LCC

LASSEN COMMUNITY COLLEGE

Welding Technology

Instructional Program Review 2015

Welding Technology Instructional Program Review 2015

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Welding Technology Program
Section One: Academic Planning

I. Program Objectives

Description:

The Welding Technology Program is designed to prepare the student with the necessary skills to acquire an entry-level position in the various industries that require the different welding processes available through the program.

The Welding Program is also designed to assist those already employed in the industry and those in the community to improve their skills.

The Program offers coursework in Oxyacetylene Welding (OAW), Gas Metal Arc Welding (GMAW), Flux Core Arc Welding (FCAW), Shielded Metal Arc Welding (SMAW), Gas Tungsten Arc Welding (GTAW) and American Welding Society (AWS) qualifications in plate and pipe welding.

The curriculum is updated with the assistance of an industry advisory committee.

Evaluation:

The Welding Technology Program student learning outcomes directly relate to institutional student learning outcomes and can be found on the college web-site.

The Welding Technology Program objectives fall within the vocational mission of California Community Colleges.

Changes since last review:

- Fall 2014 - course outlines for WT-37, 42, 43, 20, 21, 22, 23 were revised. See Appendix A – New and Revised Course Outlines
- Spring 2015 - degrees and certificates were modified/updated to remove math and English form the one and two year certificates of achievement.
- Spring 2015 - WT-51 blue print reading class was approved, and included into the degrees/certificates offered. See Appendix A – New and Revised Course Outlines
- Fall 2015 - modified class schedule to remove WT-36-39 and WT-40-45 away from positive attendance classes.

- Fall 2015, continue an ongoing initiative to become an American Welding Society (AWS) testing facility.

- Purchased computer numerically controlled plasma cutter (CNC)

- Purchased leather coats, welding helmets, protective curtains and electrode holders to replace old and worn units. All are in place for fall 2015 semester.

Items still needing attention are found in the table below and carried over from the 2013-2014 annual update

Promotional material/advertising - currently a welding ad is placed in the Lassen Times two weeks prior to the start of a semester. This method of advertising has been the most effective as determined by our students' feedback. New for spring was an online ad placed in Susanvillestuff.com. Another avenue in an attempt to reach potential students (See Appendix: B)

Recommendations/Plan:

Prioritized Recommendations Requiring Institutional Action for Inclusion in Education Master Plan

Strategic Goal	Planning Agenda Item(s)	Implementation Timeframe	Estimated Cost	Expected Outcome
1	AWS Accreditation: Application	2015-2016	2,300.00	AWS accreditation
1	Set-up and equipment maintenance schedule	2015-2016	1,500.00	AWS accreditation
1	Additional costs to meet the requirements of an on-site audit	2015-2016	4,260.00	AWS accreditation
1	Increase instructional supply budget (Shielding gases)	2015-2016	3,000.00	To meet student demand
1	Increase welding equipment repair budget	2015-2016	1,000.00	Sustainability of equipment

Reevaluate the Welding Technology Program objectives at the next scheduled Welding Advisory Committee meeting and at the next scheduled Welding Technology program review date.

Welding Technology Program
Section One: Academic Planning

II. Student Outcomes

A. Trends and patterns in student outcomes

Description:

Information gathered from the Bureau of Labor Statistics:

1. Welders, Cutters, Solderers, and Brazers (See appendix: C)

The following data has not been provided by Academic Services:

1. Transfer numbers for the last four years 2010-11 through 2014-15
2. Job placement data
3. Retention data

The following data has been provided:

1. Completion, success and degree/award data 2010-11 through 2014-15 (see highlighted area in appendix: D)

Welding Scholarship

A welding technology program scholarship was implemented in the spring of 2013. The intent of the scholarship is to attract more students into pursuing an A.S. degree in welding. Hence, the scholarship would only be available to those students. To date (fall 2015) the full amount is still available to those eligible students.

Evaluation:

1. Information provided by the Bureau of Labor Statistics continues to show the need for welders in all areas. Other studies show that there are more individuals retiring from this trade than are entering it.
2. Additional data has been provided recognizing the need for advanced manufacturing and automation. Data provided by the Centers for Applied Competitive Technologies for Career Technical Education (CACT/CTE) (see highlighted area in appendix: E)

II. Student Outcomes Continued

Evaluation:

3. The number of degrees and certificates awarded in the Welding Program does not reflect an accurate picture of student success and outcomes. A more realistic measure has been welding students who attempt and successfully complete an American Welding Society (AWS) welding qualification test. This is defining student outcomes and success by standards accepted in the welding industry and follows an accepted welding code (AWS D1.1). (See below for the years 2012-2015 data)

	Calendar Year 2012	Calendar Year 2013	Calendar Year 2014	Spring Year 2015-
Shielded Metal Arc Welding	21	22	28	13
Gas Tungsten Arc Welding	6	28	19	5
Gas Metal Arc Welding	43	26	28	20
FCAW –G	2	4	2	4
FCAW-S	13	17	11	10
SMAW with GTAW	2	1	1	0
TOTAL	87	98	89	52

Source: Certified Welding Inspector Records

4. In general, students enrolled in the welding program do not seek the degree option. Many of them seek to gain skills that will make them employable, often taking only one semester of classes. Then others take classes for personal reasons that are not seeking a welding career. Below is a letter from one of my students reinforcing the point.

"Hey Kory, Kirby here! Havent talked to you in a while and just wanted to say whats up!

Since I stopped going to school I have found myself doing various things, worked at the junkyard up here in chester for quite some time, got some experience and made some money; now Im off to southern California... Ive got a job interview/ weld test in Paso Robles (near san luis obispo) at a "bearing and hydraulic company"! Ill be the only welder there! It should be a good oppurtunity for some more experience and better pay- starts at $15 with full benefits! Anyway, I just wanted to thank you for everything, you taught me enough in my short time of schooling to go out and work/weld in the real world, even in this bad economy I have had no problem surviving. Have a good one and I hope everything is going good in the shop! "

II. Student Outcomes Continued

Evaluation:

5. Productivity data (qualification tests completed) has been included in this document as a measure of student outcomes and success. This data has also been included in the LCC Educational Master Plan.

6. Due to the lack of data regarding job placement, I have resorted to keeping a list of students that are currently employed.

7. To date, it's too early to determine the effectiveness of offering the welding scholarship. One of the requirements in order to be eligible for the welding scholarship is to maintain a "C" or better in all classes required to achieve an A.S. degree. Unfortunately, that bar has been too high for some.

8. In the last four years course completion has decreased 2% going from 92% to 90%.

9. In the last four years student success has decreased 12% going from 70% to 61%. Student success has a direct relationship with attendance, which has been an ongoing problem. From what I've heard form other departments, this problem is not unique to the welding department.

Recommendations/Plan:

Assistance is needed in order to continue offering the welding scholarship and manage the paperwork involved in fundraising. Current scholarship money available is a little over $3000.00, but in order to continue offering the scholarship more money will need to be raised.

Welding Technology Program
Section One: Academic Planning

II. Student Outcomes

B. Student Learning Outcome Assessment

Description:

- See (Appendix: F) for SLO results.

Evaluation:

Welding is a performance based (hands-on) course. SLO results continually show that any lack of work completed directly correlates to a lack of attendance. Otherwise, no steps were taken as a result of the assessment results.

Recommendations/Plan:

Reevaluate the Welding Technology Program assessment outcomes at the next scheduled program review date.

Welding Technology Program
Section One: Academic Planning

II. Student Outcomes

C. Student Evaluation Summary

Description:

The student evaluation summary can be found in (Appendix: G).

Evaluation:

Unfortunately surveys were distributed near the end of the spring 2015 semester, as a result there were only 11 evaluations completed.

Scheduling – 90.91% say that course offerings met their needs. The remaining students preferred a summer offering.
Educational Goal – 45.45% AA/AS degree, 18.18% Certificate of Achievement, 18.18% Certificate of Accomplishment, 9.09% Certificate of Completion, 36.36% job requirement, 27.27% continuing education, 54.55% personal development.
Facilities/Equipment – 54.55% said that lighting was adequate the remaining did not. 90.91% said chairs/tables and desks were adequate.

The evaluation did point out an area that could be improved upon such as: better lighting in the welding booths. Past evaluations also mentioned the need for better ventilation in the welding booths.

The Lassen Community College Welding Technology Program appears to meet the educational needs of welding students enrolled in the program with the exception of some equipment mentioned above.

Recommendations/Plan:

Upgrade, improve or install new ventilation in the welding department.

Recommendations/Plan: (Continued)

Small improvements have been made in the areas of ergonomics in the welding booths but not on the scale necessary to satisfy everyone. . There is a great deal of work to be done, but can only be completed with the necessary funds and help.

Reevaluate the Welding Technology Program student evaluations at the next scheduled program review date.

Welding Technology Program
Section One: Academic Planning

III. Curriculum

A. Degrees and/or Certificates

Description:

The Welding Technology Program offers the following degree and certificates:

Associate in Science Degree in Welding Technology
Two-Year Certificate of Achievement in Welding Technology
One-Year Certificate of Achievement in Welding Technology
Certificate of Accomplishment in Welding Technology
(See appendix H) for course catalog welding degrees/certificates)

Evaluation:

Since the last review the following changes have been implemented as recommended and approved by the advisory committee. (See appendix I)

Spring 2015 - degrees and certificates were modified/updated to remove math and English form the one and two year certificates of achievement. Changes have made it possible to complete a one or two-year certificate in the time frame specified.

Included the new course offering of WT-51, Blueprint Reading into the requirements of the degree and certificates

Recommendations/Plan:

In the future, I would like to develop a certificate around emerging technologies. The courses that would make up the certificate would be: Beginning and advanced CNC operation, beginning and advanced robotic welding, blueprint reading and a course on Occupational Safety and Health Administration (OSHA).

Reevaluate the Welding Technology Program degree and certificates at the next scheduled Welding Advisory Committee meeting.

Welding Technology Program
Section One: Academic Planning

III. Curriculum

B. Courses

Evaluation:

Each course offered within the Welding Technology Program has been reviewed for accuracy and currency (See following page).

Since the last review the following changes have been implemented as recommended and approved by the advisory committee. (See appendix I)

Fall 2014 - course outlines for WT-37, 42, 43, 20, 21, 22, 23 were revised. See Appendix A – New and Revised Course Outlines

Spring 2015 - WT-51 blue print reading class was approved and offered for fall 2015. (See Appendix A – New and Revised Course Outlines)

Recommendations/Plan:

In the future, I would like to develop a certificate around courses dealing with emerging technologies. The courses are as follows.

- Beginning and advanced CNC operation. (Curriculum in development)
- Beginning and advanced robotic welding.
- Blueprint reading (Currently offered fall 2015)
- Occupational Safety and Health Administration 10 (OSHA 10).

Reevaluate the Welding Technology Program courses at the next scheduled Welding Advisory Committee meeting.

LASSEN COMMUNITY COLLEGE
STATUS OF CURRICULUM REVIEWS

Welding Instructional Program Review:
Status of Curriculum Review June 18, 2015

Course	Curriculum Committee Review Completed	Curriculum Committee Review Not Completed
IT 22 Operation Maintenance an safety	12/03/2013	
IT 72 Facilities Maintenance-Welding Safety	05/21/2013	
WT 20 Power Plant & Field Pipe Welding I	12/16/2014	
WT 21 Power Plant & Field Pipe Welding II	12/16/2014	
WT 22 Power Plant & Field Pipe Welding III	12/16/2014	
WT 23 Power Plant & Field Pipe Welding IV	12/16/2014	
WT 31 GTAW For Gunsmiths	04/22/2014	
WT 32 Advance GTAW for Gunsmithing	04/22/2014	
WT 36 Welding theory & Practice-Oxyacetylene	05/05/2015	
WT 37 Welding theory & Practice-Shield Metal Arc Welding	12/16/2014	
WT 38 Welding theory & Practice Gas Metal Arc Welding	02/05/2013	
WT 39 Welding theory & Practice Gas Tungsten Arc Welding	02/05/2013	
WT 40 Oxyacetylene Welding	02/19/2013	
WT 41 Beginning Shield Arc Welding	04/05/2011 (Inactive)	
WT 42 Intermediate Shield Arc Welding	12/16/2014	
WT 43 Advance Shield Arc Welding	12/16/2014	
WT 44 Gas Metal Arc Welding	03/19/2013	
WT 45 Gas Tungsten Arc Welding	02/05/2013	
WT 50 Welding for Artists (design and Fabrication	03/25/2014 (new)	
WT 51 Blue Print and Symbol Reading for Welders	03/31/2015	
AS Welding Technology	04/21/2015	
CA Welding Technology	04/21/2015	

LASSEN COMMUNITY COLLEGE
STATUS OF CURRICULUM REVIEWS

(one-year)		
CA Welding Technology (Two-year)	04/21/2015	
COA – Welding Technology	04/21/2015	

_____ Date: _____
Kory Konkol Subject Area Faculty Signature

_____ Date: _____
Ross Stevenson Department Chair

_____ Date: _____
Cheryl Aschenbach Curriculum/Academic Standards Committee Chair Signature

_____ Date: _____
Dr. Terri Armstrong, Vice President of Academic Services/AD Signature

Welding Technology Program
Section One: Academic Planning

III. Curriculum

C. Articulation/integration of Curriculum

Description:

Currently, Lassen High School (LHS) students who enroll in the welding program receive high school credits at a ratio of 3.3:1. That is, for every one unit taken at LCC they receive three and one-third credits at LHS. I've also found out that our local charter schools have a similar agreement.

Additionally we have an articulation agreement with Lassen and Modoc High School. At present, they can earn one college unit for WT-36 and WT-37.

Evaluation:

With recent changes, high school students can now dual enroll without any admission fees.

Recommendations/Plan:

Recommend offering additional late afternoon or evening classes that would accommodate high school students' schedules.

Reevaluate the Welding Technology Program articulation/integration of curriculum at the next scheduled Welding Advisory Committee meeting.

Welding Technology Program
Section One: Academic Planning

IV. Scheduling and Enrollment Patterns

Description:

The Welding Technology Program schedules classes to provide students the opportunities to develop welding skills for a vocational career and to assist those already employed to improve their skills or to train for advancements, transfer or other careers.

FTE data provided by the office of instruction can be found in (Appendix: J). Data shows a steady increase in FTE's since 2012, which can be attributed to offering WT-31/32. FTE's will continue to increase with the removal of positive attendance classes

Schedules showing the days and times that the Welding Technology Program operates can be found in (Appendix: K)

Evaluation:

Currently, the Welding Technology Program offers classes four days a week with both morning and evening classes available. All of the Welding Technology classes are offered every semester, with the exception of IT-22, IT-72 and WT-32, which are offered in the spring and WT-31 and WT-51 in the fall.

The Welding Technology Program scheduling and enrollment patterns have been reviewed and endorsed by the Welding Technology Advisory Committee. (See appendix: I)

IV. Scheduling and Enrollment Patterns (Continued)

Recommendations/Plan:

First and foremost is to find another part time instructor to help with our class offerings. More important is to find someone who is willing to grow with the program and preferably find someone who is a certified welding inspector (CWI).

Presently the program is offering as many classes as possible with current staffing (At 50% overload each semester).

A recent agreement with local schools allows students to enroll in college classes for free. With this change, it would make since to offer additional late afternoon/evening classes to accommodate this population.

The new blueprint reading class, WT-51 was offered this fall (2015) for the first time, but may not be scheduled for the greatest number of students to attend. After talking with students, it's been discovered that WT-51 conflicts with other classes in the same time slot.

Also, with the acquisition of the adjoining construction trades facility there is now the possibility to teach multiple classes simultaneously (non stacked classes). Currently the space is being utilized for the gunsmithing classes WT-31 and 32.

The bottom line is that with current staffing it will be difficult to offer a new course without omitting a current offering from the line-up. There are more days and times available in the welding schedule, but additional staffing will be required.

Reevaluate the Welding Technology Program scheduling and enrollment patterns at the next scheduled Welding Advisory Committee meeting.

Welding Technology Program
Section One: Academic Planning

V. Equipment

Description:

The Lassen College Welding Technology Program must continue to offer quality programming to attract students. This means that welding equipment must be current in technology and in good repair.
Currently, the welding equipment in the shop ranges from less than one-year to over twenty years in age. We also have 17 of the latest inverter-based welders offered from Miller, which can perform multiple welding processes.
Unfortunately, at this time, we do not have any regular maintenance or service agreements on any of our equipment. Welding equipment repairs are performed in-house and are on a case-by-case basis.

The welding department, in an effort to stay current with a rapidly changing industry and technology has purchased a computer numerically controlled (CNC) plasma cutter and acquired the computer workstations necessary to operate it. The resulting purchase was outlined in the 2013 welding IPR in section four.
A separate, lockable classroom is being prepared to house the computer workstations that will be used to teach and program the CNC plasma cutter.

Evaluation:

Trends / Technologies

"A fragile economy coupled with a rapidly declining workforce of skilled welders has put a significant strain on manufacturers. Companies are struggling to find viable options to stay profitable, and slowly, these manufacturers are turning to robotic automation". [1]

Welding manufacturers have also responded to their vendors needs with the introduction of welding machines that require less user input, and skill, to perform a quality pipe weld. One such example is a line of welders from Miller Electric called PipeWorx. What the PipeWorx does, is it significantly increases production times, while requiring a less skilled welder to operate.

Evaluation Continued:

Although these new technologies may sound like they will reduce jobs because of automation, nothing could be further from the truth. The following quote from an article sums this up.

"Automation is not the answer for all welding applications, and an experienced welder is crucial for a successful robotic welding process. An experienced welder will learn to operate a robot more effectively than an experienced computer programmer. The robot lays the bead, but it's the operator skilled judgment that teaches the robot what it should do". [1]

Robots will help to create jobs in some of the most critical industries of this century: consumer electronics, food, solar & wind power, and advanced battery manufacturing (Think Tesla)

Emerging Industry Needs in California

In an annual report written by Centers for Applied Competitive Technologies (CACT) Career Technical Education (CTE) hub director of California, Mark V. Martin noted robotic and automation as an emerging trend. [2]

Other

I spent a week in the summer of 2014 training in the area of robotic welding, design and fabrication at Weber State University.

Butte and Shasta community colleges are already on board with this technology and will be receiving robotic welders from Miller electric in the near future.

Recommendations/Plan:

I believe that with the purchase of a robotic welder, we will be able to stay competitive not only with emerging technologies, but with other community colleges such as Butte and Shasta. Now combine a robotic welder with the Computer Numerically Controlled CNC plasma cutter we recently purchased, and we'll have enough to develop a certificate of achievement around this new technology. Additionally, the welding technology program already has the space and infrastructure (electrical) in place to utilize this equipment.

Purchase a Miller PipeWorx to provide student access to emerging and industry changing technologies that are now being widely accepted.

Past Recommendations

Develop a welding equipment maintenance schedule.

V. Prioritized Recommendations for Implementation by Program Staff

Strategic Goal	Planning Agenda Item	Implementation Time Frame	Estimated Cost	Expected Outcome
1	Develop equipment maintenance schedule	2015-2016	$1500.00	AWS accreditation
1	Purchase Robotic Welder	Fall 2015	≈$65-$75,000	Increased FTE Emerging Technologies
1	Purchase (2) Miller PipeWorx Welders	Fall 2015	≈$27,000	Increased FTE Emerging Technologies

References

[1] Doyle, Brian. (2011). The Future of Welding In Manufacturing. Welding & Gasses Today Online: Online publication. Page 1.

[2] Martin V. Mark (2008). Important Skill Sets for Advanced Technology Career Pathways. CACT CTE Annual Report: Online. Page 6. (appendix E),

Welding Technology Program
Section One: Academic Planning

VI. Outside Compliance Issues

Description:

The main outside compliance issues that govern the welding technology program are OSHA and local building codes. These standards outline regulations that provide for the health and safety of occupants working in or around this department.

Evaluation:

One issue that has been addressed was moving the classroom to its current location downstairs. This move benefited by meeting ADA requirements, but still has compliance issues. The following known issues are listed below:

- No ventilation for the space or windows that can be opened to provide ventilation.
- One of the two exits opens inward.
- Exits to the space are opposite each other and may not meet code due to the shape of the space.

