	**Present Level**	**If there is a gap, indicate Planned Action**
Algebra I		
Algebra II		
Geometry		
11th Grade Reading and Comprehension Levels		
Oral and Written Communication		
Physics		
Chemistry		
Basic Computer Skills - Software		
Ecology - Impact of the POS on the Environment		
Abilities: (see glossary below)		
Manual Dexterity		
Static Strength		
Trunk Strength		
Arm-Hand Steadiness		
Dynamic Strength		
Extent Flexibility		
Multilimb Coordination		
Near Vision		
Visualization		
Finger Dexterity		
Problem Sensitivity		
Selective Attention		
Category Flexibility		
Deductive Reasoning		
Far Vision		
Gross Body Equilibrium		

	Present Level	If there is a gap, indicate Planned Action
Information Ordering		
Stamina		
Control Precision		
Gross Body Coordination		
Mathematical Reasoning		
Oral Comprehension		
Perceptual Speed		
Reaction Time		
Depth Perception		
Inductive Reasoning		
Oral Expression		
Speech Clarity		
Speech Recognition		
Written Comprehension		
Number Facility		
Time Sharing		
Visual Color Discrimination		
Auditory Attention		
Flexibility of Closure		
Hearing Sensitivity		
Speed of Limb Movement		
Originality		
Rate Control		
Fluency of Ideas		
Spatial Orientation		
Speed of Closure		
Response Orientation		
Wrist-Finger Speed		
Written Expression		
Glare Sensitivity		
Memorization		
Dynamic Flexibility		
Night Vision		

	Present Level	If there is a gap, indicate Planned Action
Peripheral Vision		
Sound Localization		
Explosive Strength		

Glossary

Manual Dexterity — The ability to quickly move your hand, your hand together with your arm, or your two hands to grasp, manipulate, or assemble objects.

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Time Sharing — The ability to shift back and forth between two or more activities or sources of information (such as speech, sounds, touch, or other sources).

Visual Color Discrimination — The ability to match or detect differences between colors, including shades of color and brightness.

Auditory Attention — The ability to focus on a single source of sound in the presence of other distracting sounds.

Flexibility of Closure — The ability to identify or detect a known pattern (a figure, object, word, or sound) that is hidden in other distracting material.

Hearing Sensitivity — The ability to detect or tell the differences between sounds that vary in pitch and loudness.

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Originality — The ability to come up with unusual or clever ideas about a given topic or situation, or to develop creative ways to solve a problem.

Rate Control — The ability to time your movements or the movement of a piece of equipment in anticipation of changes in the speed and/or direction of a moving object or scene.

Fluency of Ideas — The ability to come up with a number of ideas about a topic (the number of ideas is important, not their quality, correctness, or creativity).

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Peripheral Vision — The ability to see objects or movement of objects to one's side when the eyes are looking ahead.

Sound Localization — The ability to tell the direction from which a sound originated.

Explosive Strength — The ability to use short bursts of muscle force to propel oneself (as in jumping or sprinting), or to throw an object.

Welding Technology

Print this Program of Study

Welding Technology

***Recommendations to fully access all components of this Program of Study**:

Academic

- Algebra I
- Algebra II
- Geometry
- Calculus
- 11th Grade Reading and Comprension Levels
- Oral and Written Communication
- Physics
- Chemistry
- Basic Computer Skills - Software
- Ecology - Impact of the POS on the Environment

Skills

- Critical Thinking — Using logic and reasoning to identify the strengths and weaknesses of alternative solutions, conclusions or approaches to problems.
- Operation and Control — Controlling operations of equipment or systems.
- Monitoring — Monitoring/Assessing performance of yourself, other individuals, or organizations to make improvements or take corrective action.
- Reading Comprehension — Understanding written sentences and paragraphs in work related documents.

