**For More Inquiries about accreditation and continuing education please contact:*

Student Services Department

Studentservices@eascarpenterstech.edu

Phila, DE, Allentown (215) 824-2300 – Edison (732) 372-6020 – Hammonton, Sicklerville (609) 567-5675

MILLWRIGHT PROGRAM – YEAR 1

NEW COURSE NUMBER	COURSE TITLE AND DESCRIPTION	CONTACT HOURS
MATH101	INTRODUCTORY CONCEPTS OF MATHEMATICS This course covers basic treatment of trade math beginning with general math, fractions, decimals, ratios and percentages. Early layout theory in spacing of framing using linear measurements and quantitative material take-off is introduced. ***Students must complete both classes to receive credit.***	24
SFHT230	AERIAL LIFTS AND FORKLIFT TRAINING This hands-on qualification workshop combines classroom instruction to train students in the safe operation of scissor lifts and boom lifts in compliance with OSHA standards. This is a hands-on forklift training course. Topics covered are load capacity, hand signals, safe operating techniques, equipment, and job-site inspections. Please note: This qualification course is in preparation for Department of Transportation licensing	24
CONT112	INTRODUCTION TO MILLWRIGHT THEORY AND PRACTICE Students are taught millwright theory through a series of guided shop projects that focus on the use of precision tools, layout, math and blueprint skills.	45
CONT113	MILLWRIGHT TOOLS This course provides hands on instruction assembling and disassembling turbine parts back to OEM specs, as well as the maintenance and care of millwrighting tools.	45
SFHT110	INTRODUCTION TOCONSTRUCTION SAFETY This course provides entry level construction workers with a general awareness on how to recognize and prevent hazards on a construction site. The training covers a variety of construction safety and health hazards that a worker may encounter at a construction site. Students earn OSHA 10, Fall Protection and Process Safety Management certifications.	24
CONT111	WELDING AND FABRICATION I In this class, students learn how to navigate the hazards associated with SMAW welding and Oxy-Fuel cutting. Students learn to identify common weld joints from blueprints, and how to choose the right material and consumable combinations to successfully fabricate them. Flux & filler metals used in shielded metal arc welding (SMAW) are described. ***Students must complete both classes to receive credit.***	48
CONT190	CONSTRUCTION INTERNSHIP I This course consists of paid OJT, internship, or practicum performed in a business, industry, trade, or technical career setting within the student's occupational area. The contact hours experienced through on-the-job training will be verified by an employer or union	1800

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	official and will be placed on the student's record. There are specific competencies from work experience required.	
	TOTAL	210

MILLWRIGHT PROGRAM – YEAR 2

NEW COURSE NUMBER	COURSE TITLE AND DESCRIPTION	CONTACT HOURS
MATH111	INTRODUCTORY CONCEPTS OF GEOMETRY This course covers basic treatment of trade geometry beginning with calculating the areas of rectangles, squares and triangles. Early layout theory in spacing of framing using geometric measurements and quantitative material take-off is introduced. ***Students must complete both classes to receive credit.***	24
SFHT210	CONSTRUCTION SAFETY II The Millwright Health and Safety course focuses on the hazards specific to the millwright trade, such as: chemical cleaning solvents, LOTO, etc.	36
CONT112	CONVEYOR: LAYOUT During this course, the students will design and build a conveyor support system from a blueprint drawn to scale by them. Assigned to a team with a job hierarchy, the students will layout and install a light duty conveyor system (comparable to the ones found in the local distribution centers) over top of two existing machines. The students will learn how to replace and maintain the conveyor components including the drive system.	80
CONT113	PUMP PARTS & COMPONENTS Concepts of fluid flow and centrifugal force are the foundation of this course. Students will learn about the forces acting on the components of a small centrifugal pump and how to control those forces, through proper component installation and maintenance.	40
CONT114	ALIGNMENT I Using what they learn about coupling types, installation and care, the students will learn how to align two shafts to specifications created by the coupling and machinery manufacturers. This unit requires the use of ratios and basic algebra to succeed.	60
CONT115	TURBINE CONCEPTS & COMPONENTS This is a certified course given by the UBC from the materials and objectives provided by General Electric. The aim of this course is to make students familiar with combustion turbines and their components; to create a more competent turbine mechanic.	40
CONT199	CONSTRUCTION INTERNSHIP II This course consists of paid OJT, internship, or practicum performed in a business, industry, trade, or technical career	1800

	setting within the student's occupational area. The contact hours experienced through on-the-job training will be verified by an employer or union official and will be placed on the student's record. There are specific competencies from work experience required.		
		TOTAL	280