Another issue that was brought to my attention and outlined in a prior IPR was the mezzanie located in the construction trades space. The structure may not be up to code and may need modification.

Last, four floor standing grinders in the welding shop are missing their protective plastic/glass shields. Other guards are in place and adjusted on a regular basis to meet OSHA regulations.

Recommendations/Plan:

Consult maintenance department regarding the above issues for appropriate action.

Welding Technology Program
Section One: Academic Planning

VII. Prioritized Recommendations

Prioritized Recommendations for Inclusion in Education Master Plan
Welding Technology 2015

Strategic Goal	Planning Agenda Item	Implementation Time Frame	Estimated Cost	Expected Outcome
1	Robotic Welder/Cert.	2016	$75,000	Increase FTE
1	AWS accreditation	2016	$8,060	Increase FTE
1				

Prioritized Recommendations for Inclusion in Student Services Master Plan
Welding Technology 2015

Strategic Goal	Planning Agenda Item	Implementation Time Frame	Estimated Cost	Expected Outcome
1				
1				
1				

Prioritized Recommendations for Inclusion in Institutional Effectiveness Master Plan
Welding Technology 2015

Strategic Goal	Planning Agenda Item	Implementation Time Frame	Estimated Cost	Expected Outcome
1				
1				
1				

Welding Technology Program
Section Two: Human Resource Planning

I. Program Staffing

Description:

The Lassen College Welding Technology Department has one full-time faculty, one part-time faculty and one part-time instructional aide.

Evaluation:

At the current level of staffing, the opportunity for expansion will be limited.
Proposed in this IPR is to make the welding program an accredited testing facility through the American Welding Society (AWS). In order to accomplish this task in a timely manner (months instead of years) additional part-time help will be needed. In order to put things into perspective, there are more than 100 items on a five-page checklist that need to be met in order to pass an on-site audit to become accredited (See appendix: L).

Recommendations/Plan:

In order to prepare the welding technology program for such a monumental task, additional staffing will be required. Staffing may come in the way of additional part-time faculty, instructional aides, and clerical support from the office of instruction or possibly work-study students.

With the diminishing hours of the instructional aide in the welding department the utilization of work-studies will be increased. Work-studies will help out with cleanup and general shop operations.

Reevaluate the Welding Technology Program staffing needs at the next scheduled Welding Advisory Committee meeting.

Welding Technology Program
Section Two: Human Resource Planning

II. Professional Development:

Description:

The Lassen College Welding Technology full-time faculty member has a flex contract on file with the Office of Instruction.

Evaluation:

To date, I've attended North America's largest metal forming, fabricating, welding and finishing event known as FABTECH in 2012. I've also completed 80 hours of continuing education with Weld-Ed. Forty hours were completed in the summer of 2013 in the area of welding metallurgy and forty completed in the summer of 2014 in the area of Design, assembly and robotic welding. The continuing education described above has been used to meet the flex requirements for 2013-2014 and 2014-2015 (appendix: M)

Recommendations/Plan:

Attend future Weld-Ed training courses where applicable.

Attend future FABTECH welding expo Las Vegas, Nevada - November 16-18, 2016,

Seek courses in the operation of our CNC plasma cutter

Other professional development will come from miscellaneous trips to local welding based industries.

Reevaluate the Welding Technology Program's professional development needs at the next scheduled Welding Advisory Committee meeting.

Welding Technology Program
Section Two: Human Resource Planning

III. Student Outcomes

Description:

Student learning outcomes are completed at the end of each semester for all welding courses.

Evaluation:

Student learning outcome results do not necessitate any changes in human resource planning.

Recommendations/Plan:

None at this time

Welding Technology Program
Section Two: Human Resource Planning

IV. Prioritized Recommendations

Prioritized Recommendations for Inclusion in Human Resources Master Plan
Welding Technology 2015

Strategic Goal	Planning Agenda Item	Implementation Time Frame	Estimated Cost	Expected Outcome
1	Hire Adjunct Faculty	Spring 2016		Increased FTE's

Welding Technology Program
Section Three: Facilities Planning

I. Facilities

Evaluation:

The welding department has expanded into the adjoining 2000 sq. ft. construction trades building. That expansion has included multiple electrical drops for shop equipment along with an existing air handler system that has been made operational. These were completed just prior to John Mulcahy's retirement. (Previous welding instructor)

Do to the configuration of the space, and lack of roll up doors, a best solution would be to use the space to increase our capacity by adding more welding booths.

Other areas that will require facilities planning are outlined in section one VI.

Recommendations/Plan:

- Address the health and safety concerns as outlined in section one VI.
- Evaluate the current number of electrical circuits available to determine how many welding booths can be added.
- Fill the new space with multiple aisles of welding booths (limited by the number of electrical circuits available).
- Create a separate space within the shop where welding certifications are offered.
- Improve existing electrical drops (splitting circuits if possible) and extend them to welding booths.
- Provide necessary ventilation for additional welding booths.
- Improve ventilation in existing welding shop (previous student evaluations).
- Improve lighting in existing welding shop (previous student evaluations).
- Install carpeting in the classroom to eliminate poor acoustics. (Peer evaluation recommendation)

The Welding Technology Advisory Board has endorsed the above recommendations. (See appendix I)

II. Prioritized Recommendations for Inclusion in Facilities Master Plan
Welding Technology 2015

Strategic Goal	Planning Agenda Item	Implementation Time Frame	Estimated Cost	Expected Outcome
3	Evaluate number of electrical circuits available in construction trades	2015-2016	$250.00	Evaluation purposes to determine items below
3	Construct welding booths	2015-2016	$2500.00	Meet student demand FTE growth
1	Create space for welding certifications w/in shop	2015-2016	$1000.00	AWS accreditation
3	Improve existing electrical drops	2015-2016	$6000.00	Infrastructure improvement
3	Improve ventilation	2015-2016	$25,000.00	Health/Safety
1	Carpet classroom	2015-2016	$1000.00	New carpet
1	Ventilation classroom	2015-2016		Compliance/Health
1	Correct inward opening door	2015-2016		Compliance/Health
1	Add additional exit at rear of class	2015-2016		Compliance/Health
1	Bring Mezzanie up to code	2015-2016		Compliance/Health
1	Shields for grinders	2015 Completed		Safety

Welding Technology Program
Section Four: Technology Planning

Evaluation:

The welding department currently has the latest smart board technology, which is used for power point and video presentations.

The department also has a computer station that is used to access Accudemia. Accudemia is a web-based program used to track the hours of students.

Emerging Technology has been addressed in detail - section one V. under equipment.

Recommendations/Plan:

Department currently has the necessary technology in place for present offerings.

Strategic Goal	Planning Agenda Item	Implementation Time Frame	Estimated Cost	Expected Outcome

Appendix

A. New and Revised Course Outlines

B. Advertising Spring/Fall 2015

C. Bureau of Labor Statistics

D. Degrees/Certificates Awarded and Completion/Success 2010-2011 through 2014-2015

E. CACT/CTE Top Growth jobs in California

F. Student Learning Outcome Assessment Results

G. Student Evaluation Summary

H. Course Catalog Welding Degrees/Certificates

I. Advisory Board Committee Meeting and Minutes

J. FTE Data

K. Welding Technology Program Class Schedules.

L. AWS Accredited Testing Facility

M. Flex Activities 2013-2015

Appendix:

A

New and Revised Course Outlines

Lassen Community College Course Outline

WT-37 Welding Theory & Practice – Shielded Metal Arc Welding

1.0 - 3.0 Units

I. Catalog Description

This is an elective welding course where the student will apply the shielded metal ~~are~~ arc welding (SMAW) process to selected projects. This course has been approved for open entry/open exit. This course may be taken for three enrollments not to exceed three units, or as required to maintain welding qualifications per American Welding Society (AWS) D1.1 Section 4.1.3.

Kory 12/7/14 4:15 PM
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Transfers to CSU only
153 Hours Lab
Scheduled:

II. Coding Information

Repeatability: Three Enrollments not to exceed three units, or to maintain AWS qualification requirements
Open Entry/Open Exit: Open Entry/Exit
Grading Option: Graded or Credit/No Credit
Credit Type: Credit - Degree Applicable
TOP Code: 095650

III. Course Objectives/Outcomes

Upon completion of this course the student will be able to:

One Unit:

1. Safely setup and perform flat stringer and flat overlap welds with a minimum of ~~10~~ 15passes each using E~~R~~7018-1/8", and ~~ER6011~~ E6010-1/8" electrodes, which meet or exceed the AWS D1.1 Structural Welding Code standards, using SMAW on 3/8" plate.
2. Safely setup and perform a minimum of ~~10~~ 15 passes for each of the two AWS joint designs with E~~R~~7018-1/8", and two with ~~ER6011~~ E6010-1/8" electrodes which meet or exceed the AWS D1.1 Structural Welding Code standards, using SMAW on 3/8" plate.

Two Units:

1. Safely setup and perform flat stringer and flat overlap welds with a minimum of ~~10~~ 15 passes each using E~~R~~7018-1/8", and ~~ER6011~~ E6010-1/8" electrodes, which meet or exceed the AWS D1.1 Structural Welding Code standards, using SMAW on 3/8" plate.
2. Safely setup and perform a minimum of ~~10~~ 15 passes for each of the three AWS joint designs with E~~R~~7018-1/8", and three with ~~ER6011~~ E6010-1/8" electrodes which meet or exceed the AWS D1.1 Structural Welding Code standards, using SMAW on 3/8" plate.
3. Safely setup and perform six practice qualification tests (two 1G and four 3G) on plate with E7018, using the SMAW process.

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4. Complete two AWS qualifications (1G and 3G) on steel plate with ~~ER~~7018, using the SMAW process.

Three Units:

1. Safely setup and perform flat stringer and flat overlap welds with a minimum of ~~10~~ 15 passes each using ~~ER~~7018-1/8", and ~~ER6011~~ E6010-1/8" electrodes, which meet or exceed the AWS D1.1 Structural Welding Code standards, using SMAW on 3/8" plate.
2. ~~Safely setup and perform a minimum of 10 passes for each of three AWS joint designs with ER7018-5/32", three with ER7018-1/8", three with ER6011-5/32" and three with ER6011-1/8" electrodes which meet or exceed the AWS D1.1 Structural Welding Code standards, using SMAW on 3/8" plate.~~ Safely setup and perform a minimum of 15 passes for each of the three AWS joint designs with E7018-1/8", and three with E6010-1/8" electrodes which meet or exceed the AWS D1.1 Structural Welding Code standards, using SMAW on 3/8" plate.
3. Safely setup and perform ten practice qualification tests (two 1G, four 3G and four 4G) on plate with E7018, using the SMAW process.
5. Complete three AWS qualifications (1G, 3G and 4G) on steel plate with ~~ER~~7018, using the SWAW process.

IV. Course Content

One Unit:

A. Safety precautions
   1. Safe working conditions
   2. SMAW equipment
   3. Precautions for welders and welding operators
   4. Personal protection
   5. Fire prevention
   6. Ventilation and fume hazards
   7. Noise protection

B. Project procedures
   1. Construction steps
   2. Identify recognized joint designs
   3. Tacking procedures
   4. Fixturing

C. Equipment setup
   1. Amperage determination
   2. Filler rod selection
   3. Polarity selection

D. Welding preparation procedure
   1. Flat stringers - overlaps w/stop & starts - ~~E6XXX~~ E6010 -1/8"
   2. Horizontal T-joints-2F- ~~E6XXX~~ E6010 -1/8"
   3. Vertical T-joints-3F- ~~E6XXX~~ E6010 -1/8"
   4. Flat stringers - overlaps w/stop & starts - ~~E7XXX~~ E7018 -1/8"
   5. Horizontal T-joint - 2F - ~~E7XXX~~ E7018 -1/8"
   6. Vertical T-joint 3F - ~~E7XXX~~ E7018 -1/8"

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Two Units: (in addition to one unit requirement)

A. Welding Procedure
   1. Overhead T-joint 4F - ~~E6XXX~~ E6010 -1/8"
   2. Overhead T-joint 4F - ~~E7XXX~~ E7018 -1/8"
   3. Practice two 1G plate qualifications
   4. Practice four 3G plate qualifications

B. AWS qualification
   1. Set up
   2. Procedure - 3/8" - 1G, 3G

Three Units: (in addition to one and two unit requirements)

A. Welding procedure
   ~~1. Flat stringers-overlaps w/stop & starts-E6XXX-5/32"~~ Practice four 4G plate qualifications.
   ~~2. Horizontal T-joints - 2F - E6XXX-5/32"~~
   ~~3. Vertical T-joints - 3F- E6XXX-5/32"~~
   ~~4. Overhead T-joints- 4F- E6XXX-5/32"~~
   ~~5. Flat stringers-overlaps w/stop & starts-E7XXX-5/32"~~
   ~~6. Horizontal T-joints - 2F - E7XXX-5/32"~~
   ~~7. Vertical T-joints - 3F- E7XXX-5/32"~~
   ~~8. Overhead T-joints - 4F- E7XXX-5/32"~~

B. AWS qualification
   1. Set up
   2. Procedure - 3/8" - 4G

V. Assignments

A. Appropriate Readings
College text,"Welding Principles & Applications", and/or trade manuals will be primary sources of course readings. Additional information sources will include product and use guides from industry manufacturers to enhance the learning process.

B. Writing Assignments
Students will apply technical skill and understanding of course content by demonstrating application of the SMAW process to selected projects which meet accepted industry standards.

C. Expected Outside Assignments
None

D. Specific Assignments that Demonstrate Critical Thinking
Students will be required to demonstrate understanding of SMAW practices by applying technical information to selected projects which meet accepted industry standards. An example of the critical thinking and demonstration of welding techniques would be the following:
Given: Two 4" x 7" x 3/8" low-carbon steel plate, 1/8" ~~E6011~~ E6010 SMAW electrodes, chipping hammer, wire brush, SMAW helmet, leather welding jacket, leather welding gloves, SMAW power source, welding table.
Performance: The student will set the power source for amperage and polarity. The student will tack weld the two pieces of 3/8" plate into a T-joint configuration using the ~~E6011~~ E6010 electrodes. The student will apply 15 overlapping stringer beads in the vertical, bottom to top, position.

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Standard: The overlapping stringer beads will be inspected for uniform width, length, height, overlaps, legs, face and ripple appearance. Seventy-five of the welds will meet the standard.

VI. Methods of Evaluation

Methods for determining student grades will be accomplished by the following:

1. Completion of required selected projects.
2. Participation in classroom learning activities.

VII. Methods of Delivery

Check those delivery methods for which, this course has been separately approved by the Curriculum/Academic Standards Committee.

☑ Traditional Classroom Delivery ☐ Correspondence Delivery

☐ Interactive Television Delivery ☐ Online Delivery

Demonstration/Laboratory

VIII. Representative Texts and Supplies

"*Welding Principles and Applications*", Jeffus, Larry. Delmar Publishers, 2008, Sixth Edition, ISBN 1-4180-5275-2

Supplies:

Gauntlet leather welding gloves
Safety glasses
Leather "logging type" boots
Cuffless, heavy cotton workpants, in good repair
Ear plugs, pliers w/cutters, and welding hat.

IX. Discipline/s Assignment

Welding Technology

X. Course Status

Current Status: Active
Original Approval Date: 3/27/1990
Revised By: Kory Konkol
Latest Curriculum/Academic Standards Committee Revision Date: 05/22/2012

Lassen Community College Course Outline

WT 42 Intermediate Shielded Metal Arc Welding 3.0 Units

I. Catalog Description

This is the second in a three course series of fundamental elective classes dealing with the shielded metal arc welding (SMAW) process ~~(SMAW)~~. Filler rods will be selected and applied to joint designs, which meet ~~industrial~~ industry ~~specifications~~ standards. Repeatable as required for qualification by the American Welding Society (AWS) D1.1, Section 4.1.3. (Instructor Authorization Required for Course Repetition.)

Transfers to CSU only
153 Hours Lab
Scheduled:

II. Coding Information

Repeatability: Unlimited Per AWS Qualification Requirements
Grading Option: Graded or Pass/No Pass
Credit Type: Credit - Degree Applicable
TOP Code: 095650

III. Course Objectives

A. Course Student Learning Outcomes

Upon completion of this course the student will be able to:

1. ~~Safely setup and perform a minimum of ten welds for each of ten AWS (American Welding Society) joint designs, using ER6011, 1/8" and 5/32" electrodes, which meet or exceed the American Welding Society D1.1 Structural Welding Code standards, using shielded metal arc welding (SMAW) on 3/8" steel plate.~~ Safely setup and perform ten open-root groove welds in the 1G (flat) position using E6010 and E7018 welding electrodes on 3/8" plate.
2. ~~Safely setup and perform a minimum of ten welds for each of ten AWS (American Welding Society) joint designs, using ER7018 1/8" and 5/32" electrodes, which meet or exceed the American Welding Society D1.1 Structural Welding Code standards, using shielded metal arc welding (SMAW) 3/8" steel plate.~~ Safely setup and perform ten open-root groove welds in the 2G (Horizontal) position using E6010 and E7018 welding electrodes on 3/8" plate.
3. Safely setup and perform ten open-root groove welds in the 3G (vertical) position using E6010 and E7018 welding electrodes on 3/8" plate.
4. Safely setup and perform ten open-root groove welds in the 4G (overhead) position using E6010 and E7018 welding electrodes on 3/8" plate.
5. Complete two limited and one unlimited thickness AWS ~~(American Welding Society)~~ qualifications, using the ~~shielded metal arc welding~~ SMAW process.

B. Course Objectives

Upon completion of this course the student will be able to:

1. Demonstrate the skills needed to setup and operate ~~shielded metal arc welding (SMAW)~~ SMAW equipment safely.

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2. Demonstrate the manipulative skills needed to make successful open-root groove welds utilizing the ~~shielded metal arc welding (SMAW)~~ SMAW process, ~~that will comply with industry standards.~~
3. Demonstrate the setup of a specified welding qualification procedure.
4. Apply the SMAW process to a qualification joint design recognized by the AWS.

IV. Course Content

A. Safety Precautions
   1. Working conditions
   2. Personal protection
   3. Air contamination
   4. Electrical shock
   5. Radiation hazards

B. Shielded Metal Arc Welding - E6011 - ~~5/32"~~ 1/8"
   1. Current settings
   2. Arc length
   3. Electrode angle
   4. Travel speed
   5. ~~Stringer beads~~ Weld appearance
   6. ~~Padded plate~~
   7. ~~T-plate - horizontal 2F~~
   8. ~~T-plate - vertical 3F~~
   9. ~~T-plate - overhead 4F~~

C. Shielded Metal Arc Welding - E7018 - ~~5/32"~~ 1/8"
   1. Current settings
   2. Arc length
   3. Electrode angle
   4. Travel speed
   5. ~~Stringer beads~~ Weld appearance
   6. ~~Padded plate~~
   7. ~~T-plate - horizontal - 2F~~
   8. ~~T-plate - vertical - 3F~~
   9. ~~T-plate - overhead 4F~~

D. Qualification Procedure
   1. Joint design
   2. Filler rod selection
   3. Pre and postheat requirements
   4. Bead sequence
   5. Bead application
   6. Polarity
   7. Amperage

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V. Assignments

A. Appropriate Reading

Standard text:"Welding Principles and Applications,"and/or trade manuals will be primary sources of course readings. Additional information sources will include product and use guides from industry manufacturers to enhance the learning process.

B. Writing Assignments

Students will apply technical skills and understanding of course content by demonstrating application of the ~~shielded metal arc welding (SMAW)~~ SMAW process to specific joint designs which meet shop specifications.

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C. Expected Outside Assignments
None

D. Specific Assignments that Demonstrate Critical Thinking
Students will be required to demonstrate understanding of the ~~shielded metal arc welding (SMAW)~~ SMAW process by applying technical information to multiple manipulative performance objectives which meet welding department specifications.

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VI. Methods of Evaluation

Methods for determining student grades will be accomplished by the following:
1. Completion of required manipulative performance objectives.
2. Participtaion in classroom learning activities.

VII. Methods of Delivery

Check those delivery methods for which, this course has been separately approved by the Curriculum/Academic Standards Committee.

