

New Program Request Form

CA1

General Information

Institution Submitting Proposal	Barton Community College
Name and Title of Contact Person	Elaine Simmons--Dean of Workforce Training and Community Education
Title of Proposed Program	Welding Technology Certificate
Proposed CIP Code	48.0508
Degree/Certificate Program Description	This program is designed to provide students with the skills to work in entry-level welding positions.
Number of Credits for the degree and/or certificate	16-18 hour Certificate Program
Academic Unit	Business, Technology and Community Education
Proposed Date of Initiation	Spring 2010
Specialty Accrediting Agency	None
Location(s) of Program	Ellsworth Correctional Facility; Larned Juvenile Correctional Facility; (Funding provided through the CBJT grant will allow Hutchinson Community College the resources to provide Welding Certification instruction to Hutchinson Correctional Facility).
Summary of Demand for the Program (including source of data)	According to US Department of Labor Statistics, employment of welding, soldering, and brazing workers is expected to grow approximately five percent over the 2006-16 decade. Welding has grown significantly over the long term because of advances that allow the craft to replace other joining technologies in many applications. Thus, demand for welders is increasing in the construction, manufacturing, and utilities industries. Despite overall employment declines in the manufacturing industry, the outlook for welders in manufacturing is far stronger than

	for other occupations. The basic skills of welding are the same across industries, so welders can easily shift from one industry to another depending on workforce need.
Listing of other similar programs in state/region (including enrollments and capacity)	Butler Community College, Coffeyville Community College, Cowley Community College, Dodge City Community College, Garden City Community College, Hutchinson Community College, Independence Community College, Johnson County Community College, KC Area Technical School, Neosho Community College, Flint Hills Technical College, Manhattan Area Technical College, North Central Kansas Technical College, Northwest Technical College, Salina Area Technical College, Seward Community College/Southwest Kansas Technical College, and Wichita Area Technical College, Washburn Institute of Technology. (See table on pages 5-7 for program information)
Date entered into Program Inventory	

Signature of College Official _____ Date _____
Signature of KBOR Official _____ Date _____

Barton Community College

Welding Technology Certificate Program

Program Description

Catalog Description

The Welding Technology program provides training needed for individuals who desire to enter and advance in the welding field. The specific objective of the program is to train students to perform welding operations and to acquire technical skills required for processes associated with Shielded Metal Arc Welding, Gas Tungsten Arc Welding, Gas Metal Arc Welding, Blueprint Reading and Cutting Processes. The courses associated with the Welding Technology Certificate follow the proposed Welding Program Alignment as submitted by the Kansas Board of Regents.

Graduation and Admission Requirements

Graduation Requirements

Students must complete the required 16-18 credit hours and maintain a 2.0 grade point average in the required courses to be awarded the Welding Technology Certificate.

Program Admission

Students entering the program must be high school graduates or possess a GED certificate.

Proposed Aligned Objectives

The certificate program includes learning objectives/outcomes which assist students with basic knowledge and skills of the welding industry. Upon completion students will demonstrate competence in the following areas:

- Describe the Shielded Metal Arc Welding process (SMAW)
- Demonstrate the safe and correct set up of the SMAW workstation
- Associate SMAW electrode classifications with base metals and joint criteria
- Demonstrate proper electrode selection and use based on metal types and thicknesses
- Build pads of weld beads with selected electrodes in the flat position
- Build pads of weld beads with selected electrodes in the horizontal position
- Perform basic SMAW welds on selected weld joints
- Perform visual inspection of welds
- Explain gas metal arc welding process (GMAW)
- Demonstrate the safe and correct set up of the GMAW workstation
- Correlate GMAW electrode classifications with base metals and joint criteria
- Demonstrate proper electrode selection and use based on metal types and thicknesses
- Build pads of weld beads with selected electrodes in the flat position
- Build pads of weld beads with selected electrodes in the horizontal position
- Produce basic GMAW welds on selected weld joints

Conduct visual inspection of GMAW welds
Explain the gas tungsten arc welding process (GTAW)
Demonstrate the safe and correct set up of the GTAW workstation
Relate GTAW electrode and filler metal classifications with base metals and joint criteria
Build proper electrode and filler metal selection and use based on metal types and thicknesses
Build pads of weld beads with selected electrodes and filler material in the flat position
Build pads of weld beads with selected electrodes and filler material in the horizontal position
Perform basic GTAW welds on selected weld joints
Perform visual inspection of GTAW welds
Distinguish several types of mechanical and thermal cutting equipment and processes used in the welding trade
Demonstrate the safe and correct set up, operation and shut down of the Oxy-fuel (OFC) workstation
Demonstrate the safe and correct set up, operation and shut down of the Plasma Arc (PAC) workstation
Demonstrate the safe and correct set up, operation and shut down of the Carbon Arc Cutting with Air (CAC-A) workstations
Demonstrate safe and proper operation of several types of mechanical cutting equipment; and inspect quality and tolerance of cuts according to industry standards
Identify basic lines, views, and abbreviations used in blueprints; interpret basic 3D sketches using orthographic projection and blueprints
Solve applicable mathematical equations; use basic measuring tools; interpret scale ratios on a blueprint
Identify basic welding joints and structural shapes; interpret a Bill of Materials; identify standard AWS weld symbols
Explain job/site safety and precautions for job/site hazards
Determine the uses of personal protective equipment (PPE)
Identify the safety equipment and procedures related to safe work practices and environment
Identify fire prevention and protection techniques
Explore Hazardous Communications (HazCom) including Material Safety Data Sheets (MSDS)

Relationship to Institution's Mission

The mission of Barton County Community College is to deliver educational opportunities that improve the lives of students, meet the workforce needs of the region and strengthen its communities.

The Welding Technology Certificate meets the institution's mission to improve the lives of students by providing education and training to obtain employment, increase earning ability, and qualify for promotion.

The program meets the workforce needs of the region by responding directly to an industry request to develop a well trained, qualified and committed employee pool to address current and future employee needs.

The program was developed as part of a Community Based Job Training (CBJT) grant that was awarded to Barton Community College by the U.S. Department of Labor. The purpose of the grant is to provide career and technical training to Kansas Department of Corrections inmates and Juvenile Justice Authority detainees prior to their release from confinement. The grant also provides training to Kansas Department of Corrections clientele that are assigned to community corrections.

The grant provides career and technical training in four major certificate program areas: Welding Technology, Manufacturing Skills, Plumbing/HVAC, and Computer Aided Drafting. The grant works in conjunction with other agencies to provide life skills training, exposure to the Kansas Career Pipeline and completion of the Kansas WorkReady certification.

In order to accomplish the goals of the grant, Barton Community College is collaborating with a wide range of partners including Hutchinson Community College, North Central Kansas Technical College, Kansas Department of Corrections, Kansas Juvenile Justice Authority, Central Kansas Community Corrections, Kansas Department of Commerce, Local Workforce Investment Boards, and numerous members of the business and industry community from across the state of Kansas.

The availability of the Welding Technology Certificate Program will strengthen communities by the reduction in recidivism rates. Enrolling pre-release inmates into technical training programs provides an excellent return on the training investment. Upon release, untrained inmates typically earn a very low wage which leads to challenges in meeting financial obligations. Statistics show that offenders who receive training during their incarceration make substantial strides toward fulfilling their financial obligations. Additionally, statistics show a five percent reduction in inmate recidivism within one year of follow up, when comparing inmates who receive training versus those who did not participate in technical training.

Demand for the Program

Student Interest

The Kansas Department of Corrections and the Juvenile Justice Authority devote significant time and personnel resources to ensure offenders are provided every opportunity to be successful upon release. Each incarcerated person is provided an individualized program plan that attempts to match their skill level, educational level, and interest level with an available training program. The Welding Technology Certificate will provide a technical training option for eligible participants who express an interest and desire to seek employment in a manufacturing, industrial or construction trades occupation.

The Welding Technology Certificate prepares students to work in the welding field. Welders follow technical blueprints, drawings and plans to bond various metals together in order to construct manufactured products such as toys, industrial machinery, aircraft, and oilfield

equipment. Graduates of this certificate program will have the skill set necessary for entry level employment in the welding field.

Employer Demand/Labor Market Need

Employment change. Employment of welding, soldering, and brazing workers is expected to grow approximately five percent over the 2006-16 decade. Welding has grown significantly over the long term because of advances that allow the craft to replace other joining technologies in many applications. Thus, demand for welders is increasing in the construction, manufacturing, and utilities industries. Despite overall employment declines in the manufacturing industry, the outlook for welders in manufacturing is far stronger than for other occupations. The basic skills of welding are the same across industries, so welders can easily shift from one industry to another depending on workforce needs. For example, welders laid off in the auto industry have been able to find work in the booming oil and gas industry, although the shift may require relocating.

Automation is less of a threat to welders and welding machine operators than to other manufacturing occupations. Welding machines must still be operated by someone who is knowledgeable about welding and can inspect the weld and make adjustments. In custom applications, much of the work is difficult or impossible to automate. This includes manufacturing small batches of items, construction work, and making repairs in factories.

Job prospects. Retirements and job growth in the oil and gas and other industries are expected to create [excellent opportunities](#) for welders. Welding schools report that graduates have little difficulty finding work, and some welding employers report difficulty finding trained welders.

Projections Data

Projections data from the National Employment Matrix					
Occupational title	SOC Code	Employment, 2006	Projected employment, 2016	Change, 2006-16	
				Number	Percent
Welding, soldering, and brazing workers	51-4120	462,000	484,000	22,000	5
Welders, cutters, solderers, and brazers	51-4121	409,000	430,000	21,000	5
Welding, soldering, and brazing machine setters, operators, and tenders	51-4122	53,000	54,000	1,600	3

NOTE: Data in this table are rounded. See the discussion of the employment projections table in the *Handbook* introductory chapter on [Occupational Information Included in the Handbook](#).

The following data was provided by Economic Modeling Specialist, Inc. (EMSI). EMSI offers integrated regional economic and labor market data, web-based analysis tools, data driven reports, and consulting services. EMSI specializes in detailed information about regional economies for assessment and planning purposes, bringing together industry, workforce, and educational prospective. As seen by the projections between 2006-2012, openings for welders in the state of Kansas will increase 5%. Within Barton's service area, openings will increase 10%.