Abilities

- Arm-Hand Steadiness — The ability to keep your hand and arm steady while moving your arm or while holding your arm and hand in one position.
- Near Vision — The ability to see details at close range (within a few feet of the observer).
- Control Precision — The ability to quickly and repeatedly adjust the controls of a machine or a vehicle to exact positions.
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- Information Ordering — The ability to arrange things or actions in a certain order or pattern according to a specific rule or set of rules (e.g., patterns of numbers,

Industry Certifications Available to Qualified Students:

American Welding Society

iSENSE — Schools Excelling through National Skills Standards Education

Bobcat

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http://www.onetonline.org/link/summary/51-4121.06

pennsylvania DEPARTMENT OF EDUCATION

PDE: Programs of Study Framework

letters, words, pictures, mathematical operations).
- Selective Attention — The ability to concentrate on a task over a period of time without being distracted.

*o*net™ OnLine

SOAR Students Occupationally and Academically Ready

Link to SOAR

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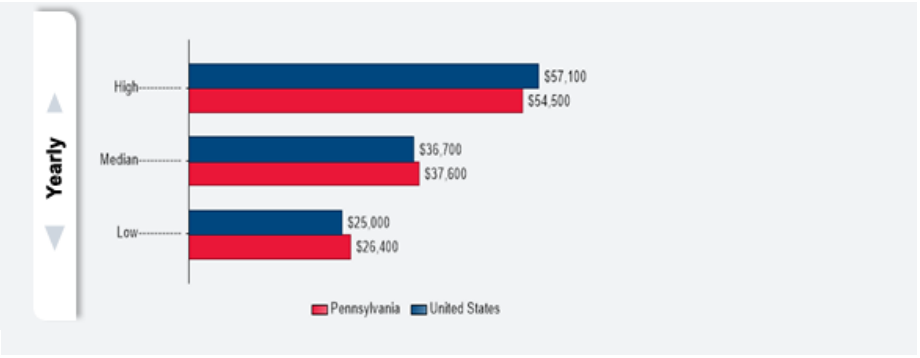
Welding Technology

CIP Code
48.0508 Welding Technology/Welder - Employment Outlook
This is a program that prepares individuals to apply technical knowledge and skills in gas, arc, shielded and nonshielded metal arc, brazing, flame cutting and plastic welding. Hand, semiautomatic and automatic welding processes are also included in the instruction. Students learn safety practices and types and uses of electrodes and welding rods; properties of metals; blueprint reading; electrical principles; welding symbols and mechanical drawing; use of equipment for testing welds by ultrasonic methods and destruction and hardness testing; use of manuals and specification charts; use of portable grinders and chemical baths for surface cleaning; positioning and clamping; and welding standards established by the American Welding Society, American Society of Mechanical Engineers and American Bureau of Ships.

http://www.portal.state.pa.us/portal/server.pt/community/programs_of_study/7686/framework/679310

Median wages (2013)	$17.66 hourly, $36,720 annual
State wages	 • "High" indicates 90% of workers earn less and 10% earn more. • "Median" indicates 50% of workers earn less and 50% earn more. • "Low" indicates 10% of workers earn less and 90% earn more. • "N/A" indicates the data is not available. **Notes:** Yearly wage data applies only to workers with full-time, year-round schedules. For salary information for part-time or part-year workers, use hourly wage data.
Employment (2012)	357,000 employees
Projected growth (2012-2022)	Slower than average (3% to 7%)
Projected job openings (2012-2022)	108,500

State trends

United States	Employment		Percent Change	Projected Annual Job Openings
	2012	2022		
Welders, Cutters, Solderers, and Brazers	357,400	378,200	+6%	10,850
Pennsylvania	**Employment**		**Percent Change**	**Projected Annual Job Openings**
	2012	**2022**		
Welders, Cutters, Solderers, and Brazers	15,910	16,780	+5%	480

Projected Annual Job Openings refers to the average annual job openings due to growth and net replacement.

