

**Area Career Center of Hammond**  
**Area District of Career and Technical Education #2**  
**Course Syllabus**  
**Industrial Maintenance/Welding**  
**School Year 2011-2012**

**Course Title:** Industrial Maintenance/Welding

**Meeting Dates:** Monday – Friday  
AM Session: 7:45 - 10:15  
PM Session: 11:45 - 2:45

**Instructor:** Mr. George Trinidad  
**Parapro:** Mr. Tony Przewoznik  
Office #139 (and shop)  
Office Phone: 219-933-2428 x2039  
Fax: 219-933-1680  
Email address: [gjtrinidad@hammond.k12.in.us](mailto:gjtrinidad@hammond.k12.in.us)  
Email address: [apprzewoznik@hammond.k12.in.us](mailto:apprzewoznik@hammond.k12.in.us)

**Office Hours:** M-F: 10:15 – 11:45 AM

**Prerequisites:** Year 1: None; geometry is strongly suggested  
Year 2: Complete Year 1

**Course Description:**

Students will be introduced to Principles and Fundamentals of Industrial Maintenance and Mechanics. They will also spend time in the shop learning various welding skills. Students progress at their own pace while learning the following procedures: Hydraulics; Pneumatics; Rigging; Mechanical Print Reading; Fabrication; Shielded Metal Arc (Stick); Gas Metal Arc (MIG); Gas Tungsten Arc (TIG); Oxy-Acetylene Welding/Cutting; Plasma and Airarc cutting. Blueprint reading and math are also included in the course.

**Course Intent:**

Students will leave the course with minimum of entry level skills to enable them to secure work as a: millwright, boilermaker, welder, pipefitter, iron worker, motor inspector, and mechanical engineer. Students are highly encouraged to enter an apprenticeship upon graduation.

Students receive dual credit with Ivy Tech Community College.

### **Assigned Text:**

Moniz, B.J., Miller, R.T. (2004). *Welding Skills*. (Third Edition). American Technical Publishers: Homewood, IL.

Gosse Jonathon F. (2004). *Welding Skills Workbook*. (Third Edition). American Technical publishers: Homewood, IL.

Bennett, A.E. Siy, Louis J. (1993). *Blueprint Reading for Welders*. (Second Edition). American Technical Publishers: Homewood, IL.

Procter, Thomas e., Gosse, Jonathan F. (1997) *Print Reading for welders*. (Second Edition). American Technical Publishers: Homewood, IL.

Marion, Nino. (1996). *Math for Welders*. (First Edition). Goodheart-Willcox Company: Tinley Park, IL.

Kemp,. Albert W., (2008) *Industrial Mechanics*. (Second Edition). American Technical Publishers: Homewood, IL.

ATP Staff, (2008) *Industrial Mechanics Workbook*. (Second Edition). American Technical Publishers: Homewood, IL.

### **Indiana Professionals Standards Covered:**

#### Standard 1: Student Safety

- 1.1 Safety is taught as an integral part of the instruction program. (11 IAC 8-2-4(b))
- 1.2 Safety issues are addressed during all phases of program planning and implementation.
- 1.3 The Occupational Safety and Health Administration (OSHA) and Environmental Protection Agency (EPA) standards guide the implementation and maintenance of environmental health and safety features.
- 1.4 Facilities are accessible to all populations and are appropriate for the instructional program being offered.

#### Standard 2: Advisory Committees

- 2.1 Advisory committee (general and program area) are organized and meeting as required each year. (511 IAAC 8-2-8)
- 2.2 Advisory committee meeting a minimum of twice per year and maintain accurate minutes of each meeting.
- 2.3 Membership includes a balance representation from business/industry, labor, education, males and females, and advocates for ethnic and racial minorities, and the

disabled.

- 2.4 Program advisory committees annually review course standards, curriculum, assessment practices and resources (including equipment) for appropriateness and effectiveness.

