

Welding - Oxyacetylene and Arc

Construction Trades and Building Systems

Course Number: WEL9107	Contribution to Program: Vocational	Normative Hours: 45
Applicable Program(s): 0550X01FWO EME Technician - Robotics	AAL: 1	Core/Elective: Core
Prepared by: Mark Bowen Coordinator		Approval Date: 09/07/2012
Co-Requisites N/A		Approved by: Christopher Hahn Chair, Construction Trades and Building Systems
Pre-Requisites N/A		Approved for Academic Year: 2012-2013

COURSE DESCRIPTION

This is a hands-on course in oxyacetylene, shield metal arc (SMAW), gas metal arc (MIG) and gas tungsten arc (TIG) welding. Students learn the basic setup and safe operation of all of these welding processes. Independent study and project-based learning are emphasized.

RELATIONSHIP TO VOCATIONAL LEARNING OUTCOMES

This course contributes to your program by helping you achieve the following Vocational Learning Outcomes:

EME Technician - Robotics 0550X01FWO

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| 1 | Fabricate mechanical components and assemblies, and assemble electrical components and electronic assemblies by applying workshop skills and knowledge of basic shop practices in accordance with applicable codes and safety practices.(T,A) |
| 14 | Perform all work in accordance with relevant law, policies, codes, regulations, safety procedures, and standard shop practices.(T,A) |

T: Teach A: Assess CP: Culminating Performance

ESSENTIAL EMPLOYABILITY SKILLS

The course contributes to your program by helping you achieve the following Essential Employability Skills:

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| 10 | Manage the use of time and other resources to complete projects.(T,A) |
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T: Teach A: Assess CP: Culminating Performance

COURSE LEARNING REQUIREMENTS/EMBEDDED KNOWLEDGE AND SKILLS

COURSE LEARNING REQUIREMENTS When you have earned credit for this course, you will have demonstrated the ability to:	EMBEDDED KNOWLEDGE AND SKILLS
1. Practice safe operations and health regulations	<ul style="list-style-type: none"> 1 use proper P.P.E. (safety) equipment 1 demonstrate proper set-up and use of O.A.W. equipment 1 demonstrate proper set-up and use of O.A.C. equipment 1 demonstrate proper set-up and use of S.M.A.W. equipment
2. Choose which procedure is to be used to join metal - fusion, brazing.	<ul style="list-style-type: none"> 1 fuse (weld) various joint designs 1 fuse (weld) different thicknesses 1 braze (brass) "lap" and "tee" joints
3. Operate an oxyacetylene cutting torch.	<ul style="list-style-type: none"> 1 demonstrate his/her ability to remove metal
4. Understand basic electricity associated with welding.	<ul style="list-style-type: none"> 1 understand the principles and units of electricity 1 understand the function and difference between direct and alternating current
5. Operate welding equipment.	<ul style="list-style-type: none"> 1 identify the various components of S.M.A.W. equipment.

	<ul style="list-style-type: none"> 1 select the proper current and polarity to perform a welding task
6. Select the proper electrodes to perform a welding task.	<ul style="list-style-type: none"> 1 strike and maintain an arc 1 complete a minimum of four "tee" and "lap" joints using a variety of electrodes and sizes 1 perform a fillet weld in flat/horizontal position using the S.M.A.W. process
7. Practice safe operation and health regulations.	<ul style="list-style-type: none"> 1 use proper personal equipment 1 operate G.M.A.W. and G.T.A.W. equipment
8. Operate varieties of welding equipment.	<ul style="list-style-type: none"> 1 demonstrate proper set-up and use of G.M.A.W. equipment 1 demonstrate proper set-up and use of G.T.A.W. equipment 1 select proper process to perform a welding task 1 select different power sources along with their auxiliary equipment

LEARNING RESOURCES

Hand outs
Computer links
Demonstrations

LEARNING ACTIVITIES

During this course, you are likely to experience the following learning activities:

- 1 attending lectures
- 1 note taking
- 1 reading assignment
- 1 completion of practical projects
- 1 demonstrations

