Providence Career & Technical Academy
"Maritime Welding and Pipefitting Program - Years 1-4" Syllabi

Year 1 - "Exploratory"

Instructor's Names: Nate Hoffman **Time Frame:** 2021-2022
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Course Description:
The Maritime Welding and Pipefitting Program's, "Exploratory" course, is the first year of instruction received in the four year Maritime Welding and Pipefitting Program. Meeting one period per day, this course will serve as an introduction into the principles and fundamentals of maritime welding and pipefitting, with a primary focus on the introductory craft skills and the overall requirements of the industry. Topics covered in the first year include, but are not limited to welding processes, safety in the workplace, construction math, employability skills, communication skills and material handling skills. This trade requires an in-depth knowledge of scientific theories and principles that include electricity, metallurgy, physics, chemistry, programming and other fundamental concepts that surround the pipefitting, oxy-fuel, plasma arc, carbon arc and electric arc welding, cutting and metal joining technologies. There is no prerequisite for this course.

Students will obtain basic knowledge of the following, in no specific order:

- Introduction to the Maritime Industry
- Introduction to Welding Processes
- Shop Practices
- Employability Skills
- Safety, Tools & Equipment
- Electrical Safety
- Basic Blueprint Reading
- Basic Employability Skills
- Basic Communication Skills
- Material Handling Skills
- Introduction to hand Tools
- Introduction to Construction Math

Common Core Standards Addressed:
- GMP 1.6: Connect mathematical ideas and representations to one another.
- GMP 2.2: Explain the meanings of the numbers, words, pictures, symbol, gestures, tables, graphs, and concrete objects you and others use.
- GMP 3.1: Explain both what to do and why it works.
- GMP 4.1: Apply mathematical ideas to real-world situations.
- GMP 5.3: Estimate and use what you know to check the answers you find using tools.
- GMP 6.1: Communicate your mathematical thinking clearly and precisely.
- GMP 8.3: Reflect on your thinking before, during, and after you solves a problem.
- W.9-10.2: Write informative/explanatory texts to examine and convey complex ideas, concepts, and information clearly and accurately through the effective selection, organization, and analysis of content.
- W.9-10.3: Write narratives to develop real or imagined experiences or events using effective technique, well-chosen details, and well-structured event sequences.
- W.9-10.7: Conduct short as well as more sustained research projects to answer a question (including a self-generated question) or solve a problem; narrow or broaden the inquiry when appropriate; synthesize multiple sources on the subject, demonstrating understanding of the subject under investigation.

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Required Textbooks, Reading and Supplementary Materials

Textbook: *NCCER - "Core Curriculum: Introductory Craft Skills, Fifth Edition;" NCCER - "Introduction to the Maritime Industry;" NCCER – "Welding, Level - 1, Fifth Edition;" NCCER – "Welding, Level - 2, Fifth Edition;" along with a variety of online resources.*

Assignment and Examination Schedule:

LESSON NAME	MODULE #	BOOK	TIME
BASIC SAFETY (CONSTRUCTION SITE SAFETY ORIENTATION)		**CORE CURRICULUM**	**20.5 HRS**
SAFETY AND HAZARD RECOGNITION	00101-15	**CORE CURRICULUM**	4 HRS
ELEVATED WORK AND FALL PROTECTION	00101-15	**CORE CURRICULUM**	4 HRS
STRUCK BY AND CAUGHT-IN-BETWEEN HAZARDS	00101-15	**CORE CURRICULUM**	2 HRS
ENERGY RELEASE HAZARDS	00101-15	**CORE CURRICULUM**	2 HRS
PERSONAL PROTECTIVE EQUIPMENT	00101-15	**CORE CURRICULUM**	4.5 HRS
JOB SITE HAZARDS	00101-15	**CORE CURRICULUM**	4 HRS
INTRODUCTION TO CONSTRUCTION MATH		**CORE CURRICULUM**	**40 HRS**
WHOLE NUMBERS	00102-15	**CORE CURRICULUM**	3 HRS
FRACTIONS	00102-15	**CORE CURRICULUM**	8 HRS
THE DECIMAL SYSTEM	00102-15	**CORE CURRICULUM**	8 HRS
MEASURING LENGTH	00102-15	**CORE CURRICULUM**	8 HRS
METRIC AND IMPERIAL MEASURING SYSTEMS	00102-15	**CORE CURRICULUM**	8 HRS
INTRODUCTION TO GEOMETRY	00102-15	**CORE CURRICULUM**	5 HRS
INTRODUCTION TO HAND TOOLS		**CORE CURRICULUM**	**10 HRS**
COMMON HAND TOOLS	00103-15	**CORE CURRICULUM**	2.5 HRS

