



**CAREER AND TECHNICAL EDUCATION INFORMATION SYSTEM
PENNSYLVANIA DEPARTMENT OF EDUCATION
SECONDARY PROGRAM PROFILE
FOR SCHOOL YEAR 2011-2012**

DATE : 7/15/2011

School Number School Name, Address and Phone

5045 Erie County Technical School, 8500 Oliver Road Erie, PA 16509-4699 Phone: (814) 464-8600

CIP Code	Status	Date Submitted
48.0503 Machine Shop Technology/Assistant	Returned	6/3/2011
CIP Cluster	Program Type	Date Approved
Manufacturing	Tech Prep	
Program Area	Registered Apprenticeship	Start School Year
Trade & Industrial Education	No	2011-2012

Program Information:

High Priority Occupations / Labor Market Data / Occupational Advisory Committee

1) This program aligns to the following SOCs, which have been designated as High Priority Occupations by the Pennsylvania Department of Labor and Industry, at either the state, regional or both:

51-4011 Computer-Controlled Machine Tool Operators, Metal & Plastic
51-4012 Numerical Tool & Process Control Programmers
51-4021 Extruding & Drawing Machine Oprs, Metal & Plastic
51-4031 Cutting, Punching & Press Machine Oprs, Metal & Plastic
51-4041 Machinists
51-4072 Molding & Casting Machine Oprs, Metal & Plastic
51-4081 Multiple Machine Tool Oprs, Metal & Plastic
51-4111 Tool & Die Makers
51-4121 Welders, Cutters, Solderers & Brazers

2) The occupational advisory committee for this program has endorsed this program, with its articulation, as preparing students for a career in a pathway that leads to life-sustaining employment opportunities.

The occupational advisory committee for this program includes:

Blakeslee, Chris Manager, Carlson Erie
Borelli, Jim H.R. Manager, Custom Engineering
Cornelius, Kevin Fabricator, Paragon Stair and Rail
Cowser, Bob Territory Manager, Welders Supply
DeRaimo, Paul Director of Quality, Ridg-u-Rak
Dougan, Ken Sales Representative, Valley National Gases
Ganska, Dave Fabricator, Zeyon, Inc.
Garnet, Rocco Production Supervisor, Fisher & Ludlow
Haeseler, Stephen Design Manager, Accu-Cad
McShane, Jim Owner, McShane Welding
Porter, Dianne Owner, Zeyon Inc
Szul, Jerry Account Manager, Airgas Great Lake, Inc.
Thurber, Tom Welding Instructor, CCAVTS
Webber, Clayton Program Director-Welding Technology, Erie Institute of Technology
Winschel, Richard Director of Personnel, Ridg-u-Rak

The last occupational advisory committee meeting was held on March 15, 2011.

Occupational Analysis Data / Student Technical Competencies:



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The original occupational analysis for this program is based on VTECS. Recent updates to the analysis include recommendations from the occupational advisory committee, alignment to the American Welding Society, a DACUM conducted in 2008 and NOCTI alignment.

The competencies for this program were developed to correlate with those identified within the CIP description.

Student technical competencies covered include:

FOUNDATIONS OF METAL FABRICATION MTF101

Identify the goals and objectives of the Metal Fabrication Program MTF101

Understand the evaluation criteria which will determine quarterly and final grades MTF101

Develop a respect for shop rules and practices MTF101

Become familiar with the school regulations and general expected overall behavior patterns MTF101

Be familiar with, and learn to respect the use of safety glasses, face shields, hearing protection, safety shoes and all other basic types of safety-related protective equipment MTF101

Demonstrate the safety rules and procedures for the individual tools and equipment they are to operate MTF101

Participate in fire drills, the proper use of fire extinguishers and the locations of and intended use of panic buttons MTF101

Understand the proper procedures and regulations regarding the possibility of a tornado alert and other forms of possible emergency situations such as: Loss of electricity, gas leaks, student accidents, bomb scares, snow storms, loss of water pressure, etc MTF101

Participate in leadership class MTF109

MEASUREMENT AND LAYOUT MTF121

Properly manipulate and read all basic types of measuring instruments MTF121

Understand fractions, decimals, metrics, ratio x proportions, and area x volume MTF121