http://www.onetonline.org/link/summary/51-4121.06

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Welding Technology

CIP Code: 48.0508	Welding Technology/Welder - Detailed Program Description
Objective of this Program of Study	Welding has evolved into a sophisticated science and technology. Skills developed at the Indiana County Technology Center's (ICTC) Welding Technology (WT) program are immediately transferable to either a professional career as a welder or as a student enrolled at a community/technical college, university, or other post-secondary institution. Additionally, the curriculum provides excellent preparation for those whose career goals include becoming a welding, mechanical or metallurgical engineer. The ideal candidate for this field should have good mechanical aptitude, eye-hand coordination, imagination and excellent visualization skills. Students have the opportunity to become a certified welder in accordance with the American Welding Society's D1.1 Structural Steel Code. The students may attain a training course on a Bobcat VersaHandler Telescopic Fork Lift. Qualified students have the opportunity to earn Industry Certifications endorsed by the American Welding Society (AWS). The AWS is a professional, international organization that guides the welding industry.
Occupational Objectives Offered	*Pipe Welder *Weld Inspector *Welding Engineer *Welding Technician Structural Welding Welder Fitter Apprentice * - Requires post-secondary training
Planned Courses To view the task list for this Program of Study use this link: POS Framework	OCCUPATIONAL ORIENTATION AND SAFETY PRINCIPLES OF WELDING MANUAL OXYFUEL GAS CUTTING (OFC) MECHANIZED OXYFUEL GAS CUTTING (OFC) MANUAL PLASMA ARC CUTTING (PAC) BRAZING AND SOLDERING WELDING, DRAWING, AND WELD SYMBOL INTERPRETATION GAS METAL ARC WELDING (GMAW) FLUX CORED ARC WELDING (FCAW) GAS TUNGSTEN ARC WELDING (GTAW) VISUAL EXAMINATION, INSPECTION, AND TESTING SHIELDED METAL ARC WELDING (SMAW) MANUAL AIR CARBON ARC CUTTING (CAC-A) Expect all planned courses in this Program of Study to include an academic component. Homework and testing will require skills in: • Mathematics • Reading • Writing • Science • Research • Oral presentation • Computer use Click on the ***Detailed Skill Assessment*** link at the top of this page for more information.
Classroom: Academic Instruction, Textbook, and Tests	Academic Instruction: 3 hours per week Textbook: *Modern Welding 11th Edition; Blueprint Reading for Welders 7th Edition* Academic Testing: 1 per week
Certification Tests	PA Skills (NOCTI) American Welding Society – AWS D1.1
Co-operative Education	Available to seniors on instructor's recommendation

Work Activities	• Controlling Machines and Processes — Using either control mechanisms or direct physical activity to operate machines or processes (not including computers or vehicles). • Handling and Moving Objects — Using hands and arms in handling, installing, positioning, and moving materials, and manipulating things. • Identifying Objects, Actions, and Events — Identifying information by categorizing, estimating, recognizing differences or similarities, and detecting changes in circumstances or events. • Operating Vehicles, Mechanized Devices, or Equipment — Running, maneuvering, navigating, or driving vehicles or mechanized equipment, such as forklifts, passenger vehicles, aircraft, or water craft. • Communicating with Supervisors, Peers, or Subordinates — Providing information to supervisors, co-workers, and subordinates by telephone, in written form, e-mail, or in person. • Getting Information — Observing, receiving, and otherwise obtaining information from all relevant sources. • Performing General Physical Activities — Performing physical activities that require considerable use of your arms and legs and moving your whole body, such as climbing, lifting, balancing, walking, stooping, and handling of materials. • Inspecting Equipment, Structures, or Material — Inspecting equipment, structures, or materials to identify the cause of errors or other problems or defects. • Thinking Creatively — Developing, designing, or creating new applications, ideas, relationships, systems, or products, including artistic contributions. • Training and Teaching Others — Identifying the educational needs of others, developing formal educational or training programs or classes, and teaching or instructing others.
Work Environment	• Wear Common Protective or Safety Equipment such as Safety Shoes, Glasses, Gloves, Hearing Protection, Hard Hats, or Life Jackets — 100% responded “Every day.” • Spend Time Using Your Hands to Handle, Control, or Feel Objects, Tools, or Controls — 62% responded “Continually or almost continually.” • Importance of Being Exact or Accurate — 56% responded “Extremely important.” • Face-to-Face Discussions — 73% responded “Every day.” • Exposed to Contaminants — 60% responded “Every day.” • Indoors, Not Environmentally Controlled — 71% responded “Every day.” • Frequency of Decision Making — 59% responded “Every day.” • Work With Work Group or Team — 43% responded “Extremely important.” • Impact of Decisions on Co-workers or Company Results — 43% responded “Very important results.” • Structured versus Unstructured Work — 45% responded “A lot of freedom.”
Uniform Requirements	Uniform rental = $50.00 per year Provided by student: • Welding helmet • High top (8 inch or more) leather work books (steel toes are recommended) • 100% cotton undergarments • (no sleeveless tank tops, silk screened appliqués, or flannel)
Advanced Standing/ Articulation Agreements	Pennsylvania State Wide Articulation Agreement - Link to: SOAR Dual Enrollment - Penn Highlands Community College