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MEASUREMENT AND LAYOUT TOOLS	00103-15	**CORE CURRICULUM**	2.5 HRS
CUTTING AND SHAPING TOOLS	00103-15	**CORE CURRICULUM**	2.5 HRS
OTHER COMMON HAND TOOLS	00103-15	**CORE CURRICULUM**	2.5 HRS
INTRO TO POWER TOOLS		**CORE CURRICULUM**	**10 HRS**
POWER DRILLS	00104-15	**CORE CURRICULUM**	2.5 HRS
POWER SAWS	00104-15	**CORE CURRICULUM**	2.5 HRS
GRINDERS AND GRINDER ATTACHMENTS	00104-15	**CORE CURRICULUM**	2.5 HRS
MISCELLANEOUS POWER TOOLS	00104-15	**CORE CURRICULUM**	2.5 HRS
INTRODUCTION TO CONSTRUCTION DRAWINGS		**CORE CURRICULUM**	**7.5 HRS**
CONSTRUCTION DRAWINGS AND THEIR COMPONENTS	00105-15	**CORE CURRICULUM**	1.5 HR
SIX TYPES OF CONSTRUCTION DRAWINGS	00105-15	**CORE CURRICULUM**	1.5 HR
BASIC COMPONENTS OF CONSTRUCTION DRAWINGS	00105-15	**CORE CURRICULUM**	1.5 HR
DRAWING ELEMENTS	00105-15	**CORE CURRICULUM**	1.5 HR
DIMENSIONS AND DRAWING SCALE	00105-15	**CORE CURRICULUM**	1.5 HR
MEASURING SCALES	00105-15	**CORE CURRICULUM**	1.5 HR
INTRODUCTION TO BASIC RIGGING		**CORE CURRICULUM**	**7.5 HRS**
SLINGS AND SLING INSPECTIONS	00106-15	**CORE CURRICULUM**	3 HRS
RIGGING HARDWARE	00106-15	**CORE CURRICULUM**	1.5 HRS
HOISTS	00106-15	**CORE CURRICULUM**	1.5 HRS
HITCHES	00106-15	**CORE CURRICULUM**	1.5 HRS

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BASIC COMMUNICATION SKILLS		**CORE CURRICULUM**	**7.5 HRS**
THE COMMUNICATION PROCESS	00107-15	**CORE CURRICULUM**	2.5 HRS
ACTIVE LISTENING ON THE JOB	00107-15	**CORE CURRICULUM**	1 HRS
SPEAKING ON THE JOB	00107-15	**CORE CURRICULUM**	1 HRS
THE IMPORTANCE OF READING AND WRITING SKILLS	00107-15	**CORE CURRICULUM**	1 HRS
READING ON THE JOB	00107-15	**CORE CURRICULUM**	1 HRS
WRITING ON THE JOB	00107-15	**CORE CURRICULUM**	1 HRS
BASIC EMPLOYABILITY SKILLS		**CORE CURRICULUM**	**7.5 HRS**
INTRO AND OVERVIEW	00108-15	**CORE CURRICULUM**	1 HR
OPPORTUNITIES IN THE CONSTRUCTION INDUSTRY	00108-15	**CORE CURRICULUM**	2 HR
CRITICAL THINKING AND PROBLEM SOLVING	00108-15	**CORE CURRICULUM**	2.5 HR
RELATIONSHIP AND SOCIAL SKILLS	00108-15	**CORE CURRICULUM**	2.5 HR
INTRO TO MATERIALS HANDLING		**CORE CURRICULUM**	**5 HRS**
INTRO AND OVERVIEW	00109-15	**CORE CURRICULUM**	1 HRS
MATERIALS HANDLING BASICS AND SAFETY	00109-15	**CORE CURRICULUM**	2 HRS
MATERIALS HANDLING EQUIPMENT	00109-15	**CORE CURRICULUM**	2 HRS
INTRODUCTION INTO THE MARITIME INDUSTRY		**INTRO TO MTI**	**12.5 HRS**
MARITIME INDUSTRY OVERVIEW	84101-13	**INTRO TO MTI**	2 HRS
SHIPBUILDING TERMS	84101-13	**INTRO TO MTI**	1.5 HRS
THE SHIPBUILDING PROCESS	84101-13	**INTRO TO MTI**	1.5 HRS
CAREER OPPORTUNITIES	84101-13	**INTRO TO MTI**	1.5 HRS
REGULATORY AGENCIES AND ORGANIZATIONS	84101-13	**INTRO TO MTI**	1.5 HRS
SHIPYARD SAFETY	84101-13	**INTRO TO MTI**	1.5 HRS
SHIP CONSTRUCTION DRAWINGS	84101-13	**INTRO TO MTI**	1.5 HRS