☑ Traditional Classroom Delivery ☐ Correspondence Delivery

☐ Interactive Television Delivery ☐ Online Delivery

Demonstration/Laboratory

VIII. Representative Texts and Supplies

"*Welding Principles and Applications*", Jeffus, Larry. Delmar Publishers, 2008, Sixth Edition, ISBN 1-4180-5275-2

Supplies: (required)
Gauntlet leather welding gloves
Safety glasses
Leather "logging type" boots
Cuffless, heavy cotton workpants, in good repair
Ear plugs, pliers w/cutters, and welding hat.

IX. Discipline/s Assignment

Welding Technology

X. Course Status

Current Status: Active
Original Approval Date: 2/27/1990
Revised By: Kory Konkol
Latest Curriculum/Academic Standards Committee Revision Date: 02/05/2013

Lassen Community College Course Outline

WT-43 Advanced Shielded Metal Arc Welding 3.0 Units

I. Catalog Description

This is the last in a three-course sequence of fundamental elective classes dealing with the shielded metal arc welding (SMAW) process. Specialized filler rods will be selected and applied to joint designs which meet ~~industrial~~ industry standards. Repeatable as required for qualification by the American Welding Society (AWS) D1.1, Section 4.1.3. (Instructor Authorization Required for Course Repetition.)

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Transfers to CSU only
153 Hours Lab
Scheduled:

II. Coding Information

Repeatability: Unlimited Per AWS Qualification Requirements
Grading Option: Graded or Pass/No Pass
Credit Type: Credit - Degree Applicable
TOP Code: 095650

III. Course Objectives

A. Course Student Learning Outcomes

Upon completion of this course the student will be able to:

1. ~~Safely setup and perform a minimum of ten welds for each of ten AWS (American Welding Society) joint designs, using ER6011 – 1/8" and 5/32" electrodes, which meet or exceed the American Welding Society D1.1 Structural Welding Code standards, using shielded metal arc welding (SMAW) on 3/8" steel plate.~~ Safely setup and perform ten open-root groove welds in the 1G (flat) position using the gas tungsten arc welding (GTAW) and SMAW processes on 3/8" plate.

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2. ~~Safely setup and perform a minimum of ten welds for each of ten AWS (American Welding Society) joint designs, using ER7018 – 1/8" and 5/32" electrodes, which meet or exceed the American Welding Society D1.1 Structural Welding Code standards, using shielded metal arc welding (SMAW) on 3/8" steel plate.~~ Safely setup and perform ten open-root groove welds in the 2G (horizontal) position using the gas tungsten arc welding (GTAW) and SMAW processes on 3/8" plate.

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3. Safely setup and perform ten open-root groove welds in the 3G (vertical) position using the gas tungsten arc welding (GTAW) and SMAW processes on 3/8" plate.

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4. ~~Safely setup and perform ten open-root groove welds in the 4G (overhead)~~ position using the gas tungsten arc welding (GTAW) and SMAW processes on 3/8" plate.

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5. Complete ~~two~~ one limited and two unlimited thickness AWS ~~(American Welding Society)~~ qualifications, using the ~~shielded metal arc welding~~ SMAW process.

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B. Course Objectives

Upon completion of this course the student will be able to:

1. Demonstrate the skills and knowledge needed to setup and operate the ~~shielded metal arc welding (SMAW)~~ SMAW equipment safely.

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2. Demonstrate the manipulative skills needed to make successful welds utilizing the ~~shielded metal arc welding (SMAW)~~ SMAW process that will comply with industry standards.
3. Demonstrate the setup of a specified welding ~~certification~~ qualification procedure.
4. Apply the ~~shielded metal arc welding (SMAW)~~ SMAW process to a qualification joint design recognized by the ~~American Welding Society~~ AWS.

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IV. Course Content

A. Safety Precautions
   1. Working conditions
   2. Personal protection
   3. Air contamination
   4. Electrical shock
   5. Radiation hazards

B. Shielded Metal Arc Welding - ~~E7024 - 1/8" & 5/32"~~ E7018 -1/8"
   1. Current settings
   2. Arc length
   3. Electrode angle
   4. Travel speed
   ~~5. Stinger beads~~
   ~~6. Padded plate~~
   ~~7. T-plate - horizontal - 2F~~
   ~~8. T-plate - vertical-3F~~
   ~~9. T-plate - overhead-4F~~

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~~C. Shielded Metal Arc Welding - C.R.E.S. 308~~ Gas tungsten Arc Welding - ER70S-X
   1. Current settings
   2. Arc length
   3. Electrode angle
   4. Travel speed
   ~~5. Stringer beads~~ Electrode manipulation
   ~~6. Padded plate~~
   ~~7. T-plate - horizontal-2F~~
   ~~8. T-plate - vertical-3F~~

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D. ~~Certification~~ Qualification Procedure
   1. Joint design
   2. Filler rod selection
   3. Pre and postheat requirements
   4. Bead sequence
   5. Bead application
   6. Polarity
   7. Amperage

V. Assignments

A. Appropriate Readings

Standard text:"Welding Principles & Appllications," and/or trade manuals will be primary sources of course readings. Additional information sources will include product and use guides from industry manufacturers to enhance the learning process.

B. Writing Assignments

Students will apply technical skills and understanding of course content by demonstrating application of the ~~shielded metal arc welding (SMAW)~~ GTAW and SMAW processes to recognized joint designs which meet industry and shop standards.

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C. Expected Outside Assignments
None

D. Specific Assignments that Demonstrate Critical Thinking
Students will be required to demonstrate understanding of welding with the ~~shielded metal arc welding (SMAW)~~ GTAW and SMAW processes by applying technical information to multiple manipulative performance objectives, which meet welding department and industry specifications.

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VI. Methods of Evaluation

Methods for determining student grades will be accomplished by the following:
1. Completion of required manipulative performance objectives.
2. Participation in classroom learning activities.

VII. Methods of Delivery

Check those delivery methods for which, this course has been separately approved by the Curriculum/Academic Standards Committee.

☑ Traditional Classroom Delivery ☐ Correspondence Delivery
☐ Interactive Television Delivery ☐ Online Delivery

Demonstration/Laboratory

VIII. Representative Texts and Supplies

"*Welding Principles and Applications*", Jeffus, Larry. Delmar Publishers, 2008, Sixth Edition, ISBN 1-4180-5275-2
Supplies: (required)
Gauntlet leather welding gloves
Safety glasses
Leather "logging type" boots
Cuffless, heavy cotton workpants, in good repair
Ear plugs, pliers w/cutters, and welding hat.

IX. Discipline/s Assignment

Welding Technology

X. Course Status

Current Status: Active
Original Approval Date: 2/27/1990
Revised By: Kory Konkol
Latest Curriculum/Academic Standards Committee Revision Date: 02/05/2013

Lassen Community College Course Outline

WT 20 Power Plant & Field Pipe Welding I — 3.0 Units

I. Catalog Description

This is the first of a four course sequence to prepare students in power plant and field welding. This course deals with shop safety, oxyacetylene cutting (OAC), air carbon arc cutting (CACA), shielded metal arc welding (SMAW) and pipe welding. Pipe coupons will be prepared and welded in the horizontal rolled (1G) position. American Welding Society (AWS) welding qualifications on plate and pipe will be prepared and completed. Repeatable as required for ~~certification~~ qualification by the American Welding Society (AWS) D1.1 Section 4.1.3. (Instructor Authorization Required for Course Repetition.)

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Recommended Preparation: Successful completion of ENGL105 or equivalent assessment placement.

Transfers to CSU only
17 Hours Lecture, 102 Hours Lab
Scheduled:

II. Coding Information

Repeatability: Unlimited Per AWS ~~Certification~~ Qualification Requirements
Grading Option: Graded or Pass/No Pass
Credit Type: Credit - Degree Applicable
TOP Code: 095650

III. Course Objectives

A. Course Student Learning Outcomes

Upon completion of this course the student will be able to:

1. Safely set-up and perform a minimum of ten straight line cuts, seven inches long on 3/8" steel using ~~oxyacetylene cutting~~ OAC equipment.
2. Safely setup and perform gouging, cutting, and piercing on 3/8" ferrous metals using ~~carbon arc cutting~~ CACA equipment.
3. Apply ~~E6011~~ E6010-1/8" and E7018-1/8" electrodes on 3/8" plate and 6" schedule 80 pipe joint designs, using ~~shielded metal arc welding~~ SMAW equipment, which meets or exceeds the ~~American Welding Society~~ AWS D1.1 Structural Welding Code standards.
4. Complete a 3/8" - 1G plate and a 6" schedule 80 - ~~2G~~ 1G pipe ~~certification~~ qualification, using ~~shielded metal arc welding~~ SMAW, which meets or exceeds the ~~American Welding Society~~ AWS D1.1 Structural Welding Code Standards.

B. Course Objectives

Upon completion of this course the student will be able to:

1. Demonstrate safe handling practices and use of: ~~oxyacetylene equipment~~ OAC, ~~air carbon arc cutting~~ CACA ~~equipment~~ and ~~shielded metal arc welding equipment~~ SMAW.
2. Demonstrate manipulative skills utilizing the ~~shielded metal arc~~ SMAW process, on specified joint designs, which meet recognized industry standards.
3. Set-up and operate ~~oxy-acetylene~~ OAC and ~~carbon arc cutting~~ CACA equipment.

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4. Demonstrate manipulative skills to weld pipe with the ~~shielded metal arc welding~~ SMAW process in the horizontal rolled (1G) position.
5. Set-up and complete AWS ~~certifications~~ qualifications on plate and pipe.

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IV. Course Content

A. Health & Safety Precautions
   1. Safe working conditions
   2. Cylinders: Precautions and safe practices
   3. Shielded metal arc equipment
B. Ocy-acetylene Cutting Torches, Equipment and Accessories
   1. Cutting torches
   2. Cutting tips
   3. Oxy-fuel cutting procedures
C. Air Carbon Arc Cutting
   1. Air carbon arc cutting equiping and setup
   2. Air carbon arc cutting procedures
D. Shielded Metal Arc Welding ~~E6011~~ E6010 - 1/8" and E7018 - 1/8" Current settings

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V. Assignments

A. Appropriate Readings
Standard college level text:"Welding Principles & Applications," and/or trade manuals will be primary sources of course readings. Additional information sources will include product and use guides from industry manufacturers to enhance the learning process.

B. Writing Assignments
Students will apply technical skills and understanding of course content by demonstrating application of specific welding processes to recognized joint designs which meet industry standards. Mixed format exams will be administered throughout the course

C. Expected Outside Assignments
May include:
1. Reading and answering questions at end of chapters as assigned by the instructor
2. Pertinent supplementary literature
3. Field trips to construction sites
4. Take-home essays

D. Specific Assignments that Demonstrate Critical Thinking
Students will be required to demonstrate understanding of welding concepts and practices by applying technical information to multiple manipulative performance objectives which meet critical industry specifications.

VI. Methods of Evaluation

Methods for determining students grades will be accomplished by the following:
1. Performance on mixed format exams
2. Completion of required manipulative performance objectives
3. Participation in classroom learning activities

VII. Methods of Delivery

Check those delivery methods for which, this course has been separately approved by the Curriculum/Academic Standards Committee.

☑ Traditional Classroom Delivery ☐ Correspondence Delivery

☐ Interactive Television Delivery ☐ Online Delivery

Lecture/Demonstration/Laboratory

VIII. Representative Texts and Supplies

"Welding Principles & Applications", Jeffus, Larry, Delmar, Publishers, 2008, Sixth Edition, ISBN 1-4180-5275-2

Supplies: (required)
Gauntlet leather welding gloves
Safety glasses
Leather "logging type" boots
Heavy cotton workpants, in good repair
Ear plugs, pliers w/cutters, and welding hat.

Discipline/s Assignment

Welding Technology

X. Course Status

Current Status: Active
Original Approval Date: 2/27/1990
Revised By: ~~John Mulcahy~~ Kory Konkol
Latest Curriculum/Academic Standards Committee Revision Date: 12/03/2012

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Lassen Community College Course Outline

WT-21 Power Plant & Field Pipe Welding II 3.0 Units

I. Catalog Description

This is the second course of a four course sequence dealing with pipe welding, in the 2G and 5G positions, using the shielded metal arc welding (SMAW) process. Gas tungsten arc welding (GTAW) will be introduced to prepare the student for welding on pipe using the GTAW process. American Welding Society (AWS) welding-qualification will be prepared and completed on one inch plate in the 3G and 4G positions. Repeatable as required for ~~certification~~ qualification by the ~~American Welding Society~~ AWS D1.1 Section 4.1.3. (Instructor Authorization Required for Course Repetition.)

Recommended Preparation: Successful completion of ENGL105 or equivalent assessment placement.

Transfers to CSU only
17 Hours Lecture, 102 Hours Lab
Scheduled:

II. Coding Information

Repeatability: Unlimited Per AWS ~~Certification~~ Qualification Requirements
Grading Option: Graded or Pass/No Pass
Credit Type: Credit - Degree Applicable
TOP Code: 095650

III. Course Objectives

A. Course Student Learning Outcomes

Upon completion of this course the student will be able to:

1. ~~Apply E6011-5/32" and E7018-5/32" electrodes, right handed and left handed on 3/8" place joint designs, using the shilded metal arc welding equipment, which meets or exceeds the American Welding Society D1.1 Structural Welding Code standards.~~
2. ~~Apply E6011-5/32" and E7018-5/32" electrodes on 3/8" plate joint designs using AC polarity, with the shilded metal arc welding equipment.~~
1. Apply ER70S fill rod to six joint designs, using the gas tungsten arc welding process on 16g hot rolled steel.
2. Complete ~~three (3)~~ four (4) 2G and ~~three (3)~~ four (4) 5G pipe joints using ~~the shielded metal arc welding~~ SMAW equipment on 6" schedule 80 pipe. which meets or exceeds the ~~American Welding Society~~ AWS D1.1 Structural Welding Code standards.
3. Complete a 1"-3G and a 1"-4G ~~American Welding Society~~ AWS ~~certification~~ qualifications using the ~~shielded metal arc welding~~ SMAW process.
4. Complete a 2G and 5G AWS pipe welding qualification on 6" schedule 80 pipe using the SMAW process.

B. Course Objectives

Upon completion of this course the student will be able to:

1. Demonstrate safe preparation and setup of pipe joints in the 2G and 5G positions.

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2. Demonstrate the manipulative skills needed to make pipe welds in the 2G and 5G positions using the ~~shielded metal arc welding~~ SMAW process.
3. Demonstrate GTAW manipulative skills ~~needed to make gas tungsten arc welds~~.
4. Demonstrate the manipulative skills needed to set up and complete AWS ~~certifications~~ qualifications in the 3G and 4G positions.

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IV. Course Content

A. Safety Precautions
   1. Personal protection
   2. Air contamination
   3. Electrical shock
   4. Radiation hazards

B. ~~Shielded Metal Arc Welding - E6011 - 5/32" and E7018 - 5/32"~~
   ~~1. Current settings~~
   ~~2. Arc length~~
   ~~3. Electrode angle~~
   ~~4. Travel speed~~
   ~~5. Stringer beads~~
   ~~6. Padded plate~~
   ~~7. T-plate horizontal - 2F~~
   ~~8. T-plate vertical- 3F~~
   ~~9. T-plate overhead - 4F~~
   ~~10. T-plate horizontal~~

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C. Pipe Joint Preparations
   1. Beveling
   2. Landings
   3. Fitup
   4. Pipe joint positions - 2G and 5G

D. Vertical Fixed Position (2G) and Horizontal Fixed Position (5G)
   1. Tack welds
   2. Electrode angles
   3. Electrode motions
   4. Root pass
   5. Fill passes
   6. Cover passes

E. Gas Tungsten Arc Welding
   1. Machine settings
   2. Electrode selection
   3. Electrode angles
   4. Selected ferrous joint designs

F. AWS ~~Certifications~~ Qualifications
   1. 3G plate - 1"
   2. 4G plate - 1"
   3. 2G pipe
   5. 5G pipe

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V. Assignments

A. Appropriate Readings

Standard college level text,"Welding Principles & Applications," and/or trade manuals. Additional information sources will include product and use use guides from industry manufacturers to enhance the learning process.

B. Writing Assignments

Students will apply technical skills and understanding of urse content by demonstrating application of specific welding processes to recognized joint designs which meet industry standards. Mixed format exams will also be administered throughout the course.

C. Expected Outside Assignments

May include:

1. Reading and answering questions at end of chapters as assigned by the instructor
2. Pertinent supplementary literature
3. Field trips to construction sites
4. Take-home essays

D. Specific Assignments that Demonstrate Critical Thinking

Students will be required to demonstrate understanding of welding concepts and practices by applying technical information to multiple manipulative performance objectives which meet critical industry specifications.

VI. Methods of Evaluation

Methods for determining students grades will be accomplished by the following:

1. Performance on mixed format exams
2. Completion of required manipulative performance objectives
3. Participation in classroom learning activities

VII. Methods of Delivery

Check those delivery methods for which, this course has been separately approved by the Curriculum/Academic Standards Committee.

☑ Traditional Classroom Delivery ☐ Correspondence Delivery

☐ Interactive Television Delivery ☐ Online Delivery

Lecture/Demonstration/Laboratory

VIII. Representative Texts and Supplies

"*Welding Principles and Applications*", Jeffus, Larry. Delmar, Delmar Publishers, 2008, Sixth Edition, ISBN 1-4180-5275-2

Supplies: (required)

Gauntlet leather welding golves
Safety glasses
Leather "logging type" boots
Cuffless, heavy cotton workpants, in good repair
Ear plugs, pliers w/cutters, and welding hat.

IX. Discipline/s Assignment

Welding Technology

X. Course Status

Current Status: Active
Original Approval Date: 2/27/1990
Revised By: ~~John Mulcahy~~ Kory Konkol
Latest Curriculum/Academic Standards Committee Revision Date: 12/03/2013

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Lassen Community College Course Outline

WT 22 Power Plant & Field Pipe Welding III **3.0 Units**

I. Catalog Description

This is a fundamental class dealing with pipe welding in the 6G position using the shielded metal arc welding (SMAW) process. Joint designs will be performed using the gas metal arc welding (GMAW), and the gas tungsten arc welding (GTAW process in preparation for welding root passes on pipe. Welding symbols are presented and reviewed in order to enable students to interpret welding blueprints. This is the third of a four course sequence to prepare students for power plant and field pipe welding. American Welding Society (AWS) qualifications in GTAW, GMAW, and flux core arc welding (FCAW) will be prepared and completed. Repeatable as required for qualification by the ~~American Welding Society~~ AWS D1.1 Section 4.1.3. (Instructor Authorization Required for Course Repetition.)

Recommended Preparation: Successful completion of ENGL105 or equivalent assessment placement.

Transfers to CSU only
17 Hours Lecture, 102 Hours Lab
Scheduled:

II. Coding Information

Repeatability: Unlimited Per AWS ~~Certification~~ Qualification Requirements
Grading Option: Graded or Pass/No Pass
Credit Type: Credit - Degree Applicable
TOP Code: 095650

III. Course Objectives

A. Course Student Learning Outcomes

Upon completion of this course the student will be able to:

1. ~~Apply E7024 5/32" and ER308-16 1/8" electrodes to 3/8" plate joint designs, using the shielded metal arc welding equipment.~~
1. ~~Apply ER70S to nine joint designs, using the gas tungsten arc welding process, which meets or exceeds the American Welding Society D1.1 Structural Welding Code standards.~~ Complete (16) open root groove welds (four each in the 1G, 2G, 3G and 4G positions) using the GTAW process
2. 3. Complete six (6) 6G pipe joints, using the ~~shielded metal arc welding~~ SMAW equipment on 6" schedule 80 pipe, which meets or exceeds the ~~American Welding Society~~ AWS D1.1 Structural Welding Code standards.
3. Apply the ~~gas metal arc~~ GMAW and ~~flux cored arc welding~~ FCAW processes to joint designs, which meets or exceeds the ~~American Welding Society~~ AWS D1.1 Structural Welding Code standards.
4. Complete ~~gas tungsten arc~~ GTAW, ~~gas metal arc~~ GMAW, and ~~flux cored arc welding~~ FCAW ~~certifications~~ qualifications, which meets or exceeds the ~~American Welding Society~~ AWS D1.1 Structural Welding Code standards.