Region: Service Area						
County Areas: Barton, Kansas (20009), Ellsworth, Kansas (20053), Pawnee, Kansas (20145), Rice, Kansas (20159), Rush, Kansas (20165), Russell, Kansas (20167), Stafford, Kansas (20185)						
SOC Code	Description	2009 Jobs	2012 Jobs	Change	% Change	Current Median Hourly Earnings
51-4121	Welders, cutters, solderers, and brazers	145	159	14	10%	\$12.94
51-4122	Welding, soldering, and brazing machine setters, operators, and tenders	20	22	2	10%	\$15.68
		165	181	16	10%	\$13.27
Source: EMSI Complete Employment - 2nd Quarter 2009 v. 2						

Region: State						
State Area: Kansas						
SOC Code	Description	2009 Jobs	2012 Jobs	Change	% Change	Current Median Hourly Earnings
51-4121	Welders, cutters, solderers, and brazers	5,502	5,768	266	5%	\$14.48
51-4122	Welding, soldering, and brazing machine setters, operators, and tenders	870	914	44	5%	\$15.29
		6,372	6,682	310	5%	\$14.59
Source: EMSI Complete Employment - 2nd Quarter 2009 v. 2						

Demand From Local Community (Appendix A)

Business/Industry Partnerships

Great Plains Manufacturing, Ellsworth, KS
 Maico Industries, Inc., Ellsworth, KS
 Hess Services, Inc., Hays, KS
 Moly Manufacturing, Inc., Lorraine, KS
 Clark Manufacturing, Inc., Wellington, KS
 A-1 Plank & Scaffold Mfg., Inc., Hays, KS
 Doonan Trailer, Great Bend, KS
 Wilkens Walking Floor Trailers, Stockton, KS

Southeast Kansas Educational Services Center, Topeka, KS
 Kansas Department of Corrections, Topeka, KS
 Kansas Juvenile Justice Authority, Topeka, KS
 Central Kansas Community Corrections, Great Bend, KS
 Kansas Department of Commerce, Topeka, KS
 Hutchinson Community College, Hutchinson, KS
 North Central Kansas Technical College, Beloit, KS
 Kansas Workforce ONE, Great Bend, KS
 Heartland Works, Inc., Topeka, KS
 Workforce Alliance of South Central Kansas, Wichita, KS
 Workforce Partnership, Kansas City, KS
 Post Rock Jaycees, Ellsworth, KS
 Spiritual Life Center, Ellsworth, KS

Duplication of Existing Programs

Similar Programs (Information as of 9/8/2009)

Institution	Name of Program	Level	Credit Hours	# of Students Enrolled	Number of Slots Available
Butler	CIP 48.0508 Welding Technology	Certificate	35	15	*
Butler	CIP 48.0508 Welding Technology	Degree - AAS	62	*	*
Coffeyville	CIP 48.0508 Welding Technology	Certificate	46	50	
Dodge City	CIP 48-0508 Welding Technology	Certificate	31	*	*
Dodge City	CIP 48-0508 Welding Technology	Degree AAS	62	*	*
Cowley	CIP 48.0508 Welding Technology	Degree- AAS	66	50	*
Cowley	CIP 48.0508 Welding Technology	Certificate	48	48	*
Garden City	CIP 48.0508 Welding Technology	Degree – AAS	64	5	5
Garden City	CIP 48.0508 Welding Technology	Certificate	30	9	1
Hutchinson	CIP 48.0508 Welding Technology	Degree- AAS	64	*	*
Hutchinson	CIP 48.0508 Welding Technology	Certificate	32	*	*
Independence	CIP 48.0508 Welding	Certificate	16	*	*
Johnson	CIP 48.0508 Welder Fabricator Adv.	Certificate	17	*	*

Johnson	CIP 48.0508 Metal Fabrication	Certificate	25	*	*
Johnson	CIP 48.0508 Metal Fab Technology	Degree- AAS	17	*	*
Neosho	CIP 48.0508 Welding	Certificate	16	55	*
Neosho	CIP 48.0508 Welding	Certificate	32	*	*
KC Area Tech	CIP 48.0508 Welding Technology	Certificate	48	18	*
Flint Hills	CIP 48.0508 Welding	Stand Alone	8	13-15	*
Wichita Area Technical	CIP 48.0508 Welding	Certificate	34	*	*
Seward & SW Kansas Technical	CIP 48.0508 Welding Technology	Certificate	48	*	*
Manhattan Area Technical	CIP 48.0508 Welding	Certificate	39	22	22
Manhattan Area Technical	CIP 48.0508 Welding Technology	Degree – AAS	62	*	*
Salina Area Technical	CIP 48.0508 Welding Technology	Degree - AAS	61	*	*
Salina Area Technical	CIP 48.0508 Welding Technology	Certificate	52	40	40
Salina Area Technical	CIP 48.0508 Welding Technology	Certificate	49	*	*
North Central KS	CIP 48.0508 Welding	Certificate	37	*	*
NW Kansas Tech	CIP 48.0508 Welding	Degree- AAS	60	15	9
NW Kansas Tech	CIP 48.0508 Welding	Certificate	46	*	*
NW Kansas Tech	CIP 48.0508 Welding	Certificate	19	*	*
NW Kansas Tech	CIP 48.0508 Welding Technology	Certificate	36	*	*
Washburn Tech	CIP 48.0508 Welding	Certificate	48	40	*

* Upon contacting institution – numbers were not available

Collaboration

The welding technology program was developed to accomplish the common measures outlined in the Community Based Job Training grant awarded to Barton Community College by the U.S. Department of Labor.

In order to accomplish the goals of the grant, Barton Community College collaborated with a wide range of partners including Hutchinson Community College, North Central Kansas Technical College, Kansas Department of Corrections, Kansas Juvenile Justice Authority, Central Kansas Community Corrections, Kansas Department of Commerce, the Local Workforce Investment Boards, and numerous members of the business and industry community from across the state of Kansas.

In order to solicit business and industry input, Barton Community College established a welding advisory board. Members of the board were selected from the Barton service area and represent different areas of the welding industry. This board contributed to the development of the courses contained in the Welding Technology Certificate.

Program Information

Welding Curriculum Course Descriptions

WELD xxxx – Blueprint Reading: Through a variety of classroom and/or shop/lab learning and assessment activities, the students in this course will: identify basic lines, views, and abbreviations used in blueprints; interpret basic 3D sketches using orthographic projection and blueprints; solve applicable mathematical equations; use basic measuring tools; interpret scale ratios on a blueprint; identify basic welding joints and structural shapes; interpret a Bill of Materials; identify standard AWS weld symbols.

WELD 1350 – Shielded Metal Arc Welding: Through classroom and/or lab/shop learning and assessment activities, students in this course will: describe the Shielded Metal Arc Welding process (SMAW); demonstrate the safe and correct set up of the SMAW workstation; associate SMAW electrode classifications with base metals and joint criteria; demonstrate proper electrode selection and use based on metal types and thicknesses; build pads of weld beads with selected electrodes in the flat position; build pads of weld beads with selected electrodes in the horizontal position; perform basic SMAW welds on selected weld joints; and perform visual inspection of welds.

WELD xxxx – Gas Metal Arc Welding: Through classroom and/or shop/lab learning and assessment activities, students in this course will: explain gas metal arc welding process (GMAW); demonstrate the safe and correct set up of the GMAW workstation.; correlate GMAW electrode classifications with base metals and joint criteria; demonstrate proper electrode selection and use based on metal types and thicknesses; build pads of weld beads with selected electrodes in the flat position; build pads of weld beads with selected electrodes in the horizontal position; produce basic GMAW welds on selected weld joints; and conduct visual inspection of GMAW welds.

WELD xxxx – Gas Tungsten Arc Welding: Through classroom and/or lab/shop learning and assessment activities, students in this course will: explain the gas tungsten arc welding process (GTAW); demonstrate the safe and correct set up of the GTAW workstation; relate GTAW electrode and filler metal classifications with base metals and joint criteria; build proper electrode and filler metal selection and use based on metal types and thicknesses; build pads of weld beads with selected electrodes and filler material in the flat position; build pads of weld beads with selected electrodes and filler material in the horizontal position; perform basic GTAW welds on selected weld joints; and perform visual inspection of GTAW welds.

WELD xxxx – Cutting Processes: Through classroom and/or shop/lab learning and assessment activities, students in this course will: distinguish several types of mechanical and thermal cutting equipment and processes used in the welding trade; demonstrate the safe and correct set up, operation and shut down of the Oxy-fuel (OFC) workstation; demonstrate the safe and correct set up, operation and shut down of the Plasma Arc (PAC) workstation; demonstrate the safe and correct set up, operation and shut down of the Carbon Arc Cutting with Air (CAC-A) workstations; demonstrate safe and proper operation of several types of mechanical cutting equipment; and inspect quality and tolerance of cuts according to industry standards.

WELD xxxx - Safety: Through a variety of classroom and/or lab learning and assessment activities, students in this course will: explain job/site safety and precautions for job/site hazards; determine the uses of personal protective equipment (PPE); identify the safety equipment and procedures related to safe work practices and environment; identify fire prevention and protection techniques; explore Hazardous Communications (HazCom) including Material Safety Data Sheets (MSDS).

Program of Study/Certification Plan

It is anticipated that the certification program will be delivered in a variety of venues, timeframes and locations. Students will participate in 16-18 credits of study.