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APPRENTICE TRAINING	84101-13	**INTRO TO MTI**	1.5 HRS

Grading Policy:
We encourage all students to come to class prepared, do their homework and participate in all class activities. In an effort to measure students' true knowledge of the course content and their employability skills, assessments, tests, quizzes, attendance, class/shop conduct will all be factored in the grades of all students.

Student's final grades will be broken down as follows:

1. Summative Assessments{ 45%
2. Formative Assessments: 35%
3. Employability Skills: 20%

Total: 100%

Any student who obtains a score of less than 70% in any classroom summative assessment will be qualified to retake the assessment only after he/she completes all necessary preparatory assignments. Tests that are re-taken can receive a maximum score of 90%.

EXPECTATIONS:

Safety
The electric arc and oxy-fuel welding and cutting processes are inherently dangerous processes that require strict safety practices to ensure the safety of everyone. The dangers of welding include, but are not limited to: electric shock; burns; exposure to arc rays; exposure to fumes; and other general construction safety hazards. Therefore, to ensure student safety, we expect that all students will thoroughly understand and adhere to the safety procedures established. Due to the inherent and associated risks, safety training will take place at the beginning of each school year. Horseplay and not adhering to proper safety will affect not only the "Employability Skills" portion of the grade, but will also limit the amount of in-shop, hands-on work a student is able to perform and may result in students not being allowed to perform certain assessments.

*****Students who are found to pose a persistent danger to themselves or others, will be removed from the Maritime Welding program.** ***

*****We strongly caution students from performing any work outside of school that is learned in this course, without the proper supervision of a qualified professional, until they are deemed professionally upon successful completion of this course.*****

Effort
We expect all students to give 100% and always try their hardest. Our responsibility is to make sure this effort is rewarded with learning.

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Conduct

We expect all students to adhere to the school's handbook regarding classroom conduct. It is important for student learning and student safety that the learning environment be safe and free from physical and emotional dangers. **Teasing, bullying, hurtful, disrespectful and unsafe behaviors will NOT be tolerated.**

PCTA Maritime Welding Program
Prior to RTI (Response to intervention)

1. The Welding Department shall identify on a monthly basis any student who has frequent absences, several missed assignments, and lack of productivity in the lab area.

2. Upon identifying a student with needs, a meeting shall be made with the student, guidance and the director of CTE to evaluate the student's lack of performance when attending Maritime Welding classes. This meeting will allow the student and instructor to produce a comprehensive plan with the help of a guidance counselor and the CTE director to get the student to the appropriate performance level. This gives the student the opportunity to be a part of his or her education and redirection of their Career and Technical Education Training.

3. If the student does not comply with the agreement within 2 weeks, a representative from the Welding Department will contact the guidance department to make an appointment for a second conference including the parent to discuss any issues or concerns about their child.

4. If student performance continues to decline the student will be referred to RTI (see below for RTI plan)

RTI Plan

1. The welding department will review student performance and identify any potential students who are in the "at risk" category. The "at risk" category is defined as any freshmen or sophomore student missing more than 22 days in one quarter, also any student who fails one full module from the curriculum. The above will also apply to juniors and seniors, with the more stringent requirement that the student not miss more than 11 days per quarter.

2. Once "at risk" students have been identified, a spreadsheet shall be forwarded to guidance and special education. The spreadsheet will be filed permanently in the welding department.

3. A meeting shall be scheduled with the RTI team to discuss further actions to create a comprehensive plan for the students to succeed.

4. Upon the student's completion of RTI, the Welding Department shall contact the RTI team to discuss whether the student shall be referred to special education, or if they can be dismissed from the Response to Intervention (RTI) plan.