EVALUATION/EARNING CREDIT

The following will provide evidence of your learning achievements:	This activity validates the following Course Learning Requirements and/or Essential Employability Skills:
Practical Projects 65%	<ul style="list-style-type: none"> 1 Operate welding equipment. - [CLR 5] 1 Practice safe operation and health regulations. - [CLR 7] 1 Operate varieties of welding equipment. - [CLR 8] 1 Practice safe operations and health regulations - [CLR 1] 1 Choose which procedure is to be used to join metal - fusion, brazing. - [CLR 2] 1 Operate an oxyacetylene cutting torch. - [CLR 3] 1 Understand basic electricity associated with welding. - [CLR 4] 1 Select the proper electrodes to perform a welding task. - [CLR 6] 1 Manage the use of time and other resources to complete projects. - [EES 10]
Test 25%	<ul style="list-style-type: none"> 1 Practice safe operations and health regulations - [CLR 1] 1 Practice safe operation and health regulations. - [CLR 7] 1 Operate varieties of welding equipment. - [CLR 8] 1 Understand basic electricity associated with welding. - [CLR 4]
Participation / Ethics 10%	<ul style="list-style-type: none"> 1 Manage the use of time and other resources to complete projects. - [EES 10]

COLLEGE GRADING NUMERICAL EQUIVALENT TABLE

Final Grade	Mark Equivalent	Numeric Value	Final Grade	Mark Equivalent	Numeric Value
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A+	90-100%	4.0	C+	67-69%	2.3
A	85-89%	3.8	C	63-66%	2.0
A-	80-84%	3.6	C-	60-62%	1.7
B+	77-79%	3.3	D+	57-59%	1.4
B	73-76%	3.0	D	53-56%	1.2
B-	70-72%	2.7	D-	50-52%	1.0
			F	0-49%	0
			FSP	0	0

PRIOR LEARNING ASSESSMENT AND RECOGNITION

Students who wish to apply for prior learning assessment and recognition (PLAR) need to demonstrate competency at a post-secondary level in all of the course learning requirements outlined above. Evidence of learning achievement for PLAR candidates includes:

- 1 Challenge Exam
- 1 Project/Assignment

RELATED INFORMATION

The following information is course-specific:

safety boots or shoes (steel toed) , long pants (no cuffs) and safety glasses must be worn in the shop/lab environment to participate in this class. Perfect attendance is strongly recommended.

The following information is school/department-specific:

The following information is College-wide:

Email

Algonquin College provides all full-time students with an e-mail account. This is the address that will be used when the College, your professors, or your fellow students communicate important information about your program or course events. It is your responsibility to ensure that you know how to send and receive e-mail using your Algonquin account and to check it regularly.

Centre for Students with Disabilities (CSD)

If you are a student with a disability, it is strongly recommended that you identify your needs to the professor and the Centre for Students with Disabilities (CSD) by the end of the first month of the semester in order that any necessary support services can be arranged for you.

Academic Integrity* & Plagiarism*

Adherence to acceptable standards of academic honesty is an important aspect of the learning process at Algonquin College. Academic work submitted by a student is evaluated on the assumption that the work presented by the student is his or her own, unless designated otherwise. For further details consult Algonquin College Policies AA18 <http://www2.algonquincollege.com/directives/files/2012/04/AA18.pdf> and AA20 <http://www2.algonquincollege.com/directives/files/2011/08/AA20.pdf>

Student Course Feedback*

It is Algonquin College's policy to give students the opportunity to complete a course assessment survey in each course that they take which solicits their views regarding the curriculum, the professor and the facilities. For further details consult Algonquin College Policy AA25 <http://www2.algonquincollege.com/directives/files/2011/10/AA25.pdf>

Use of Electronic Devices in Class*

With the proliferation of small, personal electronic devices used for communications and data storage, Algonquin College believes there is a need to address their use during classes and examinations. During classes, the use of such devices is disruptive and disrespectful to others. During examinations, the use of such devices may facilitate cheating. For further details consult Algonquin College Policy AA32 <http://www2.algonquincollege.com/directives/files/2011/11/AA32.pdf>

Transfer of Credit

Students, it is your responsibility to retain course outlines for possible future use to support applications for transfer of credit to other educational institutions.

* College policies (previously called directives) are under review and redesign. The term *directives* is being retired. As such, the policy classification nomenclature is in transition. Students, it is your responsibility to refer to the Algonquin College Directives/Policies website for the most current information available at: (<http://www2.algonquincollege.com/directives/>)