Welding Technology - Detailed Skill Assessment

GoTo Fillable PDF

Detailed Skill Assessment

If your are thinking about enrolling at ICTC, please e-mail this completed chart to bpiccirillo@ictc.edu

Name:	**School:**	**Grade:**

Academics:	**Present Level**	**If there is a gap, indicate Planned Action**
Algebra I		
Algebra II		
Geometry		
Calculus		
11th Grade Reading and Comprehension Levels		
Oral and Written Communication		
Physics		
Chemistry		
Basic Computer Skills - Software		
Ecology - Impact of the POS on the Environment		
Abilities: (see glossary below)		
Arm-Hand Steadiness		
Near Vision		
Control Precision		
Multilimb Coordination		
Problem Sensitivity		
Visualization		
Manual Dexterity		
Depth Perception		
Information Ordering		
Selective Attention		
Static Strength		
Deductive Reasoning		
Finger Dexterity		
Oral Comprehension		
Oral Expression		

	Present Level	If there is a gap, indicate Planned Action
Speech Recognition		
Trunk Strength		
Category Flexibility		
Extent Flexibility		
Far Vision		
Inductive Reasoning		
Perceptual Speed		
Reaction Time		
Response Orientation		
Speech Clarity		
Flexibility of Closure		
Fluency of Ideas		
Hearing Sensitivity		
Stamina		
Written Comprehension		
Speed of Limb Movement		
Auditory Attention		
Gross Body Coordination		
Originality		
Rate Control		
Speed of Closure		
Time Sharing		
Visual Color Discrimination		
Wrist-Finger Speed		
Written Expression		
Dynamic Strength		
Gross Body Equilibrium		
Mathematical Reasoning		
Number Facility		
Glare Sensitivity		
Spatial Orientation		
Memorization		
Peripheral Vision		

	Present Level	If there is a gap, indicate Planned Action
Night Vision		
Sound Localization		
Dynamic Flexibility		
Explosive Strength		

Glossary

Arm-Hand Steadiness — The ability to keep your hand and arm steady while moving your arm or while holding your arm and hand in one position.

Near Vision — The ability to see details at close range (within a few feet of the observer).

Control Precision — The ability to quickly and repeatedly adjust the controls of a machine or a vehicle to exact positions.

Multilimb Coordination — The ability to coordinate two or more limbs (for example, two arms, two legs, or one leg and one arm) while sitting, standing, or lying down. It does not involve performing the activities while the whole body is in motion.

Problem Sensitivity — The ability to tell when something is wrong or is likely to go wrong. It does not involve solving the problem, only recognizing there is a problem.

Visualization — The ability to imagine how something will look after it is moved around or when its parts are moved or rearranged.

Manual Dexterity — The ability to quickly move your hand, your hand together with your arm, or your two hands to grasp, manipulate, or assemble objects.

Depth Perception — The ability to judge which of several objects is closer or farther away from you, or to judge the distance between you and an object.

Information Ordering — The ability to arrange things or actions in a certain order or pattern according to a specific rule or set of rules (e.g., patterns of numbers, letters, words, pictures, mathematical operations).

Selective Attention — The ability to concentrate on a task over a period of time without being distracted.

Static Strength — The ability to exert maximum muscle force to lift, push, pull, or carry objects.

Deductive Reasoning — The ability to apply general rules to specific problems to produce answers that make sense.