Proposed Aligned Competency Profile

Upon completion of the welding certificate program, students will demonstrate proficiency in the following competencies

WELD xxxx – Blueprint Reading

1. Identify basic lines, views, and abbreviations used in blueprints

You will demonstrate your competence:

by identifying lines and views using instructor-provided materials and or resources

Your performance will be successful when:

you identify types of lines associated with industrial blueprints

you identify the views associated with an orthographic projection

you identify the placement of the views of an orthographic projection on a 2D surface

you utilize abbreviations where appropriate

2. Interpret basic 3D sketches using orthographic projection and blueprints

You will demonstrate your competence:

through a written or oral instructor-provided evaluation tool
by providing a layout of a provided sketch

Your performance will be successful when:

- you describe each view of an orthographic projection
- you explain the part based on the view
- you accurately layout the part based on the sketches tolerances

3. Solve applicable mathematical equations

You will demonstrate your competence:

- you utilize mathematical equations to perform an assigned task

Your performance will be successful when:

- you demonstrate use of fractions and decimals
- you compute areas
- you compute volumes
- you use basic geometric equations

4. Use basic measuring tools

You will demonstrate your competence:

- by using multiple measuring devices

Your performance will be successful when:

- you use a variety of measuring tools and layout devices appropriate to the task
- you can read a tape measure to a minimum of 1/16th of an inch or 1 mm

5. Interpret scale ratios on a blueprint

You will demonstrate your competence:

- by completing a series of scale conversions
- using instructor-provided materials

Your performance will be successful when:

- you apply appropriate mathematical principles to assigned tasks

6. Identify basic welding joints and structural shapes

You will demonstrate your competence:

- by identifying basic welding joints and structural shapes in a written or oral evaluation
- using instructor-provided materials

Your performance will be successful when:

- you identify welding joints
- you identify structural shapes

7. Interpret a Bill of Materials

You will demonstrate your competence:

- by interpreting a Bill of Materials
- by using an instructor-provided blueprint

Your performance will be successful when:

- you identify the material description

you identify the quantities of materials
you identify parts and item numbers

8. Identify standard AWS weld symbols

You will demonstrate your competence:

by identifying standard AWS welding symbols
using an instructor-provided blueprint

Your performance will be successful when:

you identify a joint design
you identify a weld process
you identify other symbol's components

WELD 1350 – Shielded Metal Arc Welding

1. Explain the Shielded Metal Arc Welding process (SMAW).

You will demonstrate your competence:

through a written or oral instructor-provided evaluation tool

Your performance will be successful when:

you differentiate between types and uses of current
you identify the advantages and disadvantages of SMAW
you identify types of welding power source
you identify different components of a SMAW station
you describe basic electrical safety

2. Demonstrate the safe and correct set up of the SMAW workstation.

You will demonstrate your competence:

in the lab or shop setting
using SMAW equipment

Your performance will be successful when:

you demonstrate proper inspection of equipment
you demonstrate proper use of PPE
you demonstrate proper placement of workpiece connection
you check for proper setup of equipment
you inspect area for potential hazards/safety issues

3. Relate SMAW electrode classifications with base metals and joint criteria

You will demonstrate your competence:

through a written or oral instructor-provided evaluation tool

Your performance will be successful when:

you explain the AWS electrode nomenclature
you determine proper electrode for given joint based on material and position of weld
you determine proper type of electrodes to be used in a variety of industry applications
you identify proper electrode storage and handling

4. Demonstrate proper electrode selection and use based on metal types and thicknesses
You will demonstrate your competence:
 - in the lab or shop setting
 - using SMAW equipmentYour performance will be successful when:
 - you select the proper electrode type and size relative to metal size, type and thickness
 - you select the proper electrode type and size based on material specifications

5. Build pads of weld beads with selected electrodes in the flat position
You will demonstrate your competence:
 - in the lab or shop setting
 - using SMAW equipmentYour performance will be successful when:
 - you use the proper safety procedures and PPE
 - you use the proper setup procedures
 - you create a pad of beads using SMAW electrode
 - your weld exhibits proper uniformity and profile

6. Build pads of weld beads with selected electrodes in the horizontal position
You will demonstrate your competence:
 - in the lab or shop settingYour performance will be successful when:
 - you use the proper safety procedures and PPE
 - you use the proper setup procedures
 - you create a pad of beads using SMAW electrode
 - your weld exhibits proper uniformity and profile

7. Perform basic SMAW welds on selected weld joints.
You will demonstrate your competence:
 - in the lab or shop setting
 - using SMAW equipment
 - using appropriate toolsYour performance will be successful when:
 - you use the proper setup procedures
 - you use the proper safety procedures and PPE
 - you perform a fillet weld in horizontal position
 - you perform fillet weld in flat position
 - you perform a groove weld in a flat position
 - you perform a groove weld in a horizontal position
 - you use tools appropriate for the task

8. Perform visual inspection of welds
You will demonstrate your competence:
 - in the lab or shop setting

using appropriate inspection tools

Your performance will be successful when:

- you identify common visual discontinuities and defects on welds
- you determine causes of discontinuities and defects of welds
- you inspect welds for pass/fail ratings according to industry standards
- you use appropriate inspection tools

WELD xxxx – Gas Metal Arc Welding

1. Explain gas metal arc welding process (GMAW).

You will demonstrate your competence:

through an instructor-provided written or oral evaluation tool

Your performance will be successful when:

- you describe different modes of transfer
- you differentiate between types and uses of current
- you identify the advantages and disadvantages of GMAW
- you identify types of welding power sources
- you identify different components of a GMAW station
- you describe basic electrical safety

2. Demonstrate the safe and correct set up of the GMAW workstation.

You will demonstrate your competence:

in the lab or shop setting
using a GMAW workstation

Your performance will be successful when:

- you demonstrate proper inspection of equipment
- you demonstrate proper use of PPE
- you demonstrate proper placement of workpiece connection
- you check for proper setup of equipment
- you inspect area for potential hazards/safety issues
- you troubleshoot the GMAW equipment and perform minor maintenance

3. Correlate GMAW electrode classifications with base metals and joint criteria

You will demonstrate your competence:

through a written or oral instructor-provided evaluation tool

Your performance will be successful when:

- you explain the AWS electrode nomenclature
- you determine proper electrode for given joint based on material and position of weld
- you determine proper type of electrodes to be used in a variety of industry applications
- you identify proper electrode storage and handling
- you identify consumables

4. Demonstrate proper electrode selection and use based on metal types and thicknesses

You will demonstrate your competence:

in the lab or shop setting
using GMAW equipment

Your performance will be successful when:

- you identify consumables for various electrode sizes
- you select the proper electrode type and size relative to metal size, type and thickness
- you select the proper electrode type and size based on material specifications

5. Build pads of weld beads with selected electrodes in the flat position

You will demonstrate your competence:

in the lab or shop setting
using GMAW equipment

Your performance will be successful when:

- you implement safety procedures and PPE
- you implement proper equipment setup
- you use the proper metal transfer
- you create a pad of beads using GMAW
- your weld exhibits proper uniformity and profile

6. Build pads of weld beads with selected electrodes in the horizontal position

You will demonstrate your competence:

in the lab or shop setting
using GMAW equipment

Your performance will be successful when:

- you implement safety procedures and PPE
- you implement proper equipment setup
- you use the proper metal transfer
- you create a pad of beads using GMAW
- your weld exhibits proper uniformity and profile

7. Produce basic GMAW welds on selected weld joints.

You will demonstrate your competence:

in the lab or shop setting
using GMAW welding equipment
using appropriate tools

Your performance will be successful when:

- you implement safety procedures and PPE
- you implement proper equipment setup
- you perform fillet weld in flat position
- you perform a fillet weld in horizontal position
- you perform a groove weld in a flat position
- you perform a groove weld in a horizontal position
- you use tools appropriate for the task

8. Conduct visual inspection of GMAW welds

You will demonstrate your competence:

- in the lab or shop setting
- using appropriate inspection tools

Your performance will be successful when:

- you identify common visual discontinuities and defects on welds
- you determine causes of discontinuities and defects of welds
- you inspect welds for pass/fail ratings according to industry standards
- you use appropriate tools for inspection

WELD xxxx – Gas Tungsten Arc Welding

1. Explain the gas tungsten arc welding process (GTAW)

You will demonstrate your competence:

- through an instructor-provided written or oral evaluation tool

Your performance will be successful when:

- you differentiate between types and uses of current
- you identify the advantages and disadvantages of GTAW
- you identify types of welding power sources
- you identify different components of a GTAW workstation
- you describe basic electrical safety

2. Demonstrate the safe and correct set up of the GTAW workstation

You will demonstrate your competence:

- in a lab or shop setting
- using a GTAW workstation

Your performance will be successful when:

- you demonstrate proper inspection of equipment
- you demonstrate proper use of PPE
- you demonstrate proper placement of workpiece connection
- you check for proper setup of equipment
- you inspect area for potential hazards/safety issues
- you troubleshoot GTAW equipment and perform minor maintenance

3. Relate GTAW electrode and filler metal classifications with base metals and joint criteria

You will demonstrate your competence:

- through a written or oral examination

Your performance will be successful when:

- you identify electrode classifications
- you explain the AWS electrode and filler metal nomenclature
- you determine proper electrode and filler metal for given joint based on material and position of weld
- you determine proper type of electrodes to be used in a variety of industry applications

4. Build proper electrode and filler metal selection and use based on metal types and thicknesses

You will demonstrate your competence:

- in a lab or shop setting
- using GTAW equipment
- using appropriate tools

Your performance will be successful when:

- you use safety hazard precautions and PPE
- you properly prepare the tungsten electrode profile relative to base material
- you perform weld using GTAW process appropriate to electrode size and filler metal size
- you select the proper electrode and filler metal type and size relative to metal size, type and thickness
- you select the proper electrode and filler metal type and size based on material specifications
- you use tools appropriate for the task

5. Build pads of weld beads with selected electrodes and filler material in the flat position

You will demonstrate your competence:

- in the lab or shop setting
- using GTAW equipment

Your performance will be successful when:

- you use safety hazard precautions and PPE
- you demonstrate proper equipment setup and troubleshooting
- you create a pad of beads using GTAW process
- your weld exhibits proper uniformity and profile

6. Build pads of weld beads with selected electrodes and filler material in the horizontal position

You will demonstrate your competence:

- in the lab or shop setting
- using GTAW equipment

Your performance will be successful when:

- you use safety hazard precautions and PPE
- you demonstrate proper equipment setup and troubleshooting
- you create a pad of beads using GTAW process
- your weld exhibits proper uniformity and profile

7. Perform basic GTAW welds on selected weld joints

You will demonstrate your competence:

- in the lab or shop setting
- using GTAW equipment
- using appropriate tools

Your performance will be successful when:

- you conduct proper base metal preparation
- you use safety hazard precautions and PPE
- you demonstrate proper equipment setup and troubleshooting

you perform fillet weld in flat position
you perform a fillet weld in horizontal position
you perform a groove weld in a flat position
you perform a groove weld in a horizontal position
you use tools appropriate for the task

8. Perform visual inspection of GTAW welds

You will demonstrate your competence:

in the lab or shop setting
using proper inspection tools

Your performance will be successful when:

you identify common visual discontinuities and defects on welds
you determine causes of discontinuities and defects of welds
you inspect welds for pass/fail ratings according to industry standards
you use tools appropriate for the inspection

WELD xxxx – Cutting Processes

1. Distinguish several types of mechanical and thermal cutting equipment and processes used in the welding trade

You will demonstrate your competence:

through an instructor-provided evaluation tool

Your performance will be successful when:

you identify types of cutting process
you define the cutting process advantage
you define the cutting process disadvantage
you identify different components of the process equipment
you describe required safety procedures of the process
you describe the set-up procedures of the process

2. Demonstrate the safe and correct set up, operation and shut down of the Oxy-fuel (OFC) workstation

You will demonstrate your competence:

in the lab or shop setting
by working with an Oxy-fuel (OFC) workstation

Your performance will be successful when:

you use the proper personal protective equipment (PPE)
you identify safety hazards of the equipment
you properly set up the equipment
you properly light and adjust the torch
you make a variety of quality cuts
you properly shut down the equipment