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B. Course Objectives

Upon completion of this course the student will be able to:

1. Demonstrate safe preparation and setup of pipe joints in the 6G position.
2. Demonstrate the manipulative skills needed to make successful pipe welds in the 6G position.
3. Demonstrate the manipulative skills ~~needed~~ necessary to ~~make~~ perform ~~gas tungsten arc welds~~ GTAW on specified and recognized joint designs which comply with industry standards
4. ~~Demonstrate the manipulative skills needed to make shielded metal arc welds using stainless steel electrodes and "fast fill" electrodes.~~
5. Evaluate and apply welding symbols to blueprints.
6. Demonstrate manipulative skills needed to ~~make~~ use ~~gas metal arc~~ GMAW and ~~flux core arc welds~~ FCAW on specified weld joint designs which comply with industry standards.
7. Demonstrate the manipulative skills needed to set up and complete AWS ~~certifications~~ qualifications in GTAW, GMAW and FCAW.

IV. Course Content

A. Safety Precautions
   1. Electrical shock
   2. Radiation hazards
   3. Compressed gases
   4. Air contamination

~~B. Shielded Metal Arc Welding - E7024 - 5/32 1/8"~~
   ~~1. Current settings~~
   ~~2. Arc length~~
   ~~3. Electrode angle~~
   ~~4. Travel speed~~
   ~~5. Stringer beads~~
   ~~6. Padded plate~~
   ~~7. T-plate horizontal~~

~~C. Shielded Metal Arc Welding - E R 308 F 308~~
   ~~1. Current settings~~
   ~~2. Arc length~~
   ~~3. Electrode angle~~
   ~~4. Travel speed~~
   ~~5. Stringer beads~~
   ~~6. Padded plate~~
   ~~7. T-plate horizontal 2F~~
   ~~8. T-plate vertical - 3F~~

D. Pipe Joint Preparations - 6G
   1. Beveling
   2. Landings
   3. Fit-up

E. Inclined Angle Position (6G)
   1. Tack welds
   2. Electrode angles
   3. Electrode motion
   4. Root pass

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5. Fill pass
6. Cover pass

F. Gas Tungsten Arc Welding
1. Machine settings
2. ~~Flat stringer – no filler~~ 1G open root (Flat)
3. ~~Flat stringer – with filler~~ 2G open root (Horizontal)
4. ~~Flat – closed butt~~ 3G open root (Vertical)
5. ~~T-plate horizontal-2F~~ 4G open root (Overhead)
6. ~~T-plate vertical-3F~~

G. Gas Metal Arc Welding
1. Machine settings
2. Flat stringers
3. Overlaps
4. T-plate horizontal (2f)
5. T-plate 3F and 4F

H. Flux core arc welding
1. Machine settings
2. Flat stringers
3. Overlaps
4. T-plate 2F, 3F, 4F

I. AWS ~~Certifications~~ Qualifications
1. GTAW
   a. 3F
   b. 4F
2. GMAW
   a. 3F
   b. 4F
3. FCAW
   a. 3G
   b. 4G
4. SMAW
   a. 3G Plate
   b. 4G Plate
   c. 6G Pipe

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V. Assignments

A. Appropriate Readings

Standard college level text, "Welding Principles & Applications" and/or trade manuals will be primary sources of course readings. Additional information sources will include product and use guides from industry manufacturers to enhance the learning process.

B. Writing Assignments

Students will apply technical skills and understanding of course content by demonstrating application of specific welding processes to recognized joint designs which meet industry standards. Mixed format exams will also be administered throughout the course.

C. Expected Outside Assignments

May include:
1. Reading and answering questions at the end of chapters as assigned by the instructor.
2. Pertinent supplementary literature
3. Field trips to construction sites

4. Take-home essays

D. Specific Assignments that Demonstrate Ccritical Thinking

Students will be required to demonstrate understanding of welding concepts and practices by applying technical information to multiple manipulative performance objectives which meet critical industry specifications.

VI. Methods of Evaluation

Methods for determining students grades will be accomplished by the following:

1. Performance on mixed format exams
2. Completion of required manipulative performance objectives
3. Participation in classroom learning activities

VII. Methods of Delivery

Check those delivery methods for which, this course has been separately approved by the Curriculum/Academic Standards Committee.

☑ Traditional Classroom Delivery ☐ Correspondence Delivery

☐ Interactive Television Delivery ☐ Online Delivery

Lecture/Demonstration/Laboratory

VIII. Representative Texts and Supplies

"*Welding Principles and Applications*", Jeffus, Larry. Delmar Publishers, 2008, Sixth Edition, ISBN 1-4180-5275-2

Supplies:
Gauntlet leather welding gloves
Safety glasses
Leather "logging type" boots
Cuffless heavy cotton workpants, in good repair
Ear plugs, pliers w/cutters, and welding hat.

IX. Discipline/s Assignment

Welding Technology

X. Course Status

Current Status: Active
Original Approval Date: 2/27/1990
Revised By: ~~John Mulcahy~~ Kory Konkol
Latest Curriculum/Academic Standards Committee Revision Date: 12/03/2013

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Lassen Community College Course Outline

WT 23 Power Plant & Field Pipe Welding IV **3.0 Units**

I. Catalog Description

This class deals with pipe welding in the 2G (vertical fixed), ~~and~~ 5G (horizontal fixed), and 6G (45° fixed) positions using gas tungsten arc welding (GTAW) for the root pass and shielded metal arc welding (SMAW) for the fill and cover passes. ~~Aluminum and stainless steel welding using gas tungsten arc welding will also be covered.~~ American Welding Society (AWS) pipe qualifications will be prepared and completed in the 2G, 5G and 6G positions. Repeatable as required for qualifications by the American Welding Society D1.1 Section 4.1.3 (Instructor Authorization Required for Course Repetition.)

Recommended Preparation: Successful completion of ENGL105 or equivalent assessment placement.

Transfers to CSU only
17 Hours Lecture, 102 Hours Lab
Scheduled:

II. Coding Information

Repeatability: Unlimited Per AWS ~~Certification~~ Qualification Requirements
Grading Option: Graded or Pass/No Pass
Credit Type: Credit - Degree Applicable
TOP Code: 095650

III. Course Objectives

A. Course Student Learning Outcomes

Upon completion of this course the student will be able to:

1. Complete five (5) 6G, five (5) 5G and five (5) 2G pipe joints, using the ~~gas tungsten arc~~ GTAW and ~~shielded metal arc welding~~ SMAW processes on 6" schedule 80 pipe.
2. ~~Apply ER4043 to aluminum and ER308 to stainless steel joint designs using the gas tungsten arc welding process on 16g metal.~~
3. Complete a 2G, ~~and a~~ 5G, and 6G pipe ~~certification~~ qualification, using the ~~gas tungsten arc and shielded metal arc welding~~ GTAW and SMAW processes, which meets or exceeds the ~~American Welding Society~~ AWS D1.1 Structural Welding Code standards.

B. Course Objectives

Upon completion of this course the student will be able to:

1. Demonstrate the manipulative skills needed to make successful pipe welds utilizing the ~~gas tungsten arc welding~~ GTAW and ~~shielded metal arc welding~~ SMAW processes that will comply with industry standards.
2. ~~Demonstrate the manipulative skills needed to make successful welds on aluminum and stainless steel with the gas tungsten arc welding process.~~
2. Prepare and complete AWS pipe ~~certifications~~ qualifications in the 2G, 5G and 6G positions.

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IV. Course Content

A. Safety Precautions
   1. Electrical shock
   2. Radiation hazards
   3. Compressed gases
   4. Air contamination

B. Vertical Fixed Position (2G)
   1. Tack welds
   2. Torch position
   3. Filler rod application
   4. Root pass - GTAW
   5. Fill and cover passes - E7018

C. Horizontal Fixed Position (5G)
   1. Tack welds
   2. Torch position
   3. ~~Filler~~ Filler rod application
   4. Root pass - GTAW
   5. Fill and cover passes - E7018

~~D. Gas Tungsten Arc Welding - Aluminum~~ 45° Fixed Position (6G)
   ~~1. Torch set-up~~ Tack welds
   ~~2. Machine settings~~ Torch position
   ~~3. Flowmeter settings~~ Filler rod application
   ~~4. Striking an arc~~ Root pass - GTAW
   ~~5. Flat stringer - no filler~~ Fill and cover passes - E7018
   ~~6. Flat stringer - filler~~
   ~~7. T-plate horizontal - 2F~~
   ~~8. T-plate vertical- 3F~~

~~E. Gas Tungsten Arc Welding - Stainless Steel~~ 2G Pipe AWS Qualification
   ~~1. Torch set-up~~
   ~~2. Machine settings~~
   ~~3. Flowmeter settings~~
   ~~4. Striking an arc~~
   ~~5. Flat stringer - no filler~~
   ~~6. Flat stringer - filler~~
   ~~7. T-plate horizontal - 2F~~
   ~~8. T-plate vertical - 3F~~

F. 5G Pipe AWS ~~Certification~~ Qualification

G. 6G Pipe AWS ~~Certification~~ Qualification

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V. Assignments

A. Appropriate Readings

Text: "Welding Principles and Applications," and/or trade manuals will be primary sources of course readings. Additonal information sources will include product and use guides from industry manufacturers to enhance the learning process.

B. Writing Assignments

Students will apply technical skill & understanding of course content by demonstrating application of specific welding processes to recognized joint designs which meet industry standards. Mixed format exams will also be administered throughout the course.

C. Expected Outside Assignments

May include:

1. Reading and answering questions at end of chapters as assigned by the instructor
2. Pertinent supplementary literature
3. Field trips to construction sites
4. Take-home essays

D. Specific Assignments that Demonstrate Critical Thinking

Students will be required to demonstrate understanding of welding concepts and practices by applying technical information to multiple manipulative performance objectives which meet critical industry specifications.

VI. Methods of Evaluation

Methods for determining student grades will be accomplished by the following:

1. Performance on mixed format exams
2. Completion of required manipulative performance objectives
3. Participation in classroom learning activities

VII. Methods of Delivery

Check those delivery methods for which, this course has been separately approved by the Curriculum/Academic Standards Committee.

☑ Traditional Classroom Delivery ☐ Correspondence Delivery

☐ Interactive Television Delivery ☐ Online Delivery

Lecture/Demonstration/Laboratory

VIII. Representative Texts and Supplies

"*Welding Principles and Applications*", Jeffus, Larry. Delmar Publishers, 2008, Sixth Edition, ISBN 1-4180-5275-2

Supplies: (required)

Gauntlet leather welding gloves
Safety glasses
Leather "logging type" boots
Cuffless, heavy cotton workpants, in good repair
Ear plugs, pliers w/cutters, and welding hat.

IX. Discipline/s Assignment

Welding Technology

X. Course Status

Current Status: Active
Original Approval Date: 2/27/1990
Revised By: ~~John Mulcahy~~ Kory Konkol
Latest Curriculum/Academic Standards Committee Revision Date: 12/03/2013

Kory 12/7/14 2:16 AM
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Lassen Community College Course Outline

WT-51, Blueprint and Symbol Reading for Welders **2.0 Units**

I. Catalog Description

This course is an introduction to blueprint and symbol interpretation practices commonly used in the welding and metal fabrication industries. This course will cover drawing types, symbols, views, dimensions and tolerances. This course will further develop the student's range of thinking required to assemble simple components and complex assemblies from welding prints.

34 hours lecture

II. Coding Information

Repeatability: Not Repeatable, Take 1 Time
Grading Option: Graded or Credit/No Credit
Credit Type: Credit - Degree Applicable
TOP Code: 095650

III. Course Objectives

A. Course Student Learning Outcomes

1. Interpret technical information used on industrial working and assembly drawings.
2. Analyze and decipher complex welding symbols listed as defined by the American Welding Society (AWS)

B. Course Objectives

Upon completion of this course the student will be able to:

1. Differentiate the common methods used to develop basic drawings and blueprints for the manufacturing industry.
2. Solve simple mathematical problems as related to working with print dimensions and tolerances.
3. Interpret dimensions and read scaled drawings. Determine size and location of components on a part to be assembled, machined or welded.
4. Demonstrate the basic skills of sketching a freehand drawing to describe the shape and size of an object.
5. Interpret general notes and specifications on blueprints.
6. Read and interpret welding symbols and abbreviations.
7. Explain common destructive and nondestructive weld test inspection symbols and how they're denoted on common prints and drawings.

IV. Course Content

A. Basic Lines and Views

1. Object lines, hidden, center, dimension, extension, leader, cutting plane, section, chain, short break, long break, and phantom lines.
2. Views, back, top, front, side, bottom

B. Sketching

1. Purpose of sketching
2. Basic sketching techniques

C. Notes and Specifications

1. Local notes
2. General notes
3. Material specifications

C. Dimensions

1. Purpose of dimensions
2. Linear and angular
3. Radius arc and drilled hole
4. Tolerance
5. Scale sizes
6. Thread dimension

E. Bill of Material

1. Preparation of a bill of material

F. Structural Shapes

1. Bar – cold/hot rolled
2. Sheet
3. Strip or band
4. Plate
5. Angle
6. Tees
7. Channel
8. Beam
9. Tubing
10. Pipe

G. Views

1. Views with conventional breaks
2. Auxiliary views
3. Enlarged detail views
4. Developed views
5. Revolved views
6. Untrue projection
7. Corrections and revisions on prints

H. Sections

1. Full sections
2. Half section
3. Revolved sections
4. Assembled sections
5. Phantom sections
6. Aligned sections
7. Broken-out sections

I. Detail, Assembly and Subassembly Prints

1. Detail drawing
2. Assembly prints
3. Subassembly prints

J. Welding Symbols and Abbreviations

1. Welding symbol
2. Location of weld symbol
3. Preferred symbols
4. Multiple weld symbols

K. Basic Joints for Fabrication

1. Basic joints
2. Other kinds of joints
3. Joints commonly used with structural shapes
4. Joint fit up

L. Weld Symbols

1. Fillets welds
2. Groove welds
3. Backing and melt through welds
4. Plug or slot welds
5. Surfacing welds
6. Flange welds
7. Spot welds
8. Projection welds
9. Seam welds
10. Stud welds

M. Applied Metric Conversions

1. Introduction to metrics
2. Structure of the metric system

N. Blueprint Reading for Related Trades

1. Symbols for pipe layouts
2. Dimensioning pipe layouts

O. Inspection and Testing

1. Overview of inspection and testing practices
2. Destructive testing
3. Non-destructive testing

V. Assignments

A. **Appropriate readings**
Textbook Reading-Students will be expected to complete all reading assignments.

B. **Writing assignments**
None

C. **Out of class assignments**
May include:

1. Homework – end of chapter review questions from textbook

VI. Methods of Evaluation

Methods for determining student grades will be accomplished by the following:

A. Homework assignments (Textbook review questions)
B. Written tests/quizzes

VII. Methods of Delivery

Check those delivery methods for which, this course has been separately approved by the Curriculum/Academic Standards Committee.

☐ Traditional Classroom Delivery ☐ Correspondence Delivery
☐ Interactive Television Delivery ☐ Online Delivery

VIII. Representative Texts and Supplies

Text:

Blueprint Reading for Welders, A.E. Bennett/Louis J. Siy, Cengage Learning. (9th ed.)

- ISBN-10: 1-133-60578-8
- ISBN-13: 978-1-133-60578-2

Supplies: None

IX. Discipline/s Assignment

Welding Technology

X. Course Status

Current Status: Pending Approval
Original Approval Date: XX
Revised By: Kory Konkol
Latest Curriculum/Academic Standards Committee Revision Date: XX

Appendix:

B

Advertising
Spring/Fall 2015

LASSEN COMMUNITY COLLEGE

WELDING TECHNOLOGY

New welding class starting this fall:

BLUEPRINT READING FOR WELDERS

Learn a trade and the skills necessary to land a well-paying job!

- Job Placement Assistance
- Degree and Certificates offered in Welding Technology
- A.W.S. Welding Qualification Tests offered on schedule 80 pipe and plate up to 1"

- Beginning and advanced welding processes and classes available in:
  - Oxyacetylene
  - Shielded Metal Arc Welding (Stick)
  - Gas Metal Arc Welding (MIG)
  - Flux Core Arc Welding
  - Gas Tungsten Arc Welding (TIG)

FALL 2015 CLASSES BEGIN AUGUST 17TH

Don't delay - Register today!

For more information, contact
KORY KONKOL
Welding Instructor,
Certified Welding Inspector,
Certified Welding Educator
(530) 251-8887
or email
kkonkol@lassencollege.edu

www.lassencollege.edu

Admissions & Records 530.251.8808

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478-200 Hwy. 139, Susanville, CA 96130

530-257-6181

Appendix:

C

Bureau of Labor Statistics
Employment

U.S. Bureau of Labor Statistics

Occupational Employment Statistics

Occupational Employment and Wages, May 2014

51-4121 Welders, Cutters, Solderers, and Brazers

Use hand-welding, flame-cutting, hand soldering, or brazing equipment to weld or join metal components or to fill holes, indentations, or seams of fabricated metal products.

National estimates for this occupation
Industry profile for this occupation
Geographic profile for this occupation

National estimates for this occupation: Top

Employment estimate and mean wage estimates for this occupation:

Employment (1)	Employment RSE (3)	Mean hourly wage	Mean annual wage (2)	Wage RSE (3)
369,610	0.9 %	$19.25	$40,040	0.3 %

Percentile wage estimates for this occupation:

Percentile	10%	25%	50% (Median)	75%	90%
Hourly Wage	$12.26	$14.85	$17.99	$22.50	$28.17
Annual Wage (2)	$25,510	$30,890	$37,420	$46,810	$58,590

Industry profile for this occupation: Top

Industries with the highest published employment and wages for this occupation are provided. For a list of all industries with employment in this occupation, see the Create Customized Tables function.

Industries with the highest levels of employment in this occupation:

Industry	Employment (1)	Percent of industry employment	Hourly mean wage	Annual mean wage (2)
Architectural and Structural Metals Manufacturing	44,480	12.48	$17.65	$36,710
Agriculture, Construction, and Mining Machinery Manufacturing	25,190	10.01	$18.23	$37,910
Motor Vehicle Body and Trailer Manufacturing	18,030	12.98	$16.89	$35,140
Other General Purpose Machinery Manufacturing	16,630	6.42	$18.57	$38,620
Commercial and Industrial Machinery and Equipment (except Automotive and Electronic) Repair and Maintenance	16,400	8.21	$19.16	$39,840

Industries with the highest concentration of employment in this occupation:

Industry	Employment (1)	Percent of industry employment	Hourly mean wage	Annual mean wage (2)
Boiler, Tank, and Shipping Container Manufacturing	14,380	14.77	$18.73	$38,950
Railroad Rolling Stock Manufacturing	3,310	13.15	$18.71	$38,920
Motor Vehicle Body and Trailer Manufacturing	18,030	12.98	$16.89	$35,140
Architectural and Structural Metals Manufacturing	44,480	12.48	$17.65	$36,710
Ship and Boat Building	15,490	11.49	$20.54	$42,710

Top paying industries for this occupation:

Industry	Employment (1)	Percent of industry employment	Hourly mean wage	Annual mean wage (2)
Electric Power Generation, Transmission and Distribution	1,150	0.29	$33.23	$69,120
Natural Gas Distribution	890	0.81	$32.90	$68,420
Pipeline Transportation of Crude Oil	40	0.40	$29.80	$61,980
Postal Service	40	0.01	$27.88	$57,990
Resin, Synthetic Rubber, and Artificial Synthetic Fibers and Filaments Manufacturing	30	0.04	$27.88	$57,990

Geographic profile for this occupation: Top

States and areas with the highest published employment, location quotients, and wages for this occupation are provided. For a list of all areas with employment in this occupation, see the Create Customized Tables function.