Finger Dexterity — The ability to make precisely coordinated movements of the fingers of one or both hands to grasp, manipulate, or assemble very small objects.

Oral Comprehension — The ability to listen to and understand information and ideas presented through spoken words and sentences.

Oral Expression — The ability to communicate information and ideas in speaking so others will understand.

Speech Recognition — The ability to identify and understand the speech of another person.

Trunk Strength — The ability to use your abdominal and lower back muscles to support part of the body repeatedly or continuously over time without 'giving out' or fatiguing.

Category Flexibility — The ability to generate or use different sets of rules for combining or grouping things in different ways.

Extent Flexibility — The ability to bend, stretch, twist, or reach with your body, arms, and/or legs.

Far Vision — The ability to see details at a distance.

Inductive Reasoning — The ability to combine pieces of information to form general rules or conclusions (includes finding a relationship among seemingly unrelated events).

Perceptual Speed — The ability to quickly and accurately compare similarities and differences among sets of letters, numbers, objects, pictures, or patterns. The things to be compared may be presented at the same time or one after the other. This ability also includes comparing a presented object with a remembered object.

Reaction Time — The ability to quickly respond (with the hand, finger, or foot) to a signal (sound, light, picture) when it appears.

Response Orientation — The ability to choose quickly between two or more movements in response to two or more different signals (lights, sounds, pictures). It includes the speed with which the correct response is started with the hand, foot, or other body part.

Speech Clarity — The ability to speak clearly so others can understand you.

Flexibility of Closure — The ability to identify or detect a known pattern (a figure, object, word, or sound) that is hidden in other distracting material.

Fluency of Ideas — The ability to come up with a number of ideas about a topic (the number of ideas is important, not their quality, correctness, or creativity).

Hearing Sensitivity — The ability to detect or tell the differences between sounds that vary in pitch and loudness.

Stamina — The ability to exert yourself physically over long periods of time without getting winded or out of breath.

Written Comprehension — The ability to read and understand information and ideas presented in writing.

Speed of Limb Movement — The ability to quickly move the arms and legs.

Auditory Attention — The ability to focus on a single source of sound in the presence of other distracting sounds.

Gross Body Coordination — The ability to coordinate the movement of your arms, legs, and torso together when the whole body is in motion.

Originality — The ability to come up with unusual or clever ideas about a given topic or situation, or to develop creative ways to solve a problem.

Rate Control — The ability to time your movements or the movement of a piece of equipment in anticipation of changes in the speed and/or direction of a moving object or scene.

Speed of Closure — The ability to quickly make sense of, combine, and organize information into meaningful patterns.

Time Sharing — The ability to shift back and forth between two or more activities or sources of information (such as speech, sounds, touch, or other sources).

Visual Color Discrimination — The ability to match or detect differences between colors, including shades of color and brightness.

Wrist-Finger Speed — The ability to make fast, simple, repeated movements of the fingers, hands, and wrists.

Written Expression — The ability to communicate information and ideas in writing so others will understand.

Dynamic Strength — The ability to exert muscle force repeatedly or continuously over time. This involves muscular endurance and resistance to muscle fatigue.

Gross Body Equilibrium — The ability to keep or regain your body balance or stay upright when in an unstable position.

Mathematical Reasoning — The ability to choose the right mathematical methods or formulas to solve a problem.

Number Facility — The ability to add, subtract, multiply, or divide quickly and correctly.

Glare Sensitivity — The ability to see objects in the presence of glare or bright lighting.

Spatial Orientation — The ability to know your location in relation to the environment or to know where other objects are in relation to you.

Memorization — The ability to remember information such as words, numbers, pictures, and procedures.

Peripheral Vision — The ability to see objects or movement of objects to one's side when the eyes are looking ahead.

Night Vision — The ability to see under low light conditions.

Sound Localization — The ability to tell the direction from which a sound originated.

Dynamic Flexibility — The ability to quickly and repeatedly bend, stretch, twist, or reach out with your body, arms, and/or legs.

Explosive Strength — The ability to use short bursts of muscle force to propel oneself (as in jumping or sprinting), or to throw an object.