3. Demonstrate the safe and correct set up, operation and shut down of the Plasma Arc (PAC) workstation

You will demonstrate your competence:

in the lab or shop setting

by using the Plasma Arc (PAC) workstation

Your performance will be successful when:

- you use the proper personal protective equipment (PPE)
- you identify the safety hazards of the equipment
- you properly set up the equipment
- you properly shut down the equipment
- you make a variety of quality cuts on various types and sizes of metal

4. Demonstrate the safe and correct set up, operation and shut down of the Carbon Arc Cutting with Air (CAC-A) workstations

You will demonstrate your competence:

- in the lab or shop setting
- by using Carbon Air Cutting with Air (CAC-A)

Your performance will be successful when:

- you use the proper personal protective equipment (PPE)
- you identify the safety hazards of the equipment
- you properly set up the equipment
- you make a variety of quality gouges and cuts on various metals
- you properly shut down the equipment

5. Demonstrate safe and proper operation of several types of mechanical cutting equipment

You will demonstrate your competence:

- in the lab or shop setting
- using institutional-provided mechanical equipment

Your performance will be successful when:

- you identify safety hazards of the equipment
- you use the proper personal protective equipment (PPE)
- you properly set up the mechanical cutting equipment
- you make a variety of quality cuts on various metals
- you properly shut down the equipment

6. Inspect quality and tolerance of cuts according to industry standards

You will demonstrate your competence:

- in the lab or shop setting
- by visually identifying quality cuts

Your performance will be successful when:

- you inspect that the quality of edges are to industry standard
- you use the proper inspection tools for the cutting process

WELD xxxx – Safety

1. Explain job/site safety and precautions for job/site hazards.

Linked External Standards

M1.a - Introduction to OSHA

E2.g - Safety and Health Program

O2.a - general industry hazards or policies and/or expand on the mandatory or elective topics

You will demonstrate your competence:

by presenting a written or oral analysis

OR

by complying with the OSHA 10 General Industry Outreach Training Program

Your performance will be successful when:

your analysis identifies a tasks of job to be performed

your analysis includes a list of possible hazards related to the task

your analysis includes a list of precautions that need to be taken to safely perform tasks

2. Determine the uses of personal protective equipment (PPE)

Linked External Standards

M1.e - Personal Protective Equipment, Subpart I

You will demonstrate your competence:

through a written or oral evaluation of appropriate equipment for the job task

OR

by complying with the OSHA 10 General Industry Outreach Training Program

Your performance will be successful when:

you describe the type of equipment

you describe the purpose of the equipment

you describe benefit of equipment

3. Identify the safety equipment and procedures related to safe work practices and environment

Linked External Standards

M1.a - Introduction to OSHA

M1.b - Walking and Working Surfaces, Subpart D - including fall protection

E2.b - Materials Handling, Subpart N

E2.c - Machine Guarding, Subpart O

E2.g - Safety and Health Program

O2.a - general industry hazards or policies and/or expand on the mandatory or elective topics

You will demonstrate your competence:

through a written or oral instructor-provided evaluation tool

OR

by complying with the OSHA 10 General Industry Outreach Training Program

Your performance will be successful when:

you describe industry standards applicable to walkways and working surfaces

you describe industry standards fire hazards, protection and plans

- you describe industry standards electrical hazards, protections and plans
- you describe industry standards applicable to machine guarding
- you identify safe lockout and tagout practices
- you describe industry standards applicable to lifting
- you explain what assured grounding is
- you explain when GFCI is needed on a site

4. Identify fire prevention and protection techniques

Linked External Standards

M1.c - Exit Routes, Emergency Action Plans, Fire Prevention Plans, and Fire Protection, Subpart E & L

M1.d - Electrical, Subpart S

E2.a - Hazardous Materials, Subpart H

E2.b - Materials Handling, Subpart N

E2.g - Safety and Health Program

O2.a - general industry hazards or policies and/or expand on the mandatory or elective topics

You will demonstrate your competence:

- using an instructor-provided oral or written evaluation tool

- OR

- by complying with the OSHA 10 General Industry Outreach Training Program

Your performance will be successful when:

- you interpret the fire classification system

- you identify the three components of a fire triangle

- you describe the purpose of various fire extinguishers

- you detail fire hazard potentials and system for preventing them

5. Explore Hazardous Communications (HazCom) including Material Safety Data Sheets (MSDS)

Linked External Standards

E2.a - Hazardous Materials, Subpart H

E2.b - Materials Handling, Subpart N

O2.a - general industry hazards or policies and/or expand on the mandatory or elective topics

You will demonstrate your competence:

- through an instructor-provided oral or written evaluation tool

- OR

- by complying with the OSHA 10 General Industry Outreach Training Program

Your performance will be successful when:

- you reference appropriate MSDS

- you identify the various sections of an MSDS and its purpose

- you identify the section and numbering of a container labeling system

Career Cluster and Pathway

Career Cluster – Industrial Manufacturing and Construction
Pathway – Design and Pre-Construction

Curriculum Integration Plan

Since this is a certificate program, there are no plans at present to create a 2+2 agreement with a university. The availability of the certificate program will enhance the institution's articulation agreements with area high schools. Given the appropriate articulated courses, high school students will have the opportunity to complete a certificate in welding sooner if utilizing articulated credit.

Specialized Accreditation

There is not an accrediting agency for this certificate program.

Industry-Recognized Credentials

American Welding Society (AWS)

SYLLABI

Please see Appendix B for all syllabi for the proposed Welding Technology Certificate Program.

16-18-hour Certificate Welding Technology

Major Requirements			
<input type="checkbox"/> WELD	xxxx	Blueprint Reading	3
<input type="checkbox"/> WELD	1350	Shielded Metal Arc Welding	3
<input type="checkbox"/> WELD	xxxx	Gas Metal Arc Welding	3
<input type="checkbox"/> WELD	xxxx	Gas Tungsten Arc Welding	3
<input type="checkbox"/> WELD	xxxx	Cutting Processes	3
<input type="checkbox"/> WELD	xxxx	Safety	1-3
TOTAL			16-18

Faculty

Qualifications and/or Certifications

When determining acceptable qualification of Barton's faculty, the institution gives primary consideration to the highest earned degree in the discipline in accordance with the Higher Learning Commission. Barton also considers competence and effectiveness, including appropriate, undergraduate and graduate degrees, related work experiences in the field, professional licensure and certifications.

Credential Guidelines

Faculty teaching in professional, occupational or technical areas that are components of associate degree programs not usually resulting in college transfer (unless the accrediting body of specific program required a higher level degree):

Baccalaureate degree and, appropriate certifications in the occupational field of teaching

Barton's plan for the employment of faculty in this certificate program is to actively pursue applicants that are currently employed in the field. In all cases, the institution is responsible for justifying and documenting qualifications of the faculty members.

Cost and Funding for Proposed Program

Adequate Resources

The only anticipated expenses will be associate faculty pay, marketing expenses and costs related to training faculty that may not have a formal education background. All equipment costs and supplies are provided by CBJT grant funds.

CA-1a Form

See Appendix C for CA-1a Form

Grants/Outside Funding Sources

Funds set aside in the Community Based Job Training grant awarded to Barton Community College will fund the development of the Welding Technology Certification program.

Program Review and Assessment

Program Assessment

Assessment plans at Barton will be undergoing major changes over the next year. We anticipate linking both the program assessment and program review to provide a yearly document for advisory board input.

Program Review

In the past, Barton Community College administered program reviews every year. Program reviews at the institution have been on hold while awaiting the new KBOR program review model. In its absence, our institution plans to enhance our current model this academic year. The model will fulfill Perkins requirements, while also addressing in-depth review of the program's marketing, curriculum, retention and financial impact. All advisory boards will participate in the program review process.

Evaluation

Students will evaluate the courses and instructors at the conclusion of each course offered in the Welding Technology Certificate program. The Executive Director of Business, Technology & Community Education will be responsible for continual evaluation of the viability and rigor of this certificate program.

Program Approval at the Institution Level

Institutional Approval Process

The welding advisory board meeting was held on September 29, 2009

The proposed program application documentation has been submitted to the following entities at Barton:

- October 14, 2009 – Program of Study Team
- October 26, 2009 – Learning and Instruction Curriculum Committee
 - This Committee approves new programs and new course curriculum
- October 26, 2009 - President's Staff
- November 5, 2009 - Board of Trustees Study Session
- November 19, 2009 – Board of Trustees

Minutes

See appendix D for required Minutes

Perkins Verification Form

See appendix E for Perkins Verification Form. Barton would like to seek Perkins approval for the proposed welding technology certificate program.

APPENDIX A

Industry Support Letters

To Whom It May Concern:

October 16, 2009

I am writing this letter to show my support for the proposed Welding Program, which is to be funded by the Community Based Job Training Grant. One can see from the subject matter to be taught, graduates will leave the program prepared to enter the workforce and with the necessary job knowledge and skills required to secure relevant employment.

In my job I visit many manufacturers in Western Kansas. Even with their main problem now being lack of work, they see skilled labor as the problem of the future. The skilled labor they had last year and had to lay off has moved on to other locations. They see nothing to fill this void when their business picks up in the future. This welding program is just one of the many programs that are needed to provide manufacturers with the skills needed to support their businesses in the upcoming years.

If any further information is needed, please feel free to contact me at the phone number listed below.

Regards,

Don Sweeney

Business Development Manager

MAMTC

1910 18th Street

Great Bend, KS 67530

620-793-7964

www.mamtc.com





Michael A. Gordy – Co-Manager
36 NE Highway 156, Building B
P.O. Box 1988
Great Bend, Kansas 67530
Phone (620) 792 6222
Fax: (620) 792 3308
Email: mgordy@doonan.com

October 2, 2009

To Whom It May Concern:

I am writing this letter to show my support for the proposed Welding Program, which is to be funded by the Community Based Job Training Grant. One can see from the subject matter to be taught, graduates will leave the program prepared to enter the workforce with the necessary job knowledge and skills required to secure relevant employment.

In further support of the Program, Doonan Specialized Trailer, LLC. is eager to review applications from qualified graduates, and if the need is available and the market conditions warrant, we would be willing to extend a job offer to the most qualified applicant. Approximately 50% of Doonan's employees are welders utilizing the GMAW and metal cutting processes that will be taught in this program. Due to the skills a graduate should possess upon graduating from this program we are prepared to offer graduates a higher starting welder rate than our beginning welders due to the value that we believe this program will bring to us as an employer.