MILLWRIGHT PROGRAM – YEAR 3

NEW COURSE NUMBER	OLD COURSE NUMBER	COURSE TITLE AND DESCRIPTION	CONTACT HOURS	PRPOSED CREDITS
CONT214		ALIGNMENT II This course is a continuation of the previous year's work. There is more hands-on practice in Alignment 2 than the previous course.	48	
CONT220		STEAM TURBINE:THEORY In this course students will learn how a power plant works and the role a steam turbine plays in power generation. They will disassemble and reassemble a steam turbine, learn required positioning checks, installation and care of friction bearings. Students will rig a 3 ton rotor out of the machine and keep it level to a tolerance of .010" over 15 feet.	48	
SFTH211		RIGGING SAFETY This is a certified course, in which students will learn rigging safety rules, hardware specifications and limitations, hitch configurations and rigging competencies. Geometry and trigonometry will be used to calculate sling stress and hitch capacities. Students are tested with a written test and practical test, proctored by a third party. This course is accredited by ICE.	48	
CONT221		PUMP THEORY Pressure and volume math and concepts are the back bone of this course. Students will learn Bernoulli's Principle to understand how changes in cavity size effect pressure output. Students will disassemble and reassemble at least two kinds of positive displacement pumps.	40	
CONT222		WELDING AND FABRICATION II This course is a continuation of the same material from the previous year. Students will work through a set series of projects aimed at preparing them to take an AWS Structural Steel 2G, 3G, and 4G plate test to D1.1 code specifications. Student will work at their own pace.	64	
SFHT100		OSHA30 This course provides entry level construction workers with a general awareness on how to recognize and prevent hazards on a construction site. The training covers a variety of construction	32	

	safety and health hazards that a worker may encounter at a construction site. Students earn OSHA30 certifications.	
CONT290	CONSTRUCTION INTERNSHIP III This course consists of paid OJT, internship, or practicum performed in a business, industry, trade, or technical career setting within the student's occupational area. The contact hours experienced through on-the-job training will be verified by an employer or union official and will be placed on the student's record. There are specific competencies from work experience required.	1800
	TOTAL	272

MILLWRIGHT PROGRAM – YEAR 4

NEW COURSE NUMBER	COURSE TITLE AND DESCRIPTION	CONTACT HOURS
MATH131	ADVANCED CALCULATIONS Students will learn how to calculate cubic feet per minute of airflow over and through turbines and their impact. Layout for finned gears in round housing. Students will disassemble and reassemble a forced draft fan, learning about installation specifications and component maintenance. They will position the impellor and inlet cones for optimum performance. Balancing basics.	32
CONT245	LASER ALIGNMENT Students will use the latest in laser technology to learn to align shafts, sheaves, and bores.	16
CONT241	MACHINING: LATHE, BRIDGEPORT, PRECISION GRINDING Students will receive hands on instruction on basic turning, milling and grinding operations.	24
CONT223	WELDING AND FABRICATION III In this course, students learn how to navigate the hazards associated with arc welding and Oxy-Fuel cutting. Students learn to recognize and identify common weld symbols. The class will also review electrode holders, guns, torches and the proper way to hold them and use them. This course will focus on SMAW testing and different weld processes.	40
CONT242	OPTICS Students will learn to use the laws of light refraction and line of sight concepts to assemble a paper mill mock up project, in which the components need to be square and parallel to a control line to a tolerance of .003". The Burnson, K&E and Sokia model optical equipment will be utilized during this course.	40
CONT243	GEARING, COMPRESSORS, WIPING & PACKING	48

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	Students will work at their own pace to complete shop projects that involve restoring a gearbox and rebuilding a reciprocating compressor. They will learn circle math to help them understand the layout of gears and teeth.	
CONT244	GAS, STEAM TURBINE QUALIFICATION *This instruction includes 5 days of gas turbine qualification and 5 days of steam turbine qualification.*	80
CONT299	CONSTRUCTION INTERNSHIP IV This course consists of paid OJT, internship, or practicum performed in a business, industry, trade, or technical career setting within the student's occupational area. The contact hours experienced through on-the-job training will be verified by an employer or union official and will be placed on the student's record. There are specific competencies from work experience required.	1800
	TOTAL	280