Understand the proper use of basic layout tools MTF121

Understand the applied geometry necessary for simple pattern layout MTF121

INTRODUCTION TO METALLURGY MTF151

Learn to recognize many of the common materials used in Metal Fabrication MTF151

Determine the difference between ferrous and non-ferrous metals MTF151

Understand the causes of corrosion and the methods used to prevent corrosion MTF151

Investigate and understand the atomic structure of metals MTF151

SMAW WELDING I MTF131

Understand basic electricity as it applies to the welding and safety aspects of the Metal Fabrication trade MTF131

Demonstrate SMAW flat and horizontal welding application MTF131

Demonstrate SMAW vertical and overhead welding application MTF131

TOOL AND EQUIPMENT I MTF111

Understand hand tools & machines and their operation and theory MTF111

Select and properly use most of the basic hand tools & machines related to the Metal Fabrication trade MTF111

Properly cut, file

and grind all types of metals MTF111

Use all hand bending and cutting equipment MTF111

TOOLS AND EQUIPMENT II MTF112

Use of power operated hand tools MTF112

INTRODUCTION TO FASTENERS MTF161

Select the proper size and type of fastener for specific applications MTF161

INTRODUCTION TO OXY-ACETYLENE CUTTING MTF133

Understand the nature of fuel gas (acetylene) and oxygen MTF133

Properly maintain pressure regulators and related equipment MTF133

Handle safely gas cylinders MTF133

Connect and disconnect manifold systems MTF133

Properly set-up and adjust oxy-acetylene cutting equipment MTF133

Understand the cutting positions used for various hand cutting operations MTF133

Demonstrate the proper procedure for machining cutting operations MTF133

Recognize the safety aspects of oxy-acetylene cutting operations MTF133

Understand the theory involved in proper oxy-fuel brazing MTF133

Properly set-up and adjust oxy-fuel brazing equipment MTF133

Braze a variety of ferrous metals MTF133



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FABRICATION OF LIGHT GAUGE PROJECTS I MTF141

Fabricate duct fittings MTF141

FABRICATION OF LIGHT GAUGE PROJECTS II MTF142

Fabricate sheet metal projects MTF142

INTRODUCTION TO BLUEPRINT READING MTF171

Understand the orthographic projection method of blueprints MTF171

Identify basic lines on a drawing MTF171

Recognize how blueprints are made and their importance to industry MTF171

PATTERN DEVELOPMENT MTF122

Understand & draw triangulation development drawings MTF122

Understand & draw parallel development drawings MTF122

BLUEPRINT READING II MTF271

Understand basic blueprint readings MTF271

Understand common weld joints & symbols 271

Understand Structural steel sizing & symbols 271

POWER TOOL & MACHINE MTF211

Properly operate the iron worker, spot welder and power shears MTF211

Properly operate both the light duty and heavy duty press brake MTF211

PATTERN DEVELOPMENT II MTF221

Develop precision layout patterns MTF221

Understand triangulation development MTF221

Understand radial line development MTF221

FABRICATION DESIGN MTF222

Construct a variety of projects with heavy and light metals

Work as a team to complete metal fabrication projects.

PLASMA ARC CUTTING/ CARBON ARC CUTTING MTF233

Understand the principals of PAC

Demonstrate the operation of automated PAC

Demonstrate the operation of hand operated PAC

BEND ALLOWANCES MTF244

Calculate bend allowances MTF244

STRUCTURAL FABRICATION MTF243

Safely manipulate heavy objects MTF243

Demonstrate proficiency in the tapping, notching and cutting of heavy gauge metals and structural steel MTF243

GMAW WELDING II MTF232

Properly weld heavy and light gauge metals MTF232

SHEET FABRICATION I AND II MTF241-242

Construct a variety of projects with heavy and light metals MTF241 & 242

GMAW WELDING 1 MTF231

Understand the theory involved in MIG welding MTF231

Properly set-up and adjust TIG and MIG welding equipment MTF231

JOB SHADOWING MTF281

The student will shadow an actual metal fabrication worker on the job site.

The student will develop a portfolio

COOPERATION EDUCATION EXPERIENCE MTF401

Job Shadow MTF401

Participate in Business (job Shadow) principals class MTF209

PRINCIPLES OF DESIGN FOR SPECIFIC OPERATIONS MTF321

Plan jobs, draft, and make materials list, quote time and cost.