States with the highest employment level in this occupation:

State	Employment (1)	Employment per thousand jobs	Location quotient (9)	Hourly mean wage	Annual mean wage (2)
Texas	52,130	4.64	1.70	$19.66	$40,900
California	25,030	1.66	0.61	$20.45	$42,540
Pennsylvania	17,400	3.08	1.13	$18.93	$39,370
Louisiana	16,610	8.67	3.17	$21.08	$43,840
Ohio	15,560	2.99	1.09	$18.15	$37,750

States with the highest concentration of jobs and location quotients in this occupation:

State	Employment (1)	Employment per thousand jobs	Location quotient (9)	Hourly mean wage	Annual mean wage (2)
Louisiana	16,610	8.67	3.17	$21.08	$43,840
Wyoming	2,440	8.64	3.16	$25.47	$52,980
South Dakota	2,980	7.27	2.66	$16.09	$33,470
North Dakota	2,980	6.77	2.48	$24.19	$50,310
Oklahoma	10,540	6.68	2.44	$18.64	$38,780

Top paying States for this occupation:

State	Employment (1)	Employment per thousand jobs	Location quotient (9)	Hourly mean wage	Annual mean wage (2)
Alaska	700	2.16	0.79	$34.57	$71,910
Hawaii	490	0.80	0.29	$28.42	$59,120
District of Columbia	60	0.10	0.03	$27.59	$57,390
Wyoming	2,440	8.64	3.16	$25.47	$52,980
North Dakota	2,980	6.77	2.48	$24.19	$50,310

Metropolitan areas with the highest employment level in this occupation:

Metropolitan area	Employment (1)	Employment per thousand jobs	Location quotient (9)	Hourly mean wage	Annual mean wage (2)
Houston-Sugar Land-Baytown, TX	17,640	6.20	2.27	$20.78	$43,230
Chicago-Joliet-Naperville, IL Metropolitan Division	6,300	1.68	0.61	$18.18	$37,800
Los Angeles-Long Beach-Glendale, CA Metropolitan Division	6,230	1.54	0.56	$18.88	$39,280
Dallas-Plano-Irving, TX Metropolitan Division	5,550	2.48	0.91	$17.30	$35,980
Tulsa, OK	4,080	9.54	3.49	$20.19	$41,990
Minneapolis-St. Paul-Bloomington, MN-WI	3,910	2.14	0.78	$20.53	$42,700
Fort Worth-Arlington, TX Metropolitan Division	3,680	3.96	1.45	$17.95	$37,330
Pittsburgh, PA	3,500	3.10	1.13	$19.68	$40,930

Atlanta-Sandy Springs-Marietta, GA	3,400	1.43	0.52	$17.75	$36,920
Portland-Vancouver-Hillsboro, OR-WA	3,370	3.19	1.17	$20.14	$41,900

Metropolitan areas with the highest concentration of jobs and location quotients in this occupation:

Metropolitan area	Employment (1)	Employment per thousand jobs	Location quotient (9)	Hourly mean wage	Annual mean wage (2)
Pascagoula, MS	2,310	42.61	15.58	$23.63	$49,160
Houma-Bayou Cane-Thibodaux, LA	2,760	27.81	10.17	$21.59	$44,900
Casper, WY	890	20.61	7.53	$21.84	$45,430
Longview, TX	1,950	19.61	7.17	$21.71	$45,160
Elkhart-Goshen, IN	2,280	19.05	6.96	$15.53	$32,300
Odessa, TX	1,060	14.51	5.30	$25.18	$52,370

Lafayette, LA	2,080	13.29	4.86	$19.33	$40,200
Lake Charles, LA	1,090	12.23	4.47	$23.30	$48,460
Beaumont-Port Arthur, TX	1,870	11.89	4.35	$21.49	$44,700
Decatur, AL	560	10.83	3.96	$19.05	$39,630

Top paying metropolitan areas for this occupation:

Metropolitan area	Employment (1)	Employment per thousand jobs	Location quotient (9)	Hourly mean wage	Annual mean wage (2)
Anchorage, AK	240	1.35	0.49	$34.15	$71,030
Honolulu, HI	400	0.90	0.33	$29.59	$61,550
Peabody, MA NECTA Division	50	0.53	0.19	$29.20	$60,740
Fairbanks, AK	70	2.04	0.75	$28.14	$58,520
Charleston, WV	400	2.83	1.04	$27.77	$57,770

Wilmington, DE-MD-NJ Metropolitan Division	380	1.14	0.42	$27.42	$57,030
Vallejo-Fairfield, CA	310	2.58	0.94	$26.95	$56,060
Lima, OH	(8)	(8)	(8)	$26.00	$54,070
San Francisco-San Mateo-Redwood City, CA Metropolitan Division	580	0.54	0.20	$25.72	$53,500
Bakersfield-Delano, CA	1,860	6.29	2.30	$25.63	$53,310

Nonmetropolitan areas with the highest employment in this occupation:

Nonmetropolitan area	Employment (1)	Employment per thousand jobs	Location quotient (9)	Hourly mean wage	Annual mean wage (2)
Kansas nonmetropolitan area	3,520	9.05	3.31	$17.50	$36,410
New Iberia nonmetropolitan area	2,790	20.60	7.53	$19.96	$41,520
Eastern Wisconsin nonmetropolitan area	2,290	14.41	5.27	$19.04	$39,600
Northern Indiana nonmetropolitan area	2,290	10.81	3.95	$16.74	$34,830
Eastern Texas nonmetropolitan area	2,280	8.08	2.95	$19.79	$41,170

Nonmetropolitan areas with the highest concentration of jobs and location quotients in this occupation:

Nonmetropolitan area	Employment (1)	Employment per thousand jobs	Location quotient (9)	Hourly mean wage	Annual mean wage (2)
New Iberia nonmetropolitan area	2,790	20.60	7.53	$19.96	$41,520
Northern Utah nonmetropolitan area	270	15.30	5.59	$17.79	$37,010
Eastern Wisconsin nonmetropolitan area	2,290	14.41	5.27	$19.04	$39,600
Eastern South Dakota nonmetropolitan area	1,710	13.60	4.97	$16.02	$33,330
Northeastern Wyoming nonmetropolitan area	660	13.38	4.89	$28.25	$58,770

Top paying nonmetropolitan areas for this occupation:

Nonmetropolitan area	Employment (1)	Employment per thousand jobs	Location quotient (9)	Hourly mean wage	Annual mean wage (2)
Railbelt / Southwest Alaska nonmetropolitan area	350	4.61	1.69	$36.14	$75,180
Southeast Alaska nonmetropolitan area	40	1.18	0.43	$35.22	$73,260
Southeastern Wyoming nonmetropolitan area	220	5.79	2.12	$31.96	$66,480

Far Western North Dakota nonmetropolitan area	1,000	12.09	4.42	$31.53	$65,580
North and West Central New Mexico nonmetropolitan area	200	3.32	1.21	$29.90	$62,180

About May 2014 National, State, Metropolitan, and Nonmetropolitan Area Occupational Employment and Wage Estimates

These estimates are calculated with data collected from employers in all industry sectors, all metropolitan and nonmetropolitan areas, and all states and the District of Columbia. The top employment and wage figures are provided above. The complete list is available in the downloadable XLS files.

The percentile wage estimate is the value of a wage below which a certain percent of workers fall. The median wage is the 50th percentile wage estimate--50 percent of workers earn less than the median and 50 percent of workers earn more than the median. More about percentile wages.

(1) Estimates for detailed occupations do not sum to the totals because the totals include occupations not shown separately. Estimates do not include self-employed workers.

(2) Annual wages have been calculated by multiplying the hourly mean wage by a "year-round, full-time" hours figure of 2,080 hours; for those occupations where there is not an hourly mean wage published, the annual wage has been directly calculated from the reported survey data.

(3) The relative standard error (RSE) is a measure of the reliability of a survey statistic. The smaller the relative standard error, the more precise the estimate.

(8) Estimate not released.

(9) The location quotient is the ratio of the area concentration of occupational employment to the national average concentration. A location quotient greater than one indicates the occupation has a higher share of employment than average, and a location quotient less than one indicates the occupation is less prevalent in the area than average.

Other OES estimates and related information:

May 2014 National Occupational Employment and Wage Estimates

May 2014 State Occupational Employment and Wage Estimates

May 2014 Metropolitan and Nonmetropolitan Area Occupational Employment and Wage Estimates

May 2014 National Industry-Specific Occupational Employment and Wage Estimates

May 2014 Occupation Profiles

Technical Notes

Last Modified Date: March 25, 2015

U.S. Bureau of Labor Statistics | Division of Occupational Employment Statistics, PSB Suite 2135, 2 Massachusetts Avenue, NE Washington, DC 20212-0001

www.bls.gov/OES | Telephone: 1-202-691-6569 | Contact OES

Appendix:

D

Degrees/Certificates Awarded & Completion/Success

2010-2011 thru 2014-2015

Welding Technology Program KPIs 2010-11 through 2014-15

Indicator	Term	Trend	First Year	Final Year	Trend
FTES	Summer		3.2	0.0	-100%
	Fall		13.4	17.4	29%
	Spring		23.1	17.7	-24%
	Annual		39.8	35.1	-12%
Sections	Summer		8	0	-100%
	Fall		22	13	-41%
	Spring		21	15	-29%
	Annual		51	28	-45%
FTES per Section	Summer		0.4	0.0	-100%
	Fall		0.6	1.3	119%
	Spring		1.1	1.2	7%
	Annual		0.8	1.3	61%
FTEF	Summer		0.4	0.0	-100%
	Fall		1.1	0.9	-20%
	Spring		0.8	1.1	25%
	Annual		2.3	1.9	-16%
FTES per FTEF	Summer		8.5	0.0	-100%
	Fall		12.1	19.7	62%
	Spring		27.2	16.6	-39%
	Annual		17.0	18.0	6%
Enrollment	Summer		15	-	-100%
	Fall		69	98	42%
	Spring		129	120	-7%
	Annual		213	218	2%
Enrollment per Section	Summer		1.9	-	-100%
	Fall		3.1	7.5	140%
	Spring		6.1	8.0	30%
	Annual		4.2	7.8	86%
Course Completion	Summer		100%	0%	-100%
	Fall		91%	90%	0%
	Spring		92%	90%	-3%
	Annual		92%	90%	-2%
Success	Summer		100%	0%	-100%
	Fall		80%	70%	-12%
	Spring		60%	54%	-11%
	Annual		70%	61%	-12%
Awards	Annual		5	11	120%

3.2	2.7	1.5		
13.4	15.1	8.3	12.2	17.4
23.1	18.9	10.2	13.0	17.7
39.8	36.6	20.1	25.2	35.1
8	7	7		
22	17	11	15	13
21	21	14	15	15
51	45	32	30	28
0.4	0.4	0.2	0.0	0.0
0.6	0.9	0.8	0.8	1.3
1.1	0.9	0.7	0.9	1.2
0.8	0.8	0.6	0.8	1.3
0.4	0.4	0.2		
1.1	0.8	1.0	0.9	0.9
0.8	0.9	1.1	1.1	1.1
2.3	2.1	2.3	2.0	1.9
8.5307947	7.1314347	6.8131244	0	0
12.119863	17.715243	8.6861209	13.261625	19.671304
27.211258	20.635009	8.9417775	11.847521	16.58401
17.040473	17.11145	8.6303751	12.490296	17.982532
15	22	10		
69	86	64	77	98
129	131	82	87	120
213	239	156	164	218
1.875	3.1428571	1.4285714	0	0
3.1363636	5.0588235	5.8181818	5.1333333	7.5384615
6.1428571	6.2380952	5.8571429	5.8	8
4.1764706	5.3111111	4.875	5.4666667	7.7857143
100%	100%	83%		
91%	99%	79%	84%	90%
92%	91%	78%	87%	90%
92%	94%	78%	86%	90%
100%	64%	58%		
80%	65%	47%	75%	70%
60%	45%	53%	61%	54%
70%	54%	54%	68%	61%
5	2	2	2	11

Degrees and Certificates Awarded

	2014-15	2013-14	2012-13	2011-12	2010-11
Weld AS	1	1	1	0	1
Weld 2yr CA	0	0	0	0	0
Weld 1yr CA	1	1	0	0	1
Weld Cert of Accomplish	1	2	2	1	3

Appendix:

E

CACT/CTE
Top Growth Jobs in California

Appendix 2 E
for emerging technologies
Robotics

Important Skill Sets for [redacted] er Pathways

Re[redacted]

C[redacted]

INTRODUCTION

One of the CACT CTE Hub Director's tasks is to align K-12 and community colleges in creating advanced technology (AT) career pathways. To do this, it's beneficial to understand the important skill sets needed for such positions.

If we can teach students skill sets which are common across many different types of jobs and industries, then this will give students more flexibility in choosing their careers – thus helping to ensure they have a wide range of opportunities. Such "Flex skills" help make it possible for a student to choose a career path later in their education, while still building a core knowledge set for their jobs or for community college courses.

For instance, knowing how to read an engineering drawing, how to troubleshoot a problem, or how to do basic quality control are important to a wide-range of advanced technology careers – and thus allow students to enter into a number of different career paths with those core skills.

Research Objective

The objective for this research is to understand the needed skill sets in California for advanced technology careers. To do this, I have used community college and economic development resources to compile findings about economic trends, new and emerging technologies & industry skills relevant to California. At the end of this report, I list skill sets which I believe should be explored for incorporation into career pathway courses in K-12, and in community colleges.

PROCESS

To gather information about important skill sets, I used three different approaches.

1) Analyzed California job growth in CACT-related OCCUPATIONS that require significant on-the-job training or up to a 2-year degree. Looked for job clusters that have similar attributes to determine the common skill sets applicable to those jobs.
2) Analyzed California job growth in CACT-related INDUSTRIES. Used industry growth trends to indicate additional skill sets that might not have been covered in the Occupations category.
3) Looked at new and emerging trends / technologies (e.g., solar, wind, nanotech, etc.) and other industry trends (e.g., Six Sigma, lean manufacturing) – made assessments on what additional skill sets will be important to future California companies based on these trends and emerging technologies.

This analysis will help in developing career pathways which cover the important skills needed by the future California workforce.

C A C T

1) Occupations

The SOC data (see Figure 1 below) shows the top growth jobs in California in the AT area which require an associates degree, vocational education, or significant OTJ training.[1]

Figure 1: California Growth in Advanced Technology Jobs

SOC 17-xxx, 51-xxxx, 49-9041 to 49-9044; Jobs requiring 2 year degrees or significant OTJ training
2006 – 2016, Sorted by annual total job growth
http://www.labormarketinfo.edd.ca.gov/?PageID=145

SOC Code	Occupational Title	2006 Employ-ment	Annual Total job growth (2006 – 2016) [2]	Median Annual Income	Education & Training Levels [3]
49-9042	Maintenance and Repair Workers, General	133,000	1,960	$36,601	9
51-4121	Welders, Cutters, Solderers, and Brazers	31,200	1,080	$33,056	7
51-4041	Machinists	32,500	850	$37,358	9
17-3023	Electrical and Electronic Engineering Technicians	23,000	680	$57,683	6
49-9041	Industrial Machinery Mechanics	14,200	540	$50,438	9
17-3011	Architectural and Civil Drafters	18,100	520	$51,386	7
17-3029	Engineering Technicians, Except Drafters, All Other	12,000	420	$56,914	6
17-3026	Industrial Engineering Technicians	6,500	290	$53,991	6
17-3022	Civil Engineering Technicians	8,400	240	$58,401	6
17-3027	Mechanical Engineering Technicians	6,000	180	$51,786	6
51-9141	Semiconductor Processors	9,400	160	$35,900	6
	TOTALS	**294,300**	**6,920**		

This shows some clustering of job types in the following areas (in order of descending education levels):

	Job Types	*Annual New Jobs*
1)	Technician (electronic, mechanical, and others)	2,350
2)	Drafters	520
3)	Welders	1,080
4)	Machinists	850
5)	Mechanics, Maintenance and machinery repair	2,500
	TOTAL	6,920

---

[1] Thanks to John Carrese and the Center of Excellence for help with data collecting and their environmental scans

[2] Total jobs in these categories in 2016 is estimated at 327,500. Adding the estimated 35,000 job replacements needed in these categories, this gives a total job growth of 69,200 jobs, or 6,920 per year. As a point of reference, there were 423,000 seniors in the state of California in 2006, in approximately 1300 high schools. Another point of reference, estimated nursing jobs in 2017 is 307,000, a change of 60,000 from 2007. Adding in replacements, nursing will have a total job growth of 99,000 during that 10-year period.

[3] Occupational training and education classifications were developed by the Bureau of Labor Statistics (BLS). For more information on the classifications, please see the BLS Training Definitions at http://www.labormarketinfo.edd.ca.gov/?PAGEID=172

1 - First Professional Degree - LLD MD
2 - Doctoral Degree
3 - Master's Degree
4 - Bachelor's Degree or Higher and Some Work Experience
5 - Bachelor's Degree
6 - Associate Degree
7 - Post-Secondary Vocational Education
8 - Work Experience in a Related Occupation
9 - Long-Term On-the-Job Training
10 - Moderate-Term On-the-Job Training
11 - Short-Term On-the-Job Training

4-year degrees, due to the size of the industry, there are still a large number of jobs for technicians, maintenance personnel, and production workers. For medical devices, there will also be a need for technicians and maintenance personnel.

These industries are also regulated, and have strict FDA standards for both the design and manufacturing of the products. Knowledge of, or at least awareness of, these FDA standards is beneficial to practically every employee.

Both the food and medical industries also have manufacturing environments that range from very clean to sterile, and basic understanding of how to work in these environments is an important skill to have.

While there are certainly other industries that we can look to for additional needed skill sets, the high-growth in these two, coupled with their high industry margins make them important to focus on.

3) TRENDS / TECHNOLOGIES

Another approach to assessing potential skill sets is to look at emerging trends and technologies (T&T). By looking at Center of Excellence environmental scans, talking with CACT directors, reading trade publications, and using my knowledge of the manufacturing industry, I've listed some of major trends and technologies which are relevant to California industry.

For each of these T&T's, I have listed beneficial skills that are beyond the basic skill sets (math, writing, basic computer knowledge, etc.) and are useful to many different jobs in those fields. While certainly not every job in that area would require the particular skill(s) listed, they are ones which might be beneficial for a large number of jobs.

TRENDS / TECHNOLOGIES	Beneficial SKILLS [9]
Nanotech	Semiconductor processes
MEMS	Semiconductor processes
Solar cells	Semiconductor processes, Understanding electrical systems
Solar installation	Electrical & construction
Hybrid & electric cars	Understanding electrical systems
Energy efficiency	Troubleshooting, Understanding electrical and building systems
Sustainable Design	ISO standards, Life-cycle analysis
Automation	Mechatronics, robotics, electrical systems, computer programming
Composites	Knowledge of composite processing (including repair techniques)
Mass customization	Dealing with complexity, Understanding logistics
Lean manufacturing	Statistics, problem solving
6 sigma	Statistics, problem-solving, scientific method
Increased supply chain complexity	Dealing with complexity, Understanding logistics & inventory flow
Design services	CAD, Design processes, Understanding manufacturing processes
Logistics	Dealing with complexity, Understanding logistics & inventory flow

[9] These are skills that are beyond the basics - such as math, writing, basic computer knowledge, etc. – and that are generally applicable across these trends and technologies.

Kazmierski: New Reno brand: Advanced manufacturing hub?

Mike Kazmierski 9:13 p.m. PST November 15, 2014

(Photo: Andy Barron/RGJ)

The Reno-Sparks area is clearly in transition, but transition to what?

Our brand and reputation is linked to gaming and tourism, which is still an important part of our economy, but is currently less than 20 percent and not growing. What's next? What will Reno-Sparks be known for in 20 years?

If the prospect activity of the past three years is any indication, we are on track to be thought of more for our manufacturing and logistics than gaming. We are slowly gaining traction as the advanced manufacturing hub of the West — a manufacturing ecosystem that includes a significant technology component.

So why advanced manufacturing and why here?

Long before Tesla looked at us, we were making substantial progress in convincing manufacturing companies to consider Reno-Sparks for their relocation or expansion. In the past three years, we have added more than 20 manufacturing companies to the region and more than 20 of the existing manufacturing companies in the area have also expanded – all totaling more than 2,030 new jobs. That does not include the 10 manufacturing prospects that are likely to come here in the next six months and it does not include Tesla. These companies looked at many locations in the West and what they found here is unique: a strategic location, quality workforce and an environment that is cost effective and very supportive of advanced manufacturing.

Advanced manufacturing is not your father's style of manufacturing: dirty, assembly line and labor intensive. Over time, those manufacturing operations have migrated to locations where labor is inexpensive. Global competition put many of those that did not make the change out of business. The exceptions are those companies that embraced technology, significantly reducing labor costs, and thus remaining competitive.