If any further information is needed, please feel free to contact me at the phone number listed above.

Regards,

A handwritten signature in black ink that reads 'Michael Gordy'.

Michael Gordy

APPENDIX B

Certificate Program Syllabi

BARTON COUNTY COMMUNITY COLLEGE

COURSE SYLLABUS

I. GENERAL COURSE INFORMATION

Course Number: WELD xxxx (new course)

Course Title: Blueprint Reading – Welding

Credit Hours: 3

Prerequisite:

Division/Discipline: Workforce Training and Community Education/Welding

Course Description: Through a variety of classroom and/or shop/lab learning and assessment activities, the students in this course will: identify basic lines, views, and abbreviations used in blueprints; interpret basic 3D sketches using orthographic projection and blueprints; solve applicable mathematical equations; use basic measuring tools; interpret scale ratios on a blueprint; identify basic welding joints and structural shapes; interpret a Bill of Materials; identify standard AWS weld symbols.

Variable Credit: N/A

II. CLASSROOM POLICY

Students and faculty of Barton County Community College constitute a special community engaged in the process of education. The College assumes that its students and faculty will demonstrate a code of personal honor that is based upon courtesy, integrity, common sense, and respect for others both within and outside the classroom.

The College reserves the right to suspend a student for conduct that is detrimental to the College's educational endeavors as outlined in the College catalog.

Plagiarism on any academic endeavors at Barton County Community College will not be tolerated. Learn the rules of, and avoid instances of, intentional or unintentional plagiarism.

Anyone seeking an accommodation under provisions of the Americans with Disabilities Act should notify Student Support Services.

III. COURSE AS VIEWED IN THE TOTAL CURRICULUM

This is one of a series of technical courses for the Welding Technology Certificate program. This course is designed to develop useful, job-oriented skills. It is highly recommended for individuals entering the fields of manufacturing, automotive and heavy equipment repair, or the machine trades.

This course is not intended for transfer.

IV. ASSESSMENT OF STUDENT LEARNING / COURSE OUTCOMES

Barton County Community College assesses student learning at several levels: institutional, program, degree and classroom. The goal of these assessment activities is to improve student learning. As a student in this course, you will participate in various assessment activities. Results of these activities will be used to improve the content and delivery of Barton's instructional program.

Course Outcomes

Through a variety of classroom and/or shop/lab learning and assessment activities, the students in this course will:

1. Identify basic lines, views, and abbreviations used in blueprints; interpret basic 3D sketches using orthographic projection and blueprints
2. Solve applicable mathematical equations; use basic measuring tools; interpret scale ratios on a blueprint
3. Identify basic welding joints and structural shapes; interpret a Bill of Materials; identify standard AWS weld symbols.

V. COURSE COMPETENCIES

1. Identify basic lines, views, and abbreviations used in blueprints
You will demonstrate your competence:
by identifying lines and views using instructor-provided materials and or resources
Your performance will be successful when:
you identify types of lines associated with industrial blueprints
you identify the views associated with an orthographic projection
you identify the placement of the views of an orthographic projection on a 2D surface
you utilize abbreviations where appropriate
2. Interpret basic 3D sketches using orthographic projection and blueprints
You will demonstrate your competence:
through a written or oral instructor-provided evaluation tool
by providing a layout of a provided sketch
Your performance will be successful when:
you describe each view of an orthographic projection
you explain the part based on the view
you accurately layout the part based on the sketches tolerances
3. Solve applicable mathematical equations
You will demonstrate your competence:

you utilize mathematical equations to perform an assigned task
Your performance will be successful when:

- you demonstrate use of fractions and decimals
- you compute areas
- you compute volumes
- you use basic geometric equations

4. Use basic measuring tools

You will demonstrate your competence:

- by using multiple measuring devices

Your performance will be successful when:

- you use a variety of measuring tools and layout devices appropriate to the task
- you can read a tape measure to a minimum of 1/16th of an inch or 1 mm

5. Interpret scale ratios on a blueprint

You will demonstrate your competence:

- by completing a series of scale conversions
- using instructor-provided materials

Your performance will be successful when:

- you apply appropriate mathematical principles to assigned tasks

6. Identify basic welding joints and structural shapes

You will demonstrate your competence:

- by identifying basic welding joints and structural shapes in a written or oral evaluation
- using instructor-provided materials

Your performance will be successful when:

- you identify welding joints
- you identify structural shapes

7. Interpret a Bill of Materials

You will demonstrate your competence:

- by interpreting a Bill of Materials
- by using an instructor-provided blueprint

Your performance will be successful when:

- you identify the material description
- you identify the quantities of materials
- you identify parts and item numbers

8. Identify standard AWS weld symbols

You will demonstrate your competence:

- by identifying standard AWS welding symbols
- using an instructor-provided blueprint

Your performance will be successful when:

you identify a joint design
you identify a weld process
you identify other symbol's components

VI. INSTRUCTOR'S EXPECTATIONS OF STUDENTS IN CLASS

Each student is expected to attend lecture, drafting and test sessions. It is necessary for the student to read the assigned work, complete assigned unit questions and the assigned drafting projects to receive credit for the course. Students need to arrive to class with a positive attitude and with completed homework assignments

VII. TEXTBOOKS AND OTHER REQUIRED MATERIALS

To be determined

VIII. REFERENCES

None

IX. METHODS OF INSTRUCTION AND EVALUATION

Competence in blueprint reading will be demonstrated through an instructor provided evaluation tool. Tests will be administered over assigned reading and projects.

The following grading scale will be applied to all projects, quizzes and exams:

A = 92 to 100

B = 80 to 91

C = 70 to 79

D = 61 to 69

X. ATTENDANCE REQUIREMENTS

Regular attendance in class and laboratory sessions is an obligation assumed by each student at the time of registration. It is the student's responsibility to fulfill all the requirements of a course as prescribed by the instructor. If a student must miss a class, arrangements should be made in advance with the instructor. Instructors have the responsibility to provide the opportunity for students to make up in a reasonable and appropriate manner work missed for a school-related activity, verifiable illness, personal emergency, or death of a family member or close friend within the time frame established by the instructor. A published procedure allows students to address inequities in this policy.

XI. COURSE OUTLINE

To be determined

BARTON COUNTY COMMUNITY COLLEGE

COURSE SYLLABUS

I. GENERAL COURSE INFORMATION

Course Number: WELD 1350

Course Title: Shielded Metal Arc Welding (SMAW)

Credit Hours: 3

Prerequisite:

Division/Discipline: Workforce Training and Community Education/Welding

Course Description: Through classroom and/or lab/shop learning and assessment activities, students in this course will: describe the Shielded Metal Arc Welding process (SMAW); demonstrate the safe and correct set up of the SMAW workstation; associate SMAW electrode classifications with base metals and joint criteria; demonstrate proper electrode selection and use based on metal types and thicknesses; build pads of weld beads with selected electrodes in the flat position; build pads of weld beads with selected electrodes in the horizontal position; perform basic SMAW welds on selected weld joints; and perform visual inspection of welds.

Variable Credit: N/A

II. CLASSROOM POLICY

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Anyone seeking an accommodation under provisions of the Americans with Disabilities Act should notify Student Support Services.

III. COURSE AS VIEWED IN THE TOTAL CURRICULUM

This is one of a series of technical courses for the Welding Technology Certificate program. This course is designed to develop useful, job-oriented skills. It is highly recommended for individuals entering the fields of manufacturing, automotive and heavy equipment repair, or the machine trades.

This course is not intended for transfer.

IV. ASSESSMENT OF STUDENT LEARNING / COURSE OUTCOMES

Barton County Community College assesses student learning at several levels: institutional, program, degree and classroom. The goal of these assessment activities is to improve student learning. As a student in this course, you will participate in various assessment activities. Results of these activities will be used to improve the content and delivery of Barton's instructional program.

Course Outcomes

Through classroom and/or lab/shop learning and assessment activities, students in this course will:

1. Describe the Shielded Metal Arc Welding process (SMAW)
2. Demonstrate the safe and correct set up of the SMAW workstation
3. Associate SMAW electrode classifications with base metals and joint criteria
4. Demonstrate proper electrode selection and use based on metal types and thicknesses
5. Build pads of weld beads with selected electrodes in the flat position
6. Build pads of weld beads with selected electrodes in the horizontal position
7. Perform basic SMAW welds on selected weld joints
8. Perform visual inspection of welds.

V. COURSE COMPETENCIES

- 1 Explain the Shielded Metal Arc Welding process (SMAW).
You will demonstrate your competence:
 through a written or oral instructor-provided evaluation tool
Your performance will be successful when:
 you differentiate between types and uses of current
 you identify the advantages and disadvantages of SMAW
 you identify types of welding power source
 you identify different components of a SMAW station
 you describe basic electrical safety
2. Demonstrate the safe and correct set up of the SMAW workstation.
You will demonstrate your competence:
 in the lab or shop setting

using SMAW equipment

Your performance will be successful when:

- you demonstrate proper inspection of equipment
- you demonstrate proper use of PPE
- you demonstrate proper placement of workpiece connection
- you check for proper setup of equipment
- you inspect area for potential hazards/safety issues

3. Relate SMAW electrode classifications with base metals and joint criteria

You will demonstrate your competence:

through a written or oral instructor-provided evaluation tool

Your performance will be successful when:

- you explain the AWS electrode nomenclature
- you determine proper electrode for given joint based on material and position of weld
- you determine proper type of electrodes to be used in a variety of industry applications
- you identify proper electrode storage and handling

4. Demonstrate proper electrode selection and use based on metal types and thicknesses

You will demonstrate your competence:

in the lab or shop setting
using SMAW equipment

Your performance will be successful when:

- you select the proper electrode type and size relative to metal size, type and thickness
- you select the proper electrode type and size based on material specifications

5. Build pads of weld beads with selected electrodes in the flat position

You will demonstrate your competence:

in the lab or shop setting
using SMAW equipment

Your performance will be successful when:

- you use the proper safety procedures and PPE
- you use the proper setup procedures
- you create a pad of beads using SMAW electrode
- your weld exhibits proper uniformity and profile

6. Build pads of weld beads with selected electrodes in the horizontal position

You will demonstrate your competence:

in the lab or shop setting

Your performance will be successful when:

- you use the proper safety procedures and PPE
- you use the proper setup procedures
- you create a pad of beads using SMAW electrode

your weld exhibits proper uniformity and profile

7. Perform basic SMAW welds on selected weld joints.

You will demonstrate your competence:

- in the lab or shop setting
- using SMAW equipment
- using appropriate tools

Your performance will be successful when:

- you use the proper setup procedures
- you use the proper safety procedures and PPE
- you perform a fillet weld in horizontal position
- you perform fillet weld in flat position
- you perform a groove weld in a flat position
- you perform a groove weld in a horizontal position
- you use tools appropriate for the task

8. Perform visual inspection of welds

You will demonstrate your competence:

- in the lab or shop setting
- using appropriate inspection tools

Your performance will be successful when:

- you identify common visual discontinuities and defects on welds
- you determine causes of discontinuities and defects of welds
- you inspect welds for pass/fail ratings according to industry standards
- you use appropriate inspection tools

VI. INSTRUCTOR'S EXPECTATIONS OF STUDENTS IN CLASS

Each student is expected to attend lecture, drafting and test sessions. It is necessary for the student to read the assigned work, complete assigned unit questions and the assigned drafting projects to receive credit for the course. Students need to arrive to class with a positive attitude and with completed homework assignments.