Construct a variety of projects with heavy and light metals

Have a basic understanding of the estimating of jobs and the purchasing of materials related to the total Fabrication trade

PATTERN DEVELOPMENT III MTF322

Solve, develop and layout complex patterns for Metal Fabrication MTF322

GTAW WELDING I MTF331

Understand the theory related to the GTAW welding processes MTF331

Set-up and adjust basic GTAW welding equipment MTF331

Perform GTAW welds, in the flat & horizontal positions MTF331



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GTAW WELDING II MTF332
Perform GTAW welds in the Vertical & overhead positions MTF332
Use a weld positioner in welding MTF332
ADVANCED FABRICATION MTF341
light metals with structural steel MTF341
Have a basic understanding of the estimating of jobs and the purchasing of material related to the Metal Fabrication trade MTF341
METAL CHARACTERISTICS & PROPERTIES MTF351
EMPLOYMENT SKILLS MTF381
Receive training in:
A. Career Exploration
B. Resumes and Job Applications MTF381
FCAW WELDING I MTF333
Understand the theory related to the FCAW welding processes MTF333
Set-up and adjust basic FCAW welding equipment MTF333
Perform FCAW welds, in the flat & horizontal positions MTF333
FCAW WELDING II MTF334
Perform FCAW welds in the Vertical & overhead positions MTF334
Use a weld positioner in welding MTF334
ADVANCED FABRICATION MTF341
Perform complex bend allowances MTF341
BLUEPRINT READING III MTF371
Be able to read and understand actual shop blueprints MTF371
SENIOR PROJECT DEVELOPMENT MTF323
Design, Draft, quote, price, and order materials for senior project MTF323
SENIOR PROJECT FABRICATION MTF342
Fabricate senior project MTF342
COOPERATIVE EDUCATION EXPERIENCE MTF401
Participate in total quality concepts class MTF309

Accountability Targets:

Exit Outcomes

Concentrators of this program are expected to perform at the competent level or above on PSSA assessments and the NOCTI assessment (4072, Welding). Students are also able to acquire the following credential: Pennsylvania Skills Certificate

Accountability Targets

Academic Attainment—Reading/PSSA: 20%, no
Academic Attainment—Math/PSSA: 10%, no
Technical Skill Attainment—NOCTI/NIMS: 63.6%, yes
Secondary Student Achievement of High School Diploma: 100%, yes
Student Graduation Rate—AYP/NCLB: 100%, yes
Secondary Placement: 100%, yes
Nontraditional Participation: 0%, no
Nontraditional Completion: 0%, no

Equipment and Technology:



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WELDER INTELLIWELD
WELDER INTELLIWELD
CUTTER PLASMA 2 RUBB
WELDING STATION
CUTTER PLASMA
WELDER TIG, WIRE FEE
WELDER TIG AC/DC
WELDER TIG AC/DC
WELDER TIG AC/DC
EXTRACTOR FUME FLOOR
SHEAR ELEC 1/4IN MAX
WELDER SPOT 150HP
LINCOLN WELDING MACH
GEKA HYDRAULIC IRONW
SPOT WELDER, COOLER-
Miller - Water coole
DONALDSON TORIT DUST
DF0 2-2 DUCTWORK SYS
Harris Straight Line
60 Proform cincinnati
EXTRACTOR FUME WELDI
EXTRACTOR FUME 5X3X2

Number of Prospective Students:

48

Support Services:

CTE teachers play a significant role in helping students select their program. That role involves providing program information during program tours, classroom and laboratory experiences during follow-up half-day visits, interaction with students and their parents during an open house and a dinner with teacher event, telephone calls to students and their parents and other personal contacts as needed by the family. The school is represented in the IEP development process by one of two supervisors. Those supervisors seek input from faculty members as needed throughout the IEP development process.

Once a student enrolls, services available to them as determined by the IEP include:

1. modified assessments and assignments,
2. use of notes with assessments,
3. assessments presented orally,
4. assessments presented in a supported or altered environment,
5. evaluation of writing for content rather than mechanics,
6. small group testing,
7. structured study guides,
8. additional time to complete assignments,
9. directions clarified and repeated as necessary,
10. extended time for assessments,
11. modified grading structure,
12. re-take of assessments if failed and failure was due to insufficient adaptations,
13. presentation of a hardcopy of notes,
14. regular monitoring of organizational skills,
15. monitoring of time on task

Career & Technical Student Organizations:



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This program participates in SkillsUSA. At ECTS, SkillsUSA is a co-curricular program designed to be part of the classroom instruction. It provides experiences for students in leadership, teamwork, citizenship and character development. The chapter activity plan builds and reinforces self-confidence, work attitudes and communication skills. The chapter activity plan emphasizes high ethical standards, superior work skills, life-long education, and pride in the dignity of work. The chapter activity plan also includes access to local, state, and national competitions, which provide students the opportunity to showcase their occupational and leadership skills.