We are seeing a wave of advanced manufacturing companies grow, or even in-source back to the U.S., as labor costs overseas increase, transportation costs rise and speed to market becomes more important. By being business friendly to these high-tech manufacturing operations, we are effective at attracting an increasing number of prospects and even companies like Tesla.

The Tesla announcement just accelerated a trend that was already taking off. Now what do we do to maintain this momentum?

The one "fly in the ointment" for our region, as we develop this new brand, is our workforce. So far, we have been successful in meeting the employee needs of our new manufacturing companies; companies like Ardagh, an advanced manufacturing company that just relocated to the region, had a grand opening last week. They make cans — yes, cans for food, etc., but they do it with almost $100 million of technology, including extensive robotics. The employees they hired are more technology based than assembly line workers and get paid accordingly.

So there you have it. We are growing in an exciting industry, one that manufactures everything from cans and unmanned aerial vehicles, to electric vehicle batteries and maybe even electric cars. However, we will not succeed in our transformation to the advanced manufacturing hub of the West, unless we first transform our attitude and our education system to focus on science, technology, engineering and math (STEM), an investment in the workforce of the future: our kids and grandkids.

California Community Colleges Offer Technical Education for Rewarding Careers

COLLEGE OF THE CANYONS

Robotic Arc Welding

One of many California Community College programs that offer effective industry-based training that prepares students for employment.

What could you do as a Robotic Arc Welding Operator or Technician?

- Manufacture energy saving solar panels
- Fabricate aerospace parts that will be sent into orbit
- Weld pipes to transport irrigation water to grow food
- Produce implantable medical devices that enhance lives
- Construct subassemblies that will be used in high-rise buildings

Earn a Certificate of Specialization in Robotic Welding Automation, or an AS degree in Welding Technology with a Robotic Welding Automation option.

Learn more at:
www.canyons.edu

Ignite Your skills

Use the latest, most advanced technology in a multi-million dollar lab to spark your career in robotic arc welding at College of the Canyons, located in Santa Clarita. Learn how to program and operate six-axis Gas Metal Arc Welding (GMAW) robotic fixed cell systems to fabricate and weld projects. Develop and reinforce your GMAW welding skills using state-of-the art virtual reality welding trainers. The skills you acquire using industry standardrobotic welding equipment will prepare you for FANUC CERT industry recognized certifications.

Benefit from the training you'll get in the only credentialed robotic welding training program at a California Community College. Learn from instructors who are industry experts and gain advantages from the outstanding reputation of this 30-year-old welding program and certification test site.

> ***Class projects are based on industry applications to prepare graduates for employment.***

Find Your Opportunity

Whether you are an experienced welder adding automated skills to advance your career or starting out, there are no prerequisites and College of the Canyons can prepare you to succeed. Annual salaries can range from $40,000 to $100,000 depending on the application and amount of experience.

Robotic arc welding operators/programmers work in aerospace, automotive, construction, fabrication, shipbuilding, piping, manufacturing, boiler, petrochemical and heavy equipment industries.

Get the job training that California industries need at your local community college.

FIND INDUSTRY SPECIFIC TECHNICAL TRAINING AT COMMUNITY COLLEGES

To locate programs at other California Community Colleges,

1. **Go to: www.californiatechedresources.org**
2. **Select: CC Technology Programs**
3. **Under school programs, select from over 60 technical subjects. Click the plus sign to get a listing of colleges offering programs in that subject.**
4. **Use the map to find programs near you.**

California Community Colleges Industrial and Technical Education Collaborative

Learn more at:
www.cccindustrialtech.org
www.californiatechedresources.org

This activity is conducted by the Federal [illegible] Funding Statewide Leadership Collaborative for Industrial and Technical Education Grant [illegible] and funded in part by the Chancellor's Office, CA Community Colleges

ROBOTIC EDUCATION CELL PROMO

Share Tweet Email

Jul 15, 2014 12:00 AM to Oct 31, 2014 12:00 AM

Lincoln Electric

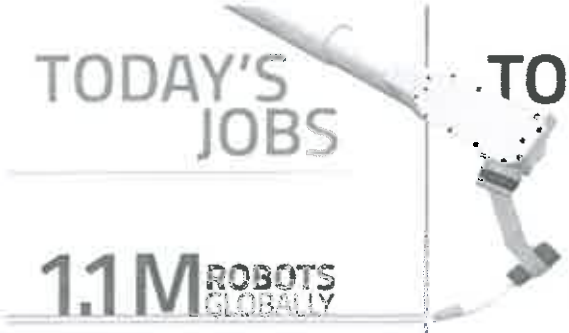
The Right Skills for **Tomorrow's Students**

Jobs are changing. The level of technology is increasing – using more robotic automation. Employers have higher expectations on employee skills. The Robotic Education Cell is the right tool to expand your student's skill level to include robotic training. This mobile, ready-to-go package can be used to teach welding and offline programming. It supports instruction for a number of advanced manufacturing careers.

- Technician/Programmer
- Software, Electrical, Mechanical, Manufacturing, Welding Technology and Engineering
- Offline Programming, 3D and CAD

34%

Global employers having difficulty filling positions



TODAY'S JOBS

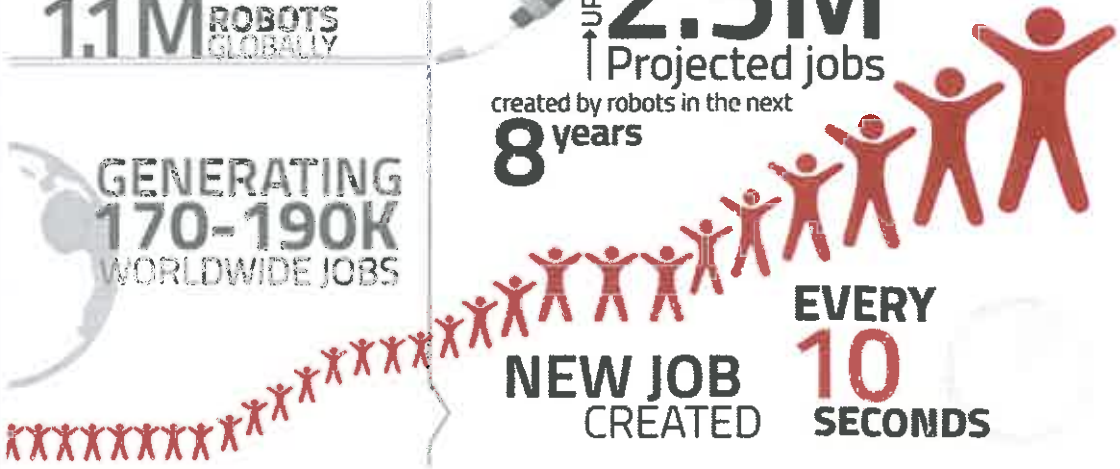
1.1M ROBOTS GLOBALLY

GENERATING **170-190K** WORLDWIDE JOBS

TOMORROW'S FUTURE

LINCOLN ELECTRIC

UP TO **2.5M** Projected jobs created by robots in the next **8** years



NEW JOB CREATED **EVERY 10 SECONDS**

Appendix:

F

Student Learning Outcome Assessment Results

Student SLO Performance by Subject and Course

Subject WT

CourseNumber	SLO	Fall 2013	Spring 2014	Fall 2014	Grand Total
20	SLO 1	100%			100%
	SLO 2		100%	87%	88%
21	SLO 1	33%			33%
	SLO 3		73%	50%	69%
22	SLO 1	100%	100%	88%	92%
23	SLO 1		100%		100%
31	SLO 1	78%			78%
	SLO 2			96%	96%
32	SLO 1		93%		93%
36	SLO 1		43%	75%	63%
	SLO 2	100%			100%
37	SLO 1	88%	50%	82%	78%
38	SLO 1		62%	100%	74%
	SLO 3	100%			100%
39	SLO 1		60%	56%	57%
	SLO 3	83%			83%
40	SLO 1	100%	0%	0%	20%
42	SLO 1	100%			100%
	SLO 2		100%	0%	80%
43	SLO 1	100%			100%
	SLO 3			100%	100%
44	SLO 1	50%	0%	100%	67%
45	SLO 1	0%	100%	100%	83%
Grand Total		86%	70%	83%	80%

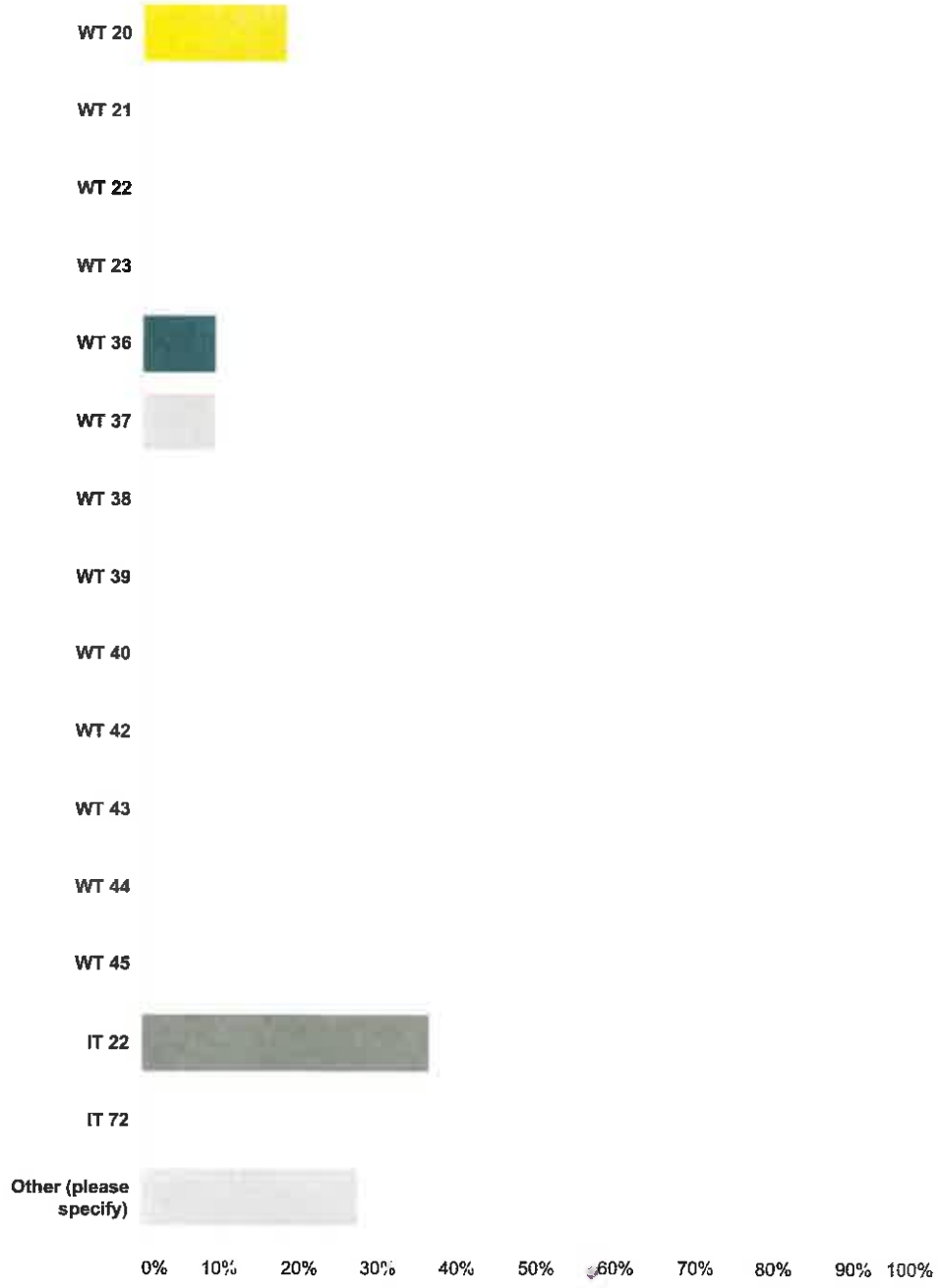
Appendix:

G

Student Evaluation Summary

Q1 Which course in this program are you reviewing?

Answered: 11 Skipped: 0



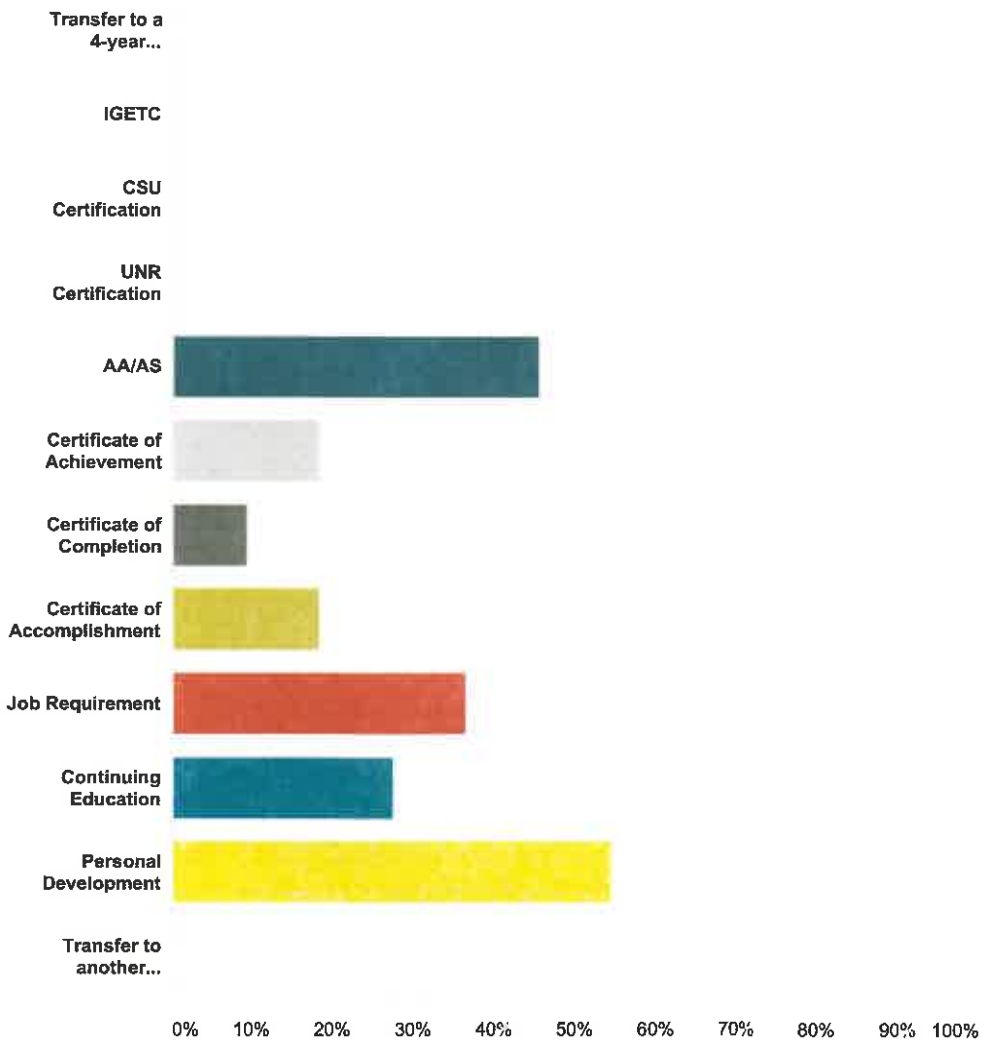
Answer Choices	Responses	
WT 20	18.18%	2
WT 21	0.00%	0

WT 22	0.00%	0
WT 23	0.00%	0
WT 36	9.09%	1
WT 37	9.09%	1
WT 38	0.00%	0
WT 39	0.00%	0
WT 40	0.00%	0
WT 42	0.00%	0
WT 43	0.00%	0
WT 44	0.00%	0
WT 45	0.00%	0
IT 22	36.36%	4
IT 72	0.00%	0
Other (please specify)	27.27%	3
Total		**11**

#	Other (please specify)	Date
1	IT-22, 72, 36, 37, 21	6/15/2015 2:54 PM
2	WT 23, WT 45	6/15/2015 2:31 PM
3	W 242, 38, 77	6/15/2015 2:22 PM

Q2 Educational Goal: What is your educational objective at Lassen Community College. (Check all that apply).

Answered: 11 Skipped: 0



Answer Choices	Responses	
Transfer to a 4-year Institution	0.00%	0
IGETC	0.00%	0
CSU Certification	0.00%	0
UNR Certification	0.00%	0
AA/AS	45.45%	5
Certificate of Achievement	18.18%	2

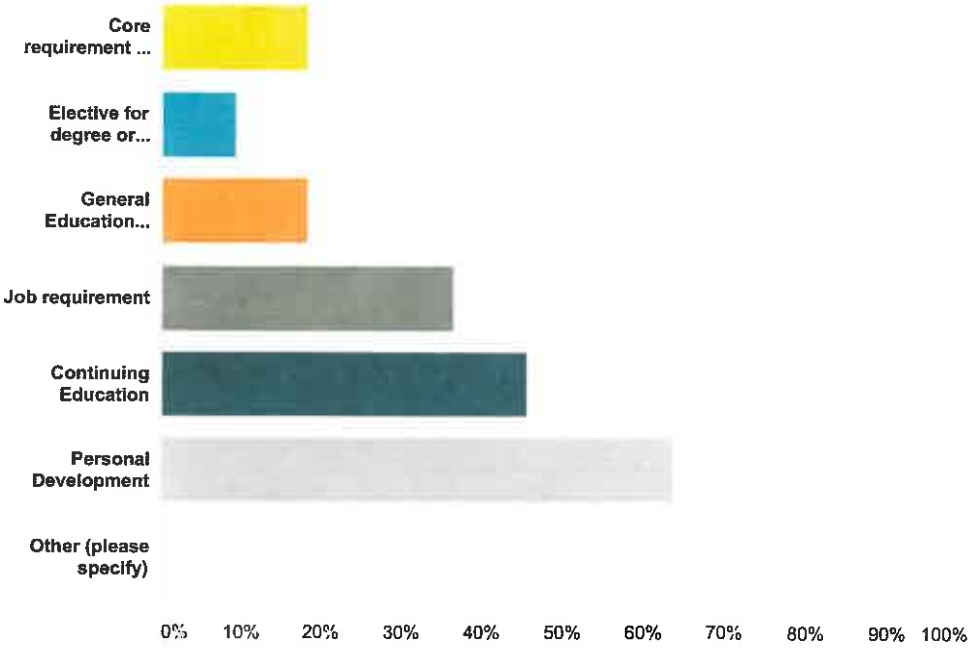
Certificate of Completion	**9.09%**	1
Certificate of Accomplishment	**18.18%**	2
Job Requirement	**36.36%**	4
Continuing Education	**27.27%**	3
Personal Development	**54.55%**	6
Transfer to another community college	**0.00%**	0

Total Respondents: 11

#	Title of degree or certificate:	Date
	There are no responses.	

Q3 Why are you taking this course?

Answered: 11 Skipped: 0



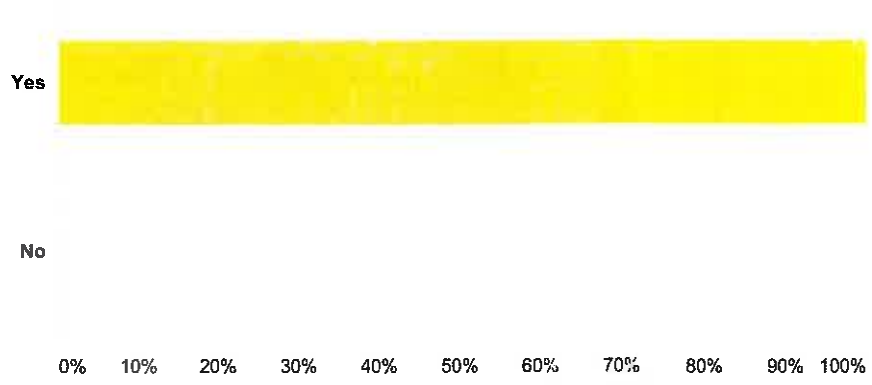
Answer Choices	Responses	
Core requirement for degree or certificate	18.18%	2
Elective for degree or certificate	9.09%	1
General Education course for degree or transfer	18.18%	2
Job requirement	36.36%	4
Continuing Education	45.45%	5
Personal Development	63.64%	7
Other (please specify)	0.00%	0

Total Respondents: 11

#	Other (please specify)	Date
	There are no responses.	

Q4 Does the course content reasonably compare with the catalog/schedule description?