VII. TEXTBOOKS AND OTHER REQUIRED MATERIALS

To be determined

VIII. REFERENCES

None

IX. METHODS OF INSTRUCTION AND EVALUATION

Competence in cutting processes will be demonstrated through an instructor provided evaluation tool. Tests will be administered over assigned reading and projects.

The following grading scale will be applied to all projects, quizzes and exams:

A = 92 to 100

B = 80 to 91
C = 70 to 79
D = 61 to 69
F - 60 & below

X. ATTENDANCE REQUIREMENTS

Regular attendance in class and laboratory sessions is an obligation assumed by each student at the time of registration. It is the student's responsibility to fulfill all the requirements of a course as prescribed by the instructor. If a student must miss a class, arrangements should be made in advance with the instructor. Instructors have the responsibility to provide the opportunity for students to make up in a reasonable and appropriate manner work missed for a school-related activity, verifiable illness, personal emergency, or death of a family member or close friend within the time frame established by the instructor. A published procedure allows students to address inequities in this policy.

XI. COURSE OUTLINE

To be determined

BARTON COUNTY COMMUNITY COLLEGE

COURSE SYLLABUS

I. GENERAL COURSE INFORMATION

Course Number: WELD xxxx

Course Title: Gas Metal Arc Welding (GMAW)

Credit Hours: 3

Prerequisite:

Division/Discipline: Workforce Training and Community Education/Welding

Course Description: Through classroom and/or shop/lab learning and assessment activities, students in this course will: explain gas metal arc welding process (GMAW); demonstrate the safe and correct set up of the GMAW workstation.; correlate GMAW electrode classifications with base metals and joint criteria; demonstrate proper electrode selection and use based on metal types and thicknesses; build pads of weld beads with selected electrodes in the flat position; build pads of weld beads with selected electrodes in the horizontal position; produce basic GMAW welds on selected weld joints; and conduct visual inspection of GMAW welds.

Variable Credit: N/A

II. CLASSROOM POLICY

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Anyone seeking an accommodation under provisions of the Americans with Disabilities Act should notify Student Support Services.

III. COURSE AS VIEWED IN THE TOTAL CURRICULUM

This is one of a series of technical courses for the Welding Technology Certificate program. This course is designed to develop useful, job-oriented skills. It is highly recommended for individuals entering the fields of manufacturing, automotive and heavy equipment repair, or the machine trades.

This course is not intended for transfer.

IV. ASSESSMENT OF STUDENT LEARNING / COURSE OUTCOMES

Barton County Community College assesses student learning at several levels: institutional, program, degree and classroom. The goal of these assessment activities is to improve student learning. As a student in this course, you will participate in various assessment activities. Results of these activities will be used to improve the content and delivery of Barton's instructional program.

Course Outcomes

Through classroom and/or shop/lab learning and assessment activities, students in this course will:

1. Explain gas metal arc welding process (GMAW)
2. Demonstrate the safe and correct set up of the GMAW workstation
3. Correlate GMAW electrode classifications with base metals and joint criteria;
4. Demonstrate proper electrode selection and use based on metal types and thicknesses
5. Build pads of weld beads with selected electrodes in the flat position
6. Build pads of weld beads with selected electrodes in the horizontal position
7. Produce basic GMAW welds on selected weld joints
8. Conduct visual inspection of GMAW welds.

V. COURSE COMPETENCIES

1. Explain gas metal arc welding process (GMAW).
You will demonstrate your competence:
 through an instructor-provided written or oral evaluation tool
Your performance will be successful when:
 you describe different modes of transfer
 you differentiate between types and uses of current
 you identify the advantages and disadvantages of GMAW
 you identify types of welding power sources
 you identify different components of a GMAW station
 you describe basic electrical safety
2. Demonstrate the safe and correct set up of the GMAW workstation.
You will demonstrate your competence:
 in the lab or shop setting
 using a GMAW workstation
Your performance will be successful when:
 you demonstrate proper inspection of equipment
 you demonstrate proper use of PPE
 you demonstrate proper placement of workpiece connection
 you check for proper setup of equipment
 you inspect area for potential hazards/safety issues
 you troubleshoot the GMAW equipment and perform minor maintenance

3. Correlate GMAW electrode classifications with base metals and joint criteria
You will demonstrate your competence:
 - through a written or oral instructor-provided evaluation toolYour performance will be successful when:
 - you explain the AWS electrode nomenclature
 - you determine proper electrode for given joint based on material and position of weld
 - you determine proper type of electrodes to be used in a variety of industry applications
 - you identify proper electrode storage and handling
 - you identify consumables

4. Demonstrate proper electrode selection and use based on metal types and thicknesses
You will demonstrate your competence:
 - in the lab or shop setting
 - using GMAW equipmentYour performance will be successful when:
 - you identify consumables for various electrode sizes
 - you select the proper electrode type and size relative to metal size, type and thickness
 - you select the proper electrode type and size based on material specifications

5. Build pads of weld beads with selected electrodes in the flat position
You will demonstrate your competence:
 - in the lab or shop setting
 - using GMAW equipmentYour performance will be successful when:
 - you implement safety procedures and PPE
 - you implement proper equipment setup
 - you use the proper metal transfer
 - you create a pad of beads using GMAW
 - your weld exhibits proper uniformity and profile

6. Build pads of weld beads with selected electrodes in the horizontal position
You will demonstrate your competence:
 - in the lab or shop setting
 - using GMAW equipmentYour performance will be successful when:
 - you implement safety procedures and PPE
 - you implement proper equipment setup
 - you use the proper metal transfer
 - you create a pad of beads using GMAW
 - your weld exhibits proper uniformity and profile

7. Produce basic GMAW welds on selected weld joints.

You will demonstrate your competence:
in the lab or shop setting
using GMAW welding equipment
using appropriate tools

Your performance will be successful when:
you implement safety procedures and PPE
you implement proper equipment setup
you perform fillet weld in flat position
you perform a fillet weld in horizontal position
you perform a groove weld in a flat position
you perform a groove weld in a horizontal position
you use tools appropriate for the task

8. Conduct visual inspection of GMAW welds

You will demonstrate your competence:
in the lab or shop setting
using appropriate inspection tools

Your performance will be successful when:
you identify common visual discontinuities and defects on welds
you determine causes of discontinuities and defects of welds
you inspect welds for pass/fail ratings according to industry standards
you use appropriate tools for inspection

VI. INSTRUCTOR'S EXPECTATIONS OF STUDENTS IN CLASS

Each student is expected to attend lecture, drafting and test sessions. It is necessary for the student to read the assigned work, complete assigned unit questions and the assigned drafting projects to receive credit for the course. Students need to arrive to class with a positive attitude and with completed homework assignments.

VII. TEXTBOOKS AND OTHER REQUIRED MATERIALS

To be determined

VIII. REFERENCES

None

IX. METHODS OF INSTRUCTION AND EVALUATION

Competence in gas metal arc welding will be demonstrated through an instructor provided evaluation tool. Tests will be administered over assigned reading and projects.

The following grading scale will be applied to all projects, quizzes and exams:

A = 92 to 100

B = 80 to 91

C = 70 to 79

D = 61 to 69

F - 60 & below

X. ATTENDANCE REQUIREMENTS

Regular attendance in class and laboratory sessions is an obligation assumed by each student at the time of registration. It is the student's responsibility to fulfill all the requirements of a course as prescribed by the instructor. If a student must miss a class, arrangements should be made in advance with the instructor. Instructors have the responsibility to provide the opportunity for students to make up in a reasonable and appropriate manner work missed for a school-related activity, verifiable illness, personal emergency, or death of a family member or close friend within the time frame established by the instructor. A published procedure allows students to address inequities in this policy.

XI. COURSE OUTLINE

To be determined

BARTON COUNTY COMMUNITY COLLEGE

COURSE SYLLABUS

I. GENERAL COURSE INFORMATION

Course Number: WELD xxxx

Course Title: Gas Tungsten Arc Welding (GTAW)

Credit Hours: 3

Prerequisite:

Division/Discipline: Workforce Training and Community Education/Welding

Course Description: Through classroom and/or lab/shop learning and assessment activities, students in this course will: explain the gas tungsten arc welding process (GTAW); demonstrate the safe and correct set up of the GTAW workstation; relate GTAW electrode and filler metal classifications with base metals and joint criteria; build proper electrode and filler metal selection and use based on metal types and thicknesses; build pads of weld beads with selected electrodes and filler material in the flat position; build pads of weld beads with selected electrodes and filler material in the horizontal position; perform basic GTAW welds on selected weld joints; and perform visual inspection of GTAW welds.

Variable Credit: N/A

II. CLASSROOM POLICY

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Anyone seeking an accommodation under provisions of the Americans with Disabilities Act should notify Student Support Services.

III. COURSE AS VIEWED IN THE TOTAL CURRICULUM

This is one of a series of technical courses for the Welding Technology Certificate program. This course is designed to develop useful, job-oriented skills. It is highly recommended for individuals entering the fields of manufacturing, automotive and heavy equipment repair, or the machine trades.

This course is not intended for transfer.

IV. ASSESSMENT OF STUDENT LEARNING / COURSE OUTCOMES

Barton County Community College assesses student learning at several levels: institutional, program, degree and classroom. The goal of these assessment activities is to improve student learning. As a student in this course, you will participate in various assessment activities. Results of these activities will be used to improve the content and delivery of Barton's instructional program.