This program had 6 SkillsUSA members.

Advisory Committees

In the development of rules, regulations and arrangements for the operation of the technical school, the Director should include at the planning stage, whenever feasible, those employees who will be affected by such provisions. The Director should weigh with care counsel given by employees, especially that given by groups designated to represent large segments of the staff and shall communicate such counsel to the Superintendent of Record and the Operating Committee.

A. Local Advisory Committee

The Operating Committee shall appoint a general advisory committee composed of representatives of business and industry and school administrators and, upon the request of the general advisory committee, shall appoint craft or course committees. The local advisory committee shall advise the Operating Committee on such matters as the need for a particular shop, laboratory, occupation, equipment, curriculum, labor management coordination, business and industrial requirements or selection of personnel.

B. Professional Advisory Council

A professional advisory council composed of the superintendent of each participating school district shall meet regularly upon the call of the Superintendent of Record to advise the Operating Committee on matters concerning the organization and operation of the program. This professional advisory council meets monthly during the school year.

C. Liaison for Committees

The Superintendent of Record or a member of his/her staff named by him/her shall act as liaison officer and as executive officer for and between the several committees.

Sponsor Information:

Sponsor Number	Sponsor Name
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Student Industry Certifications:

Industry Certification	Certification Provider
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Teacher Industry Certifications:

Industry Certification	Certification Provider
CPR for Family and Friends	American Heart Association
Heartsaver AED	American Heart Association
Heartsaver CPR	American Heart Association
Heartsaver First Aid	American Heart Association



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SCOPE AND SEQUENCE
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Articulation Agreement between Erie County Technical School

and Precision Manufacturing Institute

Secondary School Name : Erie County Technical School

Administrative Unit Number : 105252807

CIP Code Number and Title : 48.0503 Machine Shop
Technology/Assistant

Program Type : Tech Prep

Subject (Hours)	Secondary School				Postsecondary Institution			
	Grade 9 (Hours)	Grade 10 (Hours)	Grade 11 (Hours)	Grade12 (Hours)	First Semester	Second Semester	Third Semester	Fourth Semester
Technical (1485)		Fundamentals of Metal Fabrication (60)	Principles of Measuring/Layout (90)	Principles of Measuring/Layo ut(120)				
		Tools and Equipment(60)	Arc Welding(120)	Arc Welding (150)				
		Principles of Measuring/Layout (90)	Fabrication Projects(165)	Fabrication Projects(90)				
		Arc Welding(90)	Blueprint Reading(30)	Metallurgy(45)				
		Fabrication Projects (90)	Employment in the Trade(45)	Blueprint Reading(45)				
		Metallurgy(30)	Tools & Equipment(30)	Employment in the Trade(30)				
		Fasteners/Blueprint Reading(75)	Fundamentals of Metal Fabrication (15)	Fundamentals of Metal Fabrication(15)				
English	College Prep English I	College Prep English II	College Prep English III	College Prep English IV				
Math	Algebra I	Geometry	Algebra II	Other College Prep Math				
Science	Biology I	Biology II or	Chemistry II or					
		Chemistry I	Physics					
Humanities	American History	World History	American Government	Other Social Science				
Other	Foreign Language I (recommended)	Foreign Language II (recommended)						



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Administrative Unit Number : 105252807

CIP Code Number and Title : 48.0503 Machine Shop
Technology/Assistant

Program Type : Tech Prep

Dual Enrollment Credits				Articulated Credits		
Subject	Course Number	Course Description	Credit Hours	Course Number	Course Description	Credit Hours
Technical				WLD 101	SMAW I, Flat	3.0
				WLD 102	SMAW II, Advanced	3.0
				WLD 103	GMAW	3.0
				WLD 104	GTAW	3.0
English						
Math						
Science						
Humanities						
Other						