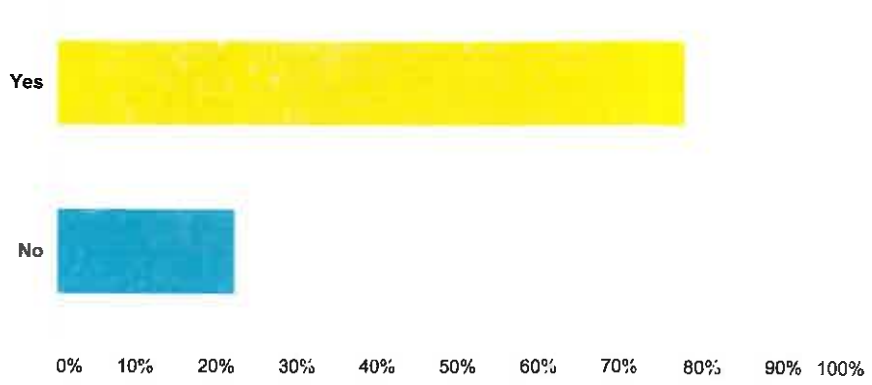
Answered: 9 Skipped: 2



Answer Choices	Responses	
Yes	100.00%	9
No	0.00%	0
Total		9

Q5 Did the catalog clearly explain the order in which the courses in this program should be taken?

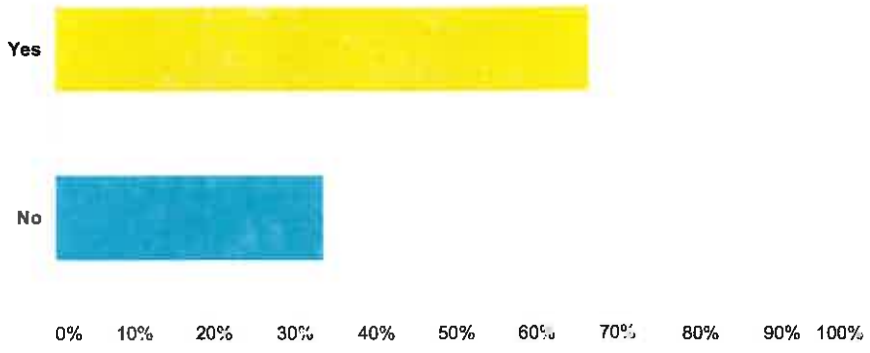
Answered: 9 Skipped: 2



Answer Choices	Responses	
Yes	77.78%	7
No	22.22%	2
Total		9

Q8 Was any cost for this course/program, beyond registration and books clearly identified in the catalog?

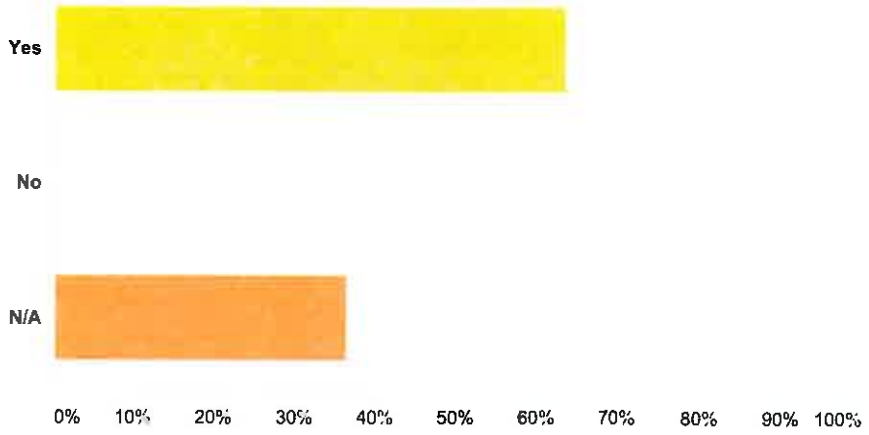
Answered: 9 Skipped: 2



Answer Choices	Responses	
Yes	66.67%	6
No	33.33%	3
Total		9

Q7 Did instructors use the required textbooks in the course?

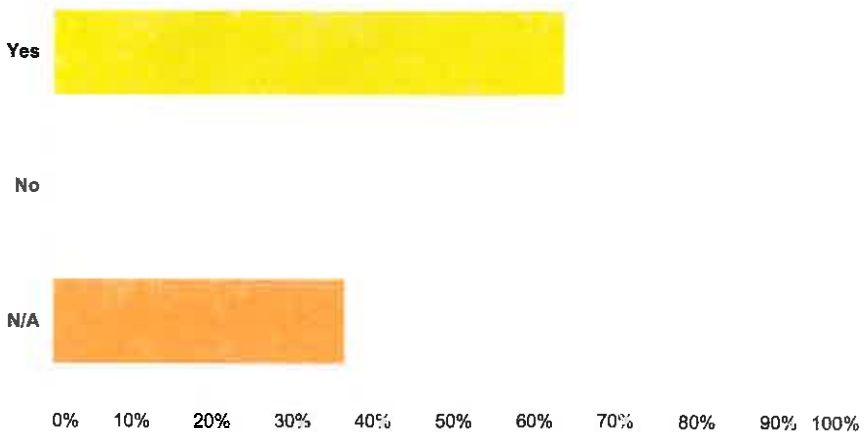
Answered: 11 Skipped: 0



Answer Choices	Responses	
Yes	63.64%	7
No	0.00%	0
N/A	36.36%	4
Total		11

Q8 Are the textbooks purchased for this course useful to you?

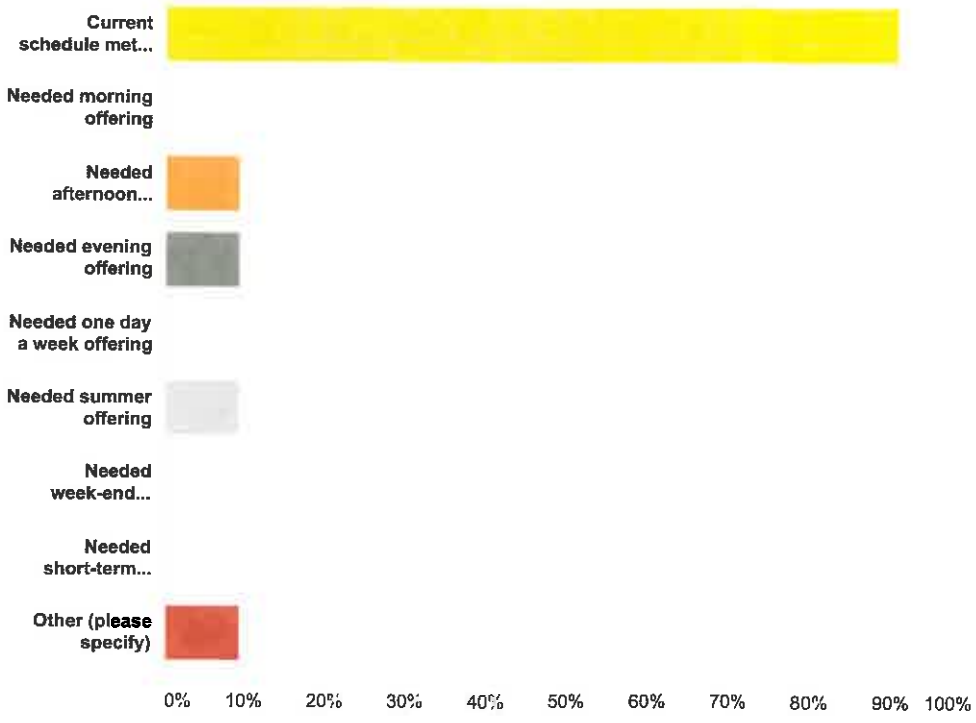
Answered: 11 Skipped: 0



Answer Choices	Responses	
Yes	63.64%	7
No	0.00%	0
N/A	36.36%	4
Total		11

Q9 Did the scheduling for this course meet your needs?

Answered: 11 Skipped: 0



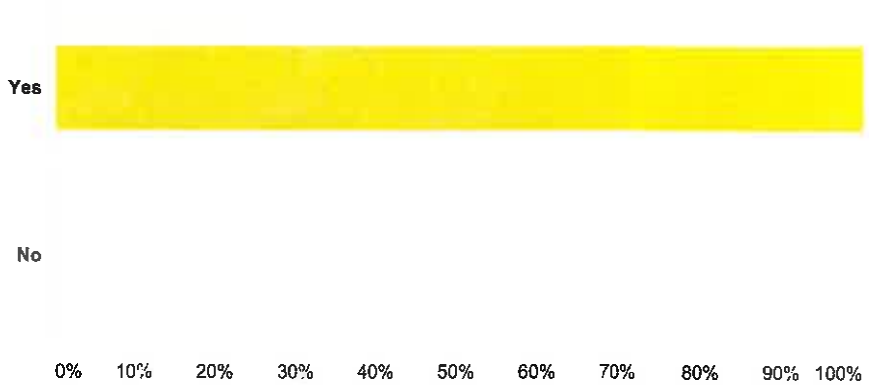
Answer Choices	Responses	
Current schedule met my needs	90.91%	10
Needed morning offering	0.00%	0
Needed afternoon offering	9.09%	1
Needed evening offering	9.09%	1
Needed one day a week offering	0.00%	0
Needed summer offering	9.09%	1
Needed week-end offering	0.00%	0
Needed short-term (less then semester) offering	0.00%	0
Other (please specify)	9.09%	1

Total Respondents: 11

#	Other (please specify)	Date
1	include Fridays	6/15/2015 2:31 PM

Q10 I was provided with reasonable access to the facilities

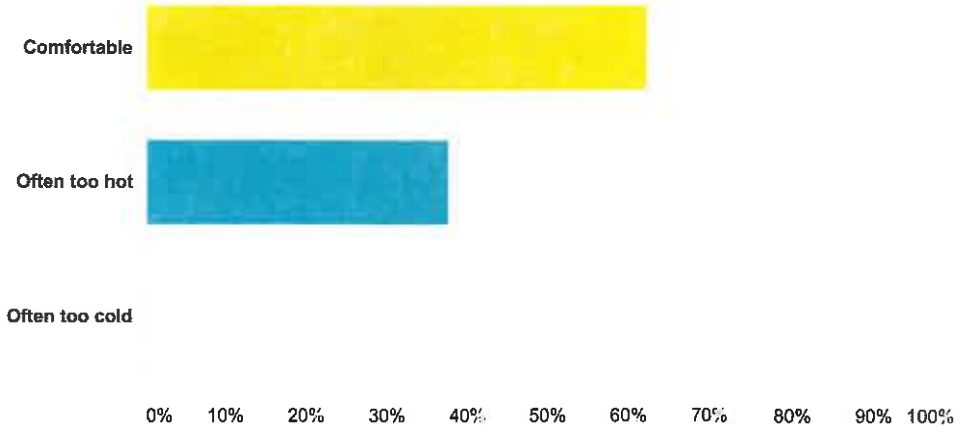
Answered: 11 Skipped: 0



Answer Choices	Responses	
Yes	100.00%	11
No	0.00%	0
Total		11

Q11 When weather is hot outside, the facilities are:

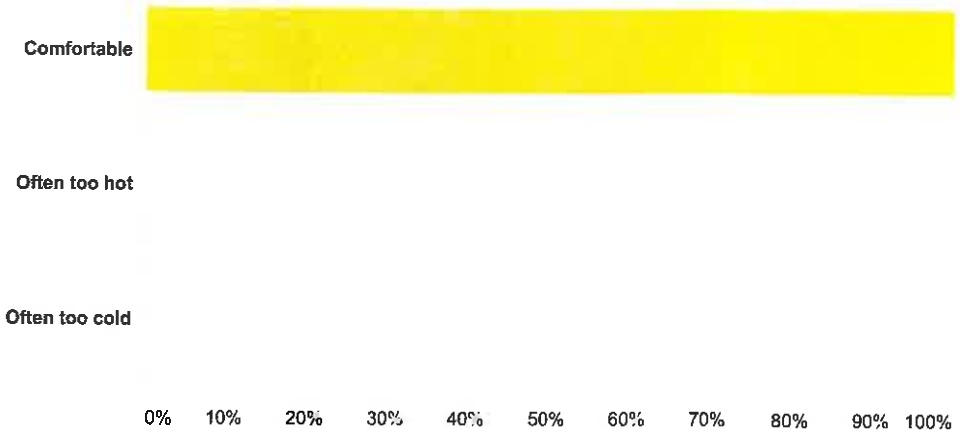
Answered: 8 Skipped: 2



Answer Choices	Responses	
Comfortable	62.50%	5
Often too hot	37.50%	3
Often too cold	0.00%	0
Total		8

Q12 When weather is cold outside, the facilities are:

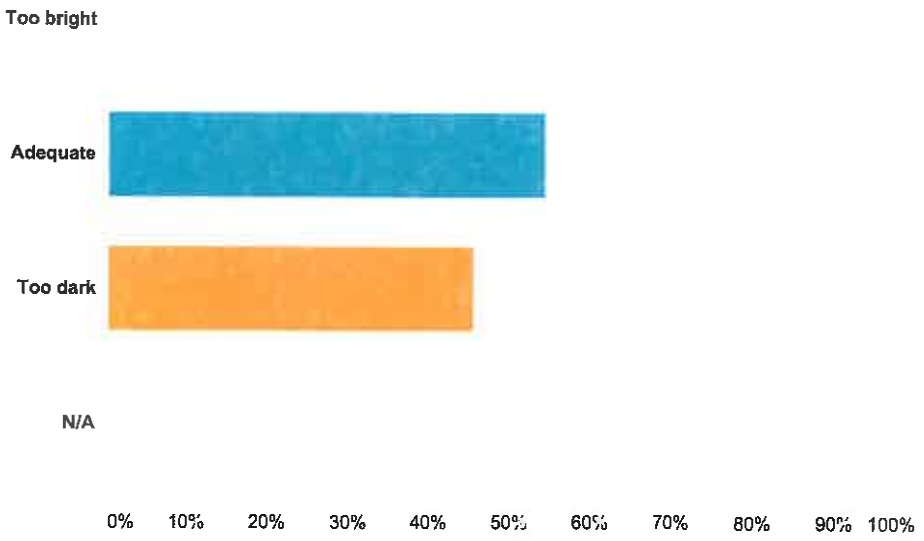
Answered: 5 Skipped: 0



Answer Choices	Responses	
Comfortable	100.00%	5
Often too hot	0.00%	0
Often too cold	0.00%	0
Total		5

Q13 The lighting of the facilities is

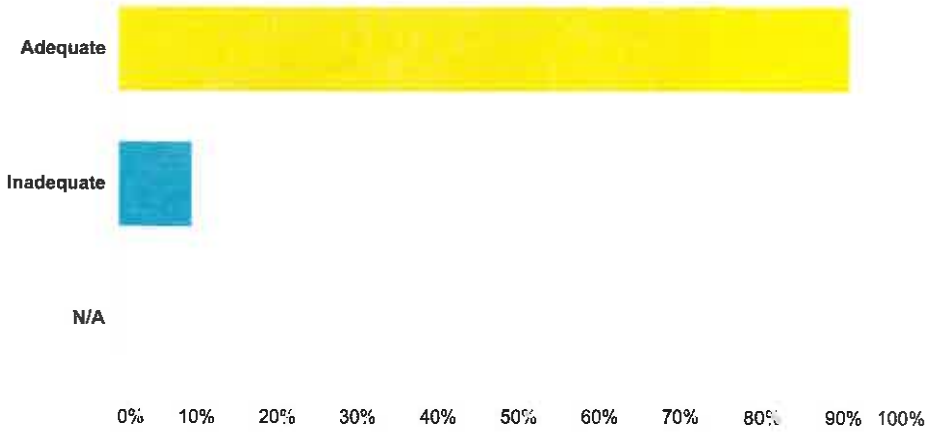
Answered: 11 Skipped: 0



Answer Choices	Responses	
Too bright	0.00%	0
Adequate	54.55%	6
Too dark	45.45%	5
N/A	0.00%	0
Total		11

Q14 The chairs/tables/desks are

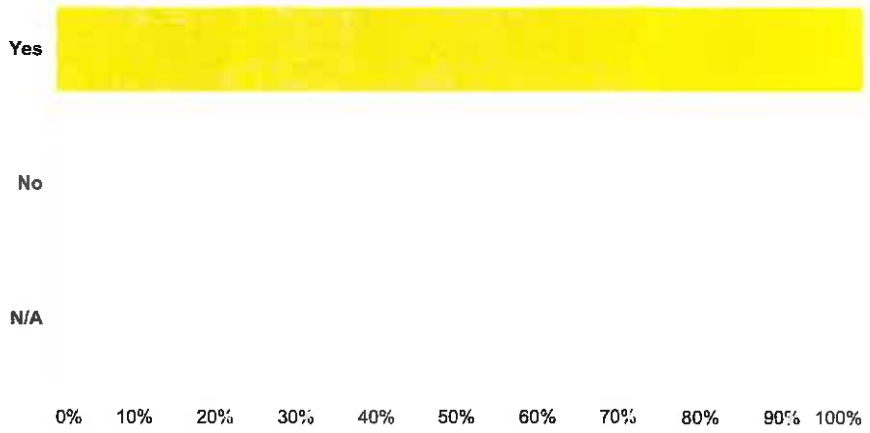
Answered: 11 Skipped: 0



Answer Choices	Responses	
Adequate	90.91%	10
Inadequate	9.09%	1
N/A	0.00%	0
Total		11

Q15 Is there enough space for you to do your work in class?

Answered: 11 Skipped: 0



Answer Choices	Responses	
Yes	100.00%	11
No	0.00%	0
N/A	0.00%	0
Total		11

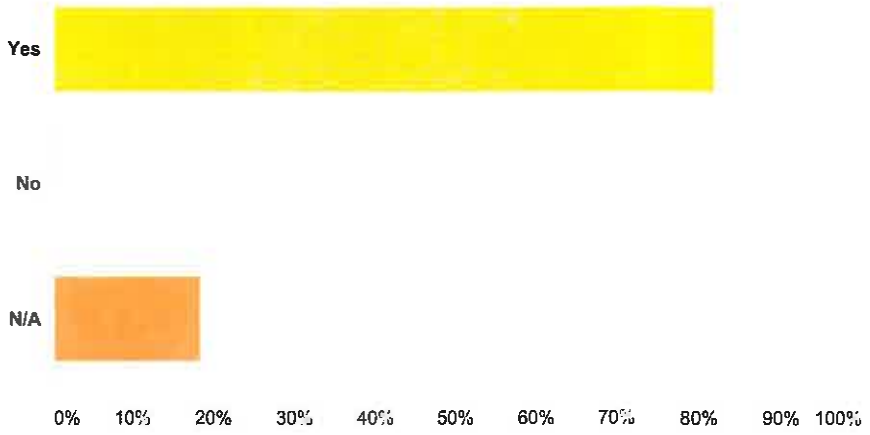
Q16 Please elaborate on your responses and include any additional facilities-related comments:

Answered: 5 Skipped: 8

#	Responses	Date
1	Program is good but needs more money to stay consistent with the real world trade.	6/15/2015 2:59 PM
2	Maybe more oxy/acetylene equipment	6/15/2015 2:36 PM
3	I have been able to add a light to the booth. There's usually an option open for working space.	6/15/2015 2:34 PM
4	Depends on the work at hand as far as enough space.	6/15/2015 2:31 PM
5	Welding booths have such a great spatter buildup that the booths are no longer level. Lights are old and poor.	6/15/2015 2:28 PM

Q17 Did the course/program provide the necessary equipment?