### Standard 3: Teacher Licensing

- 3.1 All career and technical teachers possess a valid teaching license for their teaching assignments under rules adopted by the Indiana Professionals Standards Board.
- 3.2 Teachers participate in workshops, conferences, and professional organization activities to remain current in their program area and to meet license renewal requirements.
- 3.3 Teachers demonstrate knowledge of learners in the instructional process.
- 3.4 Teachers demonstrate knowledge of content and instructional resources pertaining to basic skills, the world of work, and the skills and processes of industry.
- 3.5 Teachers create an environment that develops democratic values, risk taking, and a desire for lifelong learning.
- 3.6 Teachers select from a variety of instructional strategies in performance-based learning of subject matter, critical thinking, and problem solving.
- 3.7 Teachers understand and use a variety of assessment and evaluation strategies to assist learners in their intellectual, social, and physical development.
- 3.8 Teachers reflect on personal practices to improve the effectiveness and quality of learner education.
- 3.9 Teachers foster collaborative relationships with business, industry, and government in order to extend and enrich opportunities for learners.
- 3.10 Teachers work with colleagues and the professional community to improve schools and to advance knowledge in the occupational area.
- 3.11 Teachers foster relationships with families and the local community to achieve common goals for all learners.
- 3.12 Teachers involve the learners in a variety of activities to help them understand the changing workplace as they prepare to enter the workforce.
- 3.13 Teachers prepare learners to meet the competing demands and responsibilities of the workplace.
- 3.14 Teachers assist learners in developing self-awareness and confidence as well as sound personal and social values.

### Standard 4: Curriculum

- 4.1 State content standards are used as the foundation for local curriculum development and input from the community is considered during the development process.
- 4.2 Curriculum activities help students apply appropriate English/language arts, mathematics, science, and social studies standards in work-related situations.
- 4.3 Local curriculum emphasizes the technical, academic and employability skills needed for success.
- 4.4 Curriculum is consistent with available state and national industry certification standards.

- 4.5 Curriculum is aligned with existing postsecondary programs.
- 4.6 Curriculum is connected to available apprenticeship training programs.
- 4.7 A variety of assessment strategies is used to document student achievement.
- 4.8 Each course of program has the resources necessary to implement state standards and local curriculum and the adapt to needs of students.
- 4.11 Guidance activities are used to help students affirm or adjust career goals.
- 4.13 Students data is collected to meet state and federal accountability requirements.

### **Learning Objectives:**

Students Progress at their own pace with hands on skills.

The related information portion of the curriculum is different for 1<sup>st</sup> and 2<sup>nd</sup> year students.

Students are taught the same welding and industrial mechanical procedures as used in industry to obtain entry level skills.

### **Instructional Strategies/Methods:**

1. Lecture
2. Discussion/Questioning
3. Problem Solving
4. Demonstration
5. Peer Mentoring
6. Teamwork Activities
7. Role Playing
8. Internships
9. Shop Work/Activities
10. Simulated Work Environments

### **Diversity:**

It is the policy of the Area Career Center not to discriminate on the basis of race, color, Religion, sex, national origin, age or handicap in its programs as required by the Indiana Civil Rights Act (I.C.22-9.1). Title VI and VII (Civil Rights Act of 1964, Title IX (Educational Amendments), and Section 504 (Rehabilitation Act of 1973).

### **Special Needs Learners:**

If adaptations or accommodations are needed in the classroom, for transportation, or for emergency procedures because of a disability or medical condition, please contact the instructor as soon as possible.

### **Assignments:**

The training students receive in the shop constitutes the bulk of the student's grade. second year students have the opportunity to participate in an intern ship, providing local businesses are willing to participate.

### **Grading:**

1. Workbook	5%
2. Quizzes	10%
3. Shop Work	<u>85%</u>
	100%

**Note:** Shop grades includes: attendance, being prepared, having necessary clothes/gear, following safety rules, quantity and quality of work.

**Students will receive a zero for shop points for any absence. The only exception is if the absence is due to a conflict with the home school schedule.**

### **Student Expectations:**

1. Be on time and prepared for class
2. Be polite and courteous to others
3. Be respectful of others work-time
4. Get permission before operating power equipment
5. Wear proper safety apparel while in the shop
6. Demonstrate professionalism as in if a "REAL WORLD" environment

### **Class Schedule:**

This class being in the initial stages of the expansion of the Industrial Maintenance/Welding program to include Industrial Maintenance, scheduling of curriculum will be a work in progress and will be determined by class absorption rate and progress. Please understand that we are diligently working to improve the program to meet State curriculum standards and to meet the needs of Business and Industry.