Course Outcomes

Through classroom and/or lab/shop learning and assessment activities, students in this course will:

1. Explain the gas tungsten arc welding process (GTAW)
2. Demonstrate the safe and correct set up of the GTAW workstation
3. Relate GTAW electrode and filler metal classifications with base metals and joint criteria
4. Build proper electrode and filler metal selection and use based on metal types and thicknesses
5. Build pads of weld beads with selected electrodes and filler material in the flat position
6. Build pads of weld beads with selected electrodes and filler material in the horizontal position
7. Perform basic GTAW welds on selected weld joints
8. Perform visual inspection of GTAW welds.

V. COURSE COMPETENCIES

1. Explain the gas tungsten arc welding process (GTAW)
You will demonstrate your competence:
through an instructor-provided written or oral evaluation tool
Your performance will be successful when:
you differentiate between types and uses of current
you identify the advantages and disadvantages of GTAW
you identify types of welding power sources
you identify different components of a GTAW workstation
you describe basic electrical safety
2. Demonstrate the safe and correct set up of the GTAW workstation

You will demonstrate your competence:

- in a lab or shop setting
- using a GTAW workstation

Your performance will be successful when:

- you demonstrate proper inspection of equipment
- you demonstrate proper use of PPE
- you demonstrate proper placement of workpiece connection
- you check for proper setup of equipment
- you inspect area for potential hazards/safety issues
- you troubleshoot GTAW equipment and perform minor maintenance

3. Relate GTAW electrode and filler metal classifications with base metals and joint criteria

You will demonstrate your competence:

- through a written or oral examination

Your performance will be successful when:

- you identify electrode classifications
- you explain the AWS electrode and filler metal nomenclature
- you determine proper electrode and filler metal for given joint based on material and position of weld
- you determine proper type of electrodes to be used in a variety of industry applications

4. Build proper electrode and filler metal selection and use based on metal types and thicknesses

You will demonstrate your competence:

- in a lab or shop setting
- using GTAW equipment
- using appropriate tools

Your performance will be successful when:

- you use safety hazard precautions and PPE
- you properly prepare the tungsten electrode profile relative to base material
- you perform weld using GTAW process appropriate to electrode size and filler metal size
- you select the proper electrode and filler metal type and size relative to metal size, type and thickness
- you select the proper electrode and filler metal type and size based on material specifications
- you use tools appropriate for the task

5. Build pads of weld beads with selected electrodes and filler material in the flat position

You will demonstrate your competence:

- in the lab or shop setting
- using GTAW equipment

Your performance will be successful when:

- you use safety hazard precautions and PPE

you demonstrate proper equipment setup and troubleshooting
you create a pad of beads using GTAW process
your weld exhibits proper uniformity and profile

6. Build pads of weld beads with selected electrodes and filler material in the horizontal position

You will demonstrate your competence:
in the lab or shop setting
using GTAW equipment

Your performance will be successful when:
you use safety hazard precautions and PPE
you demonstrate proper equipment setup and troubleshooting
you create a pad of beads using GTAW process
your weld exhibits proper uniformity and profile

7. Perform basic GTAW welds on selected weld joints

You will demonstrate your competence:
in the lab or shop setting
using GTAW equipment
using appropriate tools

Your performance will be successful when:
you conduct proper base metal preparation
you use safety hazard precautions and PPE
you demonstrate proper equipment setup and troubleshooting
you perform fillet weld in flat position
you perform a fillet weld in horizontal position
you perform a groove weld in a flat position
you perform a groove weld in a horizontal position
you use tools appropriate for the task

8. Perform visual inspection of GTAW welds

You will demonstrate your competence:
in the lab or shop setting
using proper inspection tools

Your performance will be successful when:
you identify common visual discontinuities and defects on welds
you determine causes of discontinuities and defects of welds
you inspect welds for pass/fail ratings according to industry standards
you use tools appropriate for the inspection

VI. INSTRUCTOR'S EXPECTATIONS OF STUDENTS IN CLASS

Each student is expected to attend lecture, drafting and test sessions. It is necessary for the student to read the assigned work, complete assigned unit questions and the assigned

drafting projects to receive credit for the course. Students need to arrive to class with a positive attitude and with completed homework assignments.

VII. TEXTBOOKS AND OTHER REQUIRED MATERIALS

To be determined

VIII. REFERENCES

None

IX. METHODS OF INSTRUCTION AND EVALUATION

Competence in cutting processes will be demonstrated through an instructor provided evaluation tool. Tests will be administered over assigned reading and projects.

The following grading scale will be applied to all projects, quizzes and exams:

A = 92 to 100

B = 80 to 91

C = 70 to 79

D = 61 to 69

F - 60 & below

X. ATTENDANCE REQUIREMENTS

Regular attendance in class and laboratory sessions is an obligation assumed by each student at the time of registration. It is the student's responsibility to fulfill all the requirements of a course as prescribed by the instructor. If a student must miss a class, arrangements should be made in advance with the instructor. Instructors have the responsibility to provide the opportunity for students to make up in a reasonable and appropriate manner work missed for a school-related activity, verifiable illness, personal emergency, or death of a family member or close friend within the time frame established by the instructor. A published procedure allows students to address inequities in this policy.

XI. COURSE OUTLINE

To be determined

BARTON COUNTY COMMUNITY COLLEGE

COURSE SYLLABUS

I. GENERAL COURSE INFORMATION

Course Number: WELD xxxx (new course)

Course Title: Welding Cutting Processes

Credit Hours: 3

Prerequisite:

Division/Discipline: Workforce Training and Community Education/Welding

Course Description: Through classroom and/or shop/lab learning and assessment activities, students in this course will: distinguish several types of mechanical and thermal cutting equipment and processes used in the welding trade; demonstrate the safe and correct set up, operation and shut down of the Oxy-fuel (OFC) workstation; demonstrate the safe and correct set up, operation and shut down of the Plasma Arc (PAC) workstation; demonstrate the safe and correct set up, operation and shut down of the Carbon Arc Cutting with Air (CAC-A) workstations; demonstrate safe and proper operation of several types of mechanical cutting equipment; and inspect quality and tolerance of cuts according to industry standards.

Variable Credit: N/A

II. CLASSROOM POLICY

Students and faculty of Barton County Community College constitute a special community engaged in the process of education. The College assumes that its students and faculty will demonstrate a code of personal honor that is based upon courtesy, integrity, common sense, and respect for others both within and outside the classroom.

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III. COURSE AS VIEWED IN THE TOTAL CURRICULUM

This is one of a series of technical courses for the Welding Technology Certificate program. This course is designed to develop useful, job-oriented skills. It is highly recommended for individuals entering the fields of manufacturing, automotive and heavy equipment repair, or the machine trades.

This course is not intended for transfer.

IV. ASSESSMENT OF STUDENT LEARNING / COURSE OUTCOMES

Barton County Community College assesses student learning at several levels: institutional, program, degree and classroom. The goal of these assessment activities is to improve student learning. As a student in this course, you will participate in various assessment activities. Results of these activities will be used to improve the content and delivery of Barton's instructional program.

Course Outcomes

Through classroom and/or shop/lab learning and assessment activities, students in this course will:

1. Distinguish several types of mechanical and thermal cutting equipment and processes used in the welding trade.
2. Demonstrate the safe and correct set up, operation and shut down of the Oxy-fuel (OFC) workstation.
3. Demonstrate the safe and correct set up, operation and shut down of the Plasma Arc (PAC) workstation.
4. Demonstrate the safe and correct set up, operation and shut down of the Carbon Arc Cutting with Air (CAC-A) workstations.
5. Demonstrate safe and proper operation of several types of mechanical cutting equipment; and inspect quality and tolerance of cuts according to industry standards.

V. COURSE COMPETENCIES

1. Distinguish several types of mechanical and thermal cutting equipment and processes used in the welding trade

You will demonstrate your competence:

through an instructor-provided evaluation tool

Your performance will be successful when:

you identify types of cutting process

you define the cutting process advantage

you define the cutting process disadvantage

you identify different components of the process equipment

you describe required safety procedures of the process

you describe the set-up procedures of the process

2. Demonstrate the safe and correct set up, operation and shut down of the Oxy-fuel (OFC) workstation

You will demonstrate your competence:

in the lab or shop setting

by working with an Oxy-fuel (OFC) workstation

Your performance will be successful when:

you use the proper personal protective equipment (PPE)

- you identify safety hazards of the equipment
- you properly set up the equipment
- you properly light and adjust the torch
- you make a variety of quality cuts
- you properly shut down the equipment

3. Demonstrate the safe and correct set up, operation and shut down of the Plasma Arc (PAC) workstation

You will demonstrate your competence:

- in the lab or shop setting
- by using the Plasma Arc (PAC) workstation

Your performance will be successful when:

- you use the proper personal protective equipment (PPE)
- you identify the safety hazards of the equipment
- you properly set up the equipment
- you properly shut down the equipment
- you make a variety of quality cuts on various types and sizes of metal

4. Demonstrate the safe and correct set up, operation and shut down of the Carbon Arc Cutting with Air (CAC-A) workstations

You will demonstrate your competence:

- in the lab or shop setting
- by using Carbon Air Cutting with Air (CAC-A)

Your performance will be successful when:

- you use the proper personal protective equipment (PPE)
- you identify the safety hazards of the equipment
- you properly set up the equipment
- you make a variety of quality gouges and cuts on various metals
- you properly shut down the equipment

7. Demonstrate safe and proper operation of several types of mechanical cutting equipment

You will demonstrate your competence:

- in the lab or shop setting
- using institutional-provided mechanical equipment

Your performance will be successful when:

- you identify safety hazards of the equipment
- you use the proper personal protective equipment (PPE)
- you properly set up the mechanical cutting equipment
- you make a variety of quality cuts on various metals
- you properly shut down the equipment

5. Inspect quality and tolerance of cuts according to industry standards

You will demonstrate your competence:

- in the lab or shop setting
- by visually identifying quality cuts

Your performance will be successful when:

- you inspect that the quality of edges are to industry standard
- you use the proper inspection tools for the cutting process

VI. INSTRUCTOR'S EXPECTATIONS OF STUDENTS IN CLASS

Each student is expected to attend lecture, drafting and test sessions. It is necessary for the student to read the assigned work, complete assigned unit questions and the assigned drafting projects to receive credit for the course. Students need to arrive to class with a positive attitude and with completed homework assignments.

VII. TEXTBOOKS AND OTHER REQUIRED MATERIALS

To be determined

VIII. REFERENCES

None

IX. METHODS OF INSTRUCTION AND EVALUATION

Competence in cutting processes will be demonstrated through an instructor provided evaluation tool. Tests will be administered over assigned reading and projects.

The following grading scale will be applied to all projects, quizzes and exams:

A = 92 to 100

B = 80 to 91

C = 70 to 79

D = 61 to 69

F - 60 & below

X. ATTENDANCE REQUIREMENTS

Regular attendance in class and laboratory sessions is an obligation assumed by each student at the time of registration. It is the student's responsibility to fulfill all the requirements of a course as prescribed by the instructor. If a student must miss a class, arrangements should be made in advance with the instructor. Instructors have the responsibility to provide the opportunity for students to make up in a reasonable and appropriate manner work missed for a school-related activity, verifiable illness, personal emergency, or death of a family member or close friend within the time frame established by the instructor. A published procedure allows students to address inequities in this policy.

XI. COURSE OUTLINE

To be determined

BARTON COUNTY COMMUNITY COLLEGE

COURSE SYLLABUS

I. GENERAL COURSE INFORMATION

Course Number: WELD xxxx (new course)

Course Title: Welding Safety

Credit Hours: 1 or 3

Prerequisite:

Division/Discipline: Workforce Training and Community Education/Welding

Course Description: Through a variety of classroom and/or lab learning and assessment activities, students in this course will: explain job/site safety and precautions for job/site hazards; determine the uses of personal protective equipment (PPE); identify the safety equipment and procedures related to safe work practices and environment; identify fire prevention and protection techniques; explore Hazardous Communications (HazCom) including Material Safety Data Sheets (MSDS).

Variable Credit: N/A

II. CLASSROOM POLICY

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III. COURSE AS VIEWED IN THE TOTAL CURRICULUM

This is one of a series of technical courses for the Welding Technology Certificate program. This course is designed to develop useful, job-oriented skills. It is highly

recommended for individuals entering the fields of manufacturing, automotive and heavy equipment repair, or the machine trades.

This course is not intended for transfer.

IV. ASSESSMENT OF STUDENT LEARNING / COURSE OUTCOMES

Barton County Community College assesses student learning at several levels: institutional, program, degree and classroom. The goal of these assessment activities is to improve student learning. As a student in this course, you will participate in various assessment activities. Results of these activities will be used to improve the content and delivery of Barton's instructional program.

Course Outcomes

Through a variety of classroom and/or lab learning and assessment activities, students in this course will:

1. Explain job/site safety and precautions for job/site hazards
2. Determine the uses of personal protective equipment (PPE)
3. Identify the safety equipment and procedures related to safe work practices and environment
4. Identify fire prevention and protection techniques
5. Explore Hazardous Communications (HazCom) including Material Safety Data Sheets (MSDS).

V. COURSE COMPETENCIES

1. Explain job/site safety and precautions for job/site hazards.

Linked External Standards

M1.a - Introduction to OSHA

E2.g - Safety and Health Program

O2.a - general industry hazards or policies and/or expand on the mandatory or elective topics

You will demonstrate your competence:

by presenting a written or oral analysis

OR

by complying with the OSHA 10 General Industry Outreach Training Program

Your performance will be successful when:

your analysis identifies a tasks of job to be performed

your analysis includes a list of possible hazards related to the task

your analysis includes a list of precautions that need to be taken to safely perform tasks

2. Determine the uses of personal protective equipment (PPE)

Linked External Standards

M1.e - Personal Protective Equipment, Subpart I

You will demonstrate your competence:

through a written or oral evaluation of appropriate equipment for the job task

OR

by complying with the OSHA 10 General Industry Outreach Training Program

Your performance will be successful when:

you describe the type of equipment

you describe the purpose of the equipment

you describe benefit of equipment

3. Identify the safety equipment and procedures related to safe work practices and environment

Linked External Standards

M1.a - Introduction to OSHA

M1.b - Walking and Working Surfaces, Subpart D - including fall protection

E2.b - Materials Handling, Subpart N

E2.c - Machine Guarding, Subpart O

E2.g - Safety and Health Program

O2.a - general industry hazards or policies and/or expand on the mandatory or elective topics

You will demonstrate your competence:

through a written or oral instructor-provided evaluation tool

OR

by complying with the OSHA 10 General Industry Outreach Training Program

Your performance will be successful when:

you describe industry standards applicable to walkways and working surfaces

you describe industry standards fire hazards, protection and plans

you describe industry standards electrical hazards, protections and plans

you describe industry standards applicable to machine guarding

you identify safe lockout and tagout practices

you describe industry standards applicable to lifting

you explain what assured grounding is

you explain when GFCI is needed on a site

4. Identify fire prevention and protection techniques

Linked External Standards

M1.c - Exit Routes, Emergency Action Plans, Fire Prevention Plans, and Fire Protection, Subpart E & L

M1.d - Electrical, Subpart S
E2.a - Hazardous Materials, Subpart H
E2.b - Materials Handling, Subpart N
E2.g - Safety and Health Program
O2.a - general industry hazards or policies and/or expand on the mandatory or elective topics

You will demonstrate your competence:

using an instructor-provided oral or written evaluation tool

OR

by complying with the OSHA 10 General Industry Outreach Training Program

Your performance will be successful when:

you interpret the fire classification system

you identify the three components of a fire triangle

you describe the purpose of various fire extinguishers

you detail fire hazard potentials and system for preventing them

5. Explore Hazardous Communications (HazCom) including Material Safety Data Sheets (MSDS)

Linked External Standards

E2.a - Hazardous Materials, Subpart H

E2.b - Materials Handling, Subpart N

O2.a - general industry hazards or policies and/or expand on the mandatory or elective topics

You will demonstrate your competence:

through an instructor-provided oral or written evaluation tool

o OR

by complying with the OSHA 10 General Industry Outreach Training Program

Your performance will be successful when:

you reference appropriate MSDS

you identify the various sections of an MSDS and its purpose

you identify the section and numbering of a container labeling system

VI. INSTRUCTOR'S EXPECTATIONS OF STUDENTS IN CLASS

Each student is expected to attend lecture, drafting and test sessions. It is necessary for the student to read the assigned work, complete assigned unit questions and the assigned drafting projects to receive credit for the course. Students need to arrive to class with a positive attitude and with completed homework assignments.

VII. TEXTBOOKS AND OTHER REQUIRED MATERIALS

To be determined

VIII. REFERENCES

None

IX. METHODS OF INSTRUCTION AND EVALUATION

Competence in cutting processes will be demonstrated through an instructor provided evaluation tool. Tests will be administered over assigned reading and projects.

The following grading scale will be applied to all projects, quizzes and exams:

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C = 70 to 79

D = 61 to 69

F - 60 & below

X. ATTENDANCE REQUIREMENTS

Regular attendance in class and laboratory sessions is an obligation assumed by each student at the time of registration. It is the student's responsibility to fulfill all the requirements of a course as prescribed by the instructor. If a student must miss a class, arrangements should be made in advance with the instructor. Instructors have the responsibility to provide the opportunity for students to make up in a reasonable and appropriate manner work missed for a school-related activity, verifiable illness, personal emergency, or death of a family member or close friend within the time frame established by the instructor. A published procedure allows students to address inequities in this policy.

XI. COURSE OUTLINE

To be determined

APPENDIX C

CA1-a Form

IMPLEMENTATION YEAR 2009

Fiscal Summary for Proposed Academic Programs

Institution: **Barton County Community College**
 Proposed Program: **Welding Technology Certificate**

Part I. Anticipated Enrollment	Implementation Year	
	Full-Time	Part-Time
A. Headcount:		30
B. Total SCH taken by all students in program	16 -18	
Part II. Program Cost Projection		
A. In <u>implementation</u> year one, list all identifiable General Use costs to the academic unit(s) and how they will be funded.		
	Implementation Year	
<u>Base Budget</u>	Six courses – 2 associate faculty pay at approximately \$8,100 per instructor == \$16,200	
Salaries		
Other Expenses	Supplies - \$72,000	
	Online Training (to teach faculty in creating online coursework – honorariums, mileage, etc) – approximately \$3,000	
Total	\$91,200	

Indicate source and amount of funds:
 All funded by Barton – offset the expenses with tuition and fees

APPENDIX D

Minutes Showing Approval

Advisory Board Meeting Meeting Agenda/Minutes

Team Name:	Welding Advisory Board	Date:	Sept
Process/Project:		Time:	10:0
Recorder:	Renetta Furrow	Place:	U21

Meeting Facilitator: David Miller		
Advisory Board Members:		
Name	Business	Title
Don Sweeney	MAMTC	
Michael Gordy	Doonan's	
Scott Reddig	Scott's Welding	
Lance Walter	McDonald Tank & Equipment	
Victor Gonzalez	Maico Manufacturing	
Elaine Simmons	Barton	Dean, Workforce Training Community Education
Jane Howard	Barton	Executive Director, Busin Technology & Community Education
Julie Kramp	Barton	Executive Director, Workf Training & Economic Development
David Miller	Barton	CBJT Project Director & Curriculum Specialist

Agenda: Key Discussion Points	Action Items	Actions Taken
Topic 1: Introductions		
Topic 2: Advisory Board Purpose – Elaine Simmons		Advisory boards play a required and necessary role in the development of new programs. They also help keep programs relevant to the industry, so that colleges can help provide training for their employees. Boards generally meet twice a year.
Topic 3: CBJT Grant	Explanation of Grant Welding	The CBJT Grant is a \$2 million grant that comes from the U.S. Department of Labor. It serves to provide vocational training for inmates at the Central Kansas Community Corrections, Ellis

		Hutchinson Correctional, Larned Correctional facilities. Manufacturing Skills Certificate has started at Hutchinson. Other sites will begin shortly. O plumbing and HVAC. Advisory board members reviewing curriculum and equipment needs.
Topic 3: Welding Certificate	Template Course Descriptions Syllabus Review Equipment	<p>The welding program has already been through and approved by the Technical Education Authority and KBOR.</p> <p>Comments from the board after viewing the program. These classes are a good start, will need more equipment. It was expressed that vertical and cylindrical welding competencies.</p> <p>Suggested sequence of classes:</p> <ul style="list-style-type: none"> Safety Blueprint Reading Cutting Processes Shielded Metal Arc Welding Gas Metal Arc Welding Gas Tungsten Arc Welding <p>The equipment in the facilities is provided by the state and utilized when not in use by that grant's participants.</p>
Topic 4: Instructor Resources		???
Topic 5: Future Welding Certificate Offerings		The College plans to add welding classes at the other sites. We will look for other grant money to pay for the equipment.
Topic 6: Misc		<p>Dave mentioned that there are tax credits for equipment. The state will also pay for bonding inmates.</p> <p>Letters of support are needed from industry. We need to reach out to those who would be willing to lend their support.</p>
Other suggestions from board: Training is needed to prepare the participants for the job application process.		