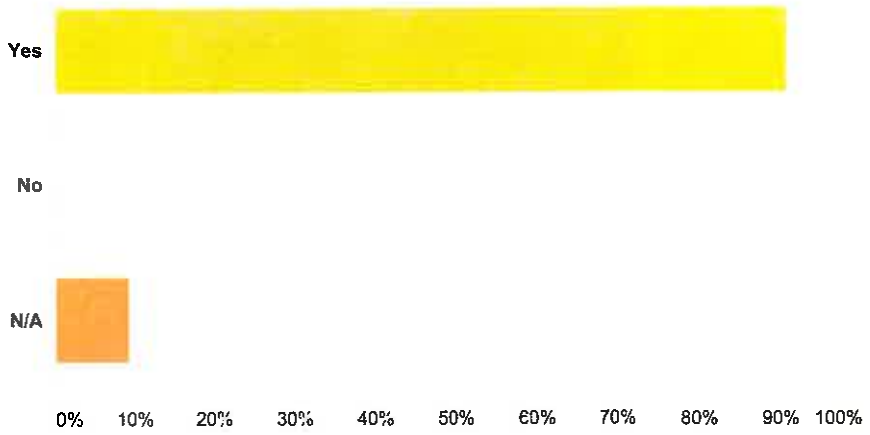
Answered: 11 Skipped: 0



Answer Choices	Responses	
Yes	81.82%	9
No	0.00%	0
N/A	18.18%	2
Total		11

Q18 Is enough time on equipment allowed for each student?

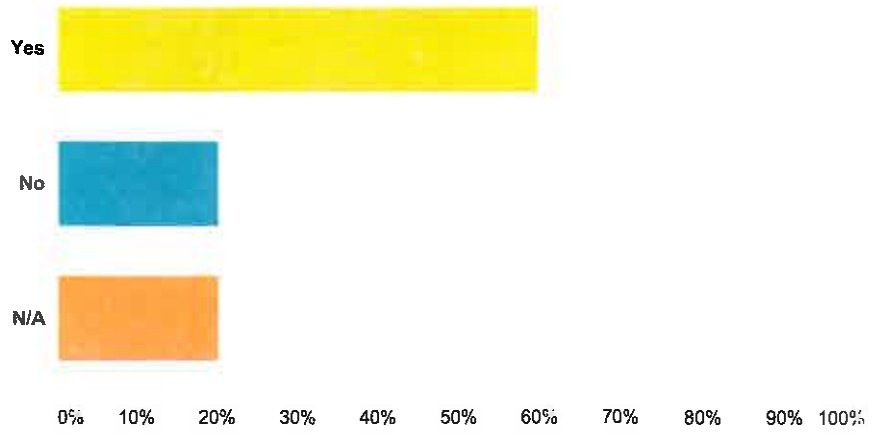
Answered: 11 Skipped: 0



Answer Choices	Responses	
Yes	90.91%	10
No	0.00%	0
N/A	9.09%	1
Total		11

Q19 Is equipment current?

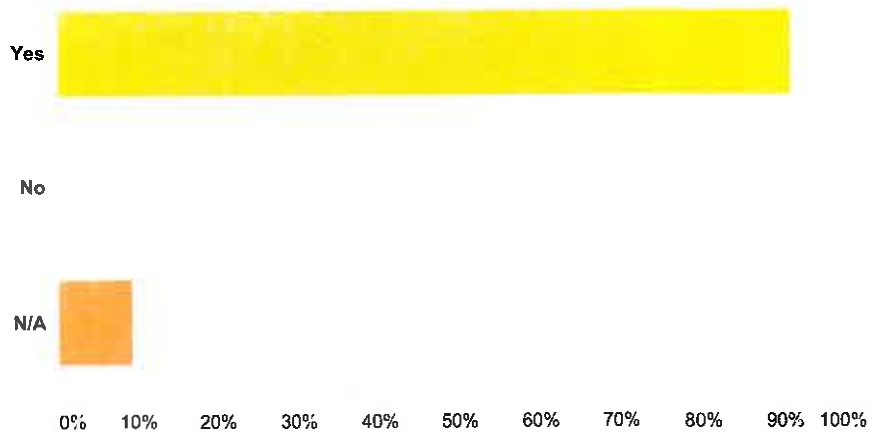
Answered: 10 Skipped: 1



Answer Choices	Responses	
Yes	60.00%	6
No	20.00%	2
N/A	20.00%	2
Total		10

Q20 Is equipment generally in good operating condition?

Answered: 11 Skipped: 0



Answer Choices	Responses	
Yes	90.91%	10
No	0.00%	0
N/A	9.09%	1
Total		11

Q21 Describe how this course/program could be improved to better meet the needs of the student at Lassen Community College.

Answered: 8 Skipped: 3

#	Responses	Date
1	More money for new machines and material	6/15/2015 2:59 PM
2	Its a pretty straight forward class. It runs about efficiently as it should	6/15/2015 2:56 PM
3	Get new welder some are old and hard to adjust Amps & volts.	6/15/2015 2:54 PM
4	More teachers to allow more hours, i.e. Friday. More options for sanding - belt sanders, not just the sanding wheel. We need to be able to repeat classes more. Some of us are slow.	6/15/2015 2:34 PM
5	Kory needs another assistant in the shop like Chad has Rocky in auto shop. Work study is unreliable.	6/15/2015 2:31 PM
6	Pipe beveler has wrong tip for metal thickness	6/15/2015 2:28 PM
7	I would only hope that more metal was available	6/15/2015 2:23 PM
8	Needs blue print classes	6/15/2015 2:22 PM

Q22 Provide any additional comments on the course or program:

Answered: 6 Skipped: 0

#	Responses	Date
1	New machines and more material	6/15/2015 2:59 PM
2	Very compelling material.	6/15/2015 2:56 PM
3	We have a great teacher! Lots of improvement has been made, especially in ventilation.	6/15/2015 2:34 PM
4	Always trust in the power of blue - miller welders.	6/15/2015 2:31 PM
5	Very good program, I learned an incredible amount in a small period of time. I learned more in four months than I have in my last four years of full-time school.	6/15/2015 2:28 PM
6	Needs blue print classes	6/15/2015 2:22 PM

Appendix:

H

Course Catalog Welding Degrees/Certificates

Welding Technology

DEGREE

Associate in Science in Welding Technology

CERTIFICATES OF ACHIEVEMENT

Welding Technology Two-Year Plan
Welding Technology One-Year Plan

CERTIFICATE OF ACCOMPLISHMENT

Welding Technology

The Welding Technology Program is designed to prepare the student with the necessary skills to acquire an entry-level position in the various industries that require the different welding processes available through the Program. The Welding Program is also designed to assist those already employed in the industry and those in the community to improve their skills. The Program offers course work in Oxyacetylene Welding (OAW), Gas Metal Arc Welding (GMAW), Shielded Metal Arc Welding (SMAW), Gas Tungsten Arc Welding (GTAW) and American Welding Society (AWS) qualifications in plate and pipe welding. The curriculum is updated with the assistance of an industry advisory committee.

As a Welding major, you will:

- Study a general welding curriculum including welding plate and pipe and qualifications in multiple welding processes to American Welding Society standards.
- Develop leadership and communication skills.
- Identify the welding careers you are most interested in and build a course of study to better qualify you to succeed in that career.

Career Options

Welding Technician
Sales
Inspection
Supervision & Management
Aerospace
Welding Engineering
Construction
Trucking & Automotive
Welding Instructor

Some positions, however require a four-year degree for which LCC's program is a good base for transfer.

Program Highlights

- Classes for beginning through advanced welders.
- Welding qualifications through the American Welding Society.
- Practical hands-on training with classroom theory.
- Short term courses.

Associate Degree and Certificate of Achievement in Welding can be completed within two (2) years.

Internships in welding are available for students interested in Work Experience opportunities.

Associate in Science Degree Welding Technology

Total Units for the Associate in Science Degree: 60 Units
Required Core Courses: 24 Units

Course No	Course Title	Units
WT 20	Power Plants and Field Pipe Welding I	3.0
WT 21	Power Plants and Field Pipe Welding II	3.0
WT 22	Power Plants and Field Pipe Welding III	3.0
WT 23	Power Plants and Field Pipe Welding IV	3.0
WT 36	Welding Theory and Practice: Oxyacetylene	3.0
WT 37	Welding Theory and Practice: Shielded Metal Arc Welding	3.0
WT 38	Welding Theory and Practice: Metal Arc Welding	3.0
WT 39	Welding Theory and Practice: Gas Tungsten Arc Welding	3.0

Required Electives: 18 Units

Course No	Course Title	Units
BUS 2	Introduction to Business	3.0
CA 31	Computer Applications I	2.0
IT 22	Operations Maintenance and Safety	1.0
IT 72	Facilities Maintenance: Welding	2.0
WT 40	Oxyacetylene Welding	3.0
WT 42	Intermediate Shielded Metal Arc Welding	3.0
WT 43	Advanced Shielded Metal Arc Welding	3.0
WT 44	Gas Metal Arc Welding	3.0
WT 45	Gas Tungsten Arc Welding	3.0

General Education Requirements: 18 Units

Program Student Learning Outcomes

Upon completion of the **Associate in Science Degree Welding Technology**, the student will be able to:

1. Demonstrate the safe setup and application of various welding and cutting processes to specific metals and joint designs, which meet or exceed industry standards and the American Welding Society Structural Welding Code, DI.1.

Certificate of Achievement: Welding Technology - Two Year

Total Units for the Two-Year Certificate of Achievement: 52 Units
Required Core Courses: 34 Units

Course No	Course Title	Units
ENGL-1	College Composition	3.0
MATH 60	Intermediate Algebra	4.0
IT 22	Operations Maintenance and Safety	1.0
IT 72	Facilities Maintenance: Welding	2.0
WT 20	Power Plants and Field Pipe Welding I	3.0
WT 21	Power Plants and Field Pipe Welding II	3.0
WT 22	Power Plants and Field Pipe Welding III	3.0
WT 23	Power Plants and Field Pipe Welding IV	3.0
WT 36	Welding Theory and Practice: Oxyacetylene	3.0
WT 37	Welding Theory and Practice: Shielded Metal Arc Welding	3.0
WT 38	Welding Theory and Practice: Metal Arc Welding	3.0
WT 39	Welding Theory and Practice: Gas Tungsten Arc Welding	3.0

Required Electives: 18 Units

Course No	Course Title	Units
BUS 2	Introduction to Business	3.0
CA 31	Computer Applications I	2.0
WT 40	Oxyacetylene Welding	3.0
WT 42	Intermediate Shielded Metal Arc Welding	3.0
WT 43	Advanced Shielded Metal Arc Welding	3.0
WT 44	Gas Metal Arc Welding	3.0
WT 45	Gas Tungsten Arc Welding	3.0

Program Student Learning Outcomes

Upon completion of the **Certificate of Achievement in Welding Technology Two-Year**, the student will be able to:

2. Demonstrate the safe setup and application of various welding and cutting processes to specific metals and joint designs, which meet or exceed industry standards and the American Welding Society Structural Welding Code, DI.1.

Certificate of Achievement: Welding Technology - One Year

Total Units for the One-Year Certificate of Achievement: 31 Units
Required Core Courses: 28 Units

Course No	Course Title	Units
ENGL 1	College Composition	3.0
MATH 60	Intermediate Algebra	4.0
IT 22	Operations Maintenance and Safety	1.0
IT 72	Facilities Maintenance: Welding	2.0
WT 20	Power Plants and Field Pipe Welding I	3.0
WT 21	Power Plants and Field Pipe Welding II	3.0
WT 22	Power Plants and Field Pipe Welding III	3.0
WT 23	Power Plants and Field Pipe Welding IV	3.0
WT 36	Welding Theory and Practice: Oxyacetylene	3.0
WT 37	Welding Theory and Practice: Shielded Metal Arc Welding	3.0

Required Electives: 3 Units

Course No	Course Title	Units
WT 40	Oxyacetylene Welding	3.0
WT 42	Intermediate Shielded Metal Arc Welding	3.0
WT 43	Advanced Shielded Metal Arc Welding	3.0
WT 44	Gas Metal Arc Welding	3.0
WT 45	Gas Tungsten Arc Welding	3.0

Program Student Learning Outcomes

Upon completion of the **Certificate of Achievement in Welding Technology One-Year**, the student will be able to:

1. Demonstrate the safe set-up and application of Oxyacetylene Cutting (OAC), Oxyacetylene Welding (OAW), Carbon Arc Cutting (CAC), Gas Tungsten Arc Welding (GTAW), Gas Metal Arc Welding (GMAW), Flux Cored Arc Welding (FCAW), and Shielded Metal Arc Welding (SMAW) to ferrous, alloy and nonferrous metals.
2. Apply the SMAW, GTAW, GMAW, and FCAW processes to steel plate and pipe that meet or exceed industry standards and the American Welding Society Structural Welding Code, DI.1.

Certificate of Accomplishment: Welding Technology

Total Units for the Certificate of Accomplishment Welding Technology: 15 Units
Required Core Courses: 15 Units

Course No	Course Title	Units
IT 22	Operations Maintenance and Safety	1.0
IT 72	Facilities Maintenance: Welding	2.0
WT 20	Power Plants and Field Pipe Welding I	3.0
WT 21	Power Plants and Field Pipe Welding II	3.0
WT 36	Welding Theory and Practice: Oxyacetylene	3.0
WT 37	Welding Theory and Practice: Shielded Metal Arc Welding	3.0

Program Student Learning Outcomes

Upon completion of the **Certificate of Accomplishment in Welding Technology**, the student will be able to:

1. Demonstrate the safe set-up and application of Oxyacetylene Cutting (OAC), Oxyacetylene Welding (OAW), Carbon Arc Cutting (CAC), Gas Tungsten Arc Welding (GTAW), Gas Metal Arc Welding (GMAW), Flux Cored Arc Welding (FCAW), and Shielded Metal Arc Welding (SMAW) to ferrous metals.

SPANISH

SPAN 1 - First Course in Spanish
4.0 units
CSU/UC/CSU GE Area C2/IGETC Area 6A
Associate Degree Area C
C-ID Span 100
Recommended Preparation: Successful completion of ENGL105 or equivalent assessment placement.
3 hours lecture/2 hours lab
This introductory course teaches beginning language acquisition in a cultural context through listening, speaking, reading and writing. The students will interact with authentic language in cultural context.

SPAN 2 - Second Course in Spanish
4.0 units
CSU/UC/CSU GE Area C2/IGETC Area 3B, 6A
Associate Degree Area C
Prerequisite: SPAN 1 First Course in Spanish
3 hours lecture/2 hours lab
A continuation of beginning Spanish in the study of the fundamentals of Spanish grammar with practice in pronunciation, understanding, speaking, reading, and writing. A more in depth presentation of Hispanic culture, geography, and history is included.

SPAN 50 - Conversational Spanish
3.0 units
Associate Degree Area C
Recommended Preparation: Successful completion of ENGL105 or equivalent assessment placement.
3 hours lecture
Designed to give students abundant practice in developing oral communication skills in Spanish. Topics providing basis for discussion and prepared talks will include everyday life situations, current events, Latin American and Spanish culture.

SPEECH

SPCH 1 - Fundamentals of Speech Communication
3.0 units
CSU/UC/CSU GE Area A1/IGETC Area 1C
Associate Degree Area D2
C-ID COMM 110
Prerequisite: ENGL 1 College Composition
3 hours lecture
Theory and techniques of public speaking in democratic society. Discovery, development, and criticism of ideas in public discourse through research, reasoning, organization, composition, presentation, and evaluation of various types of speeches including informative and persuasive speeches. This course has been approved for hybrid delivery.

TUTORING

TUTR 50 - Fundamentals of Peer Tutoring
0.5 unit
Recommended Preparation: Successful completion of ENGL105 or equivalent assessment placement.
1 hour lecture (9 weeks)
This course is designed for peer tutors working in the college tutorial center. This course will focus on the practical skills necessary to function effectively as a peer tutor in the student's chosen areas of study. Students will participate in supervised tutoring in the College's Learning Center.

VOCATIONAL NURSING

See Nursing

WELDING TECHNOLOGY

WT 20 - Power Plant and Field Pipe Welding I
3.0 units
CSU
Recommended Preparation: Successful completion of ENGL105 or equivalent assessment placement.
1 hour lecture/6 hours lab (R)
This is the first of a four-course sequence to prepare students in power plant and field welding. This course deals with shop safety, oxyacetylene cutting, air carbon arc cutting, shielded metal arc welding and pipe welding. Pipe coupons will be prepared and welded in the horizontal rolled (1G) position. American Welding Society (AWS) welding qualifications on plate and pipe will be prepared and completed. Repeatable as required for certification by the American Welding Society D1.1 Section 4.1.3. (Instructor authorization required for course repetition.)

WT 21 - Power Plant and Field Pipe Welding II
3.0 units
CSU
Recommended Preparation: Successful completion of ENGL105 or equivalent assessment placement.
1 hour lecture/6 hours lab (R)
This is the second course of a four-course sequence dealing with pipe welding, in the 2G and 5G positions, using the shielded metal arc welding process. Gas tungsten arc welding (GTAW) will be introduced to prepare the student for welding on pipe using the GTAW process. American Welding Society (AWS) welding qualifications will be prepared and completed on one inch plate in the 3G and 4G positions. Repeatable as required for certification by the American Welding Society D1.1 Section 4.1.3. (Instructor authorization required for course repetition.)

WT 22 - Power Plant and Field Pipe Welding III
3.0 units
CSU
Recommended Preparation: Successful completion of ENGL105 or equivalent assessment placement.
1 hour lecture/6 hours lab (R)
This is a fundamental class dealing with pipe welding in the 6G position using the shielded metal arc welding process. Joint designs will be performed using the gas metal arc welding and the gas tungsten arc welding process in preparation for welding root passes on pipe. Welding symbols presented and reviewed in order to enable students to interpret welding blueprints. This is the third of a four-course sequence to prepare students for power plant and field pipe welding. American Welding Society (AWS) qualifications in GTAW, GMAW, and FCAW will be prepared and completed. Repeatable as required for qualification by the American Welding Society D1.1 Section 4.1.3. (Instructor authorization required for course repetition.)

WT 23 - Power Plant and Field Pipe Welding IV
3.0 units
CSU
Recommended Preparation: Successful completion of ENGL105 or equivalent assessment placement.
1 hour lecture/6 hours lab (R)
This class deals with pipe welding in the 2G (vertical fixed) and 5G (horizontal fixed) positions using gas tungsten arc welding for the root pass and shielded metal arc welding for the fill and cover

passes. Aluminum and stainless steel welding using gas tungsten arc welding will also be covered. American Welding Society (AWS) pipe qualification will be prepared and completed in the 5G and 6G positions. Repeatable as required for qualification by the American Welding Society (AWS) D1.1 Section 4.1.3. (Instructor authorization required for course repetition.)

WT 31 – GTAW for Gunsmiths
3.0 units
CSU

1 hour lecture/6 hours lab
This course is designed to develop the manipulative skills, technical knowledge and application of the tungsten arc welding (GTAW) process as they relate to firearm repair.

WT 32 – Advanced GTAW for Gunsmiths
3.0 units
CSU

Recommended Preparation: Concurrent enrollment or credit for **WT 31 GTAW for Gunsmiths** or instructor approved work experience/classes.
1 hour lecture/6 hours lab
This course is designed to provide an opportunity for the student to further their understanding in applying the specialized gas tungsten arc welding (GTAW) process to aluminum and stainless steel as it relates to firearm repair. Students will work on the design, function and repair of gunparts and related equipment using the GTAW process.

WT 36 - Welding Theory and Practice – Oxyacetylene
1.0-3.0 units
CSU

9 hours lab (R)
This is an elective welding course where students will apply the oxyacetylene welding (OAW) and oxyacetylene cutting (OAC) processes to selected projects. This course may be taken for a total of three enrollments, not to exceed three units. This course has been approved for open entry/open exit.

WT 37 - Welding Theory and Practice-Shielded Metal Arc Welding
1.0-3.0 units
CSU

9 hours lab (R)
This is an elective welding course where students will apply the shielded metal arc welding (SMAW) processes to selected projects. This course has been approved for open entry/open exit. This course may be taken as required for certification by the American Welding Society D1.1 Section 4.1.3.

WT 38 - Welding Theory and Practice - Gas Metal Arc Welding
1.0-3.0 units
CSU

9 hours lab (R)
This is an elective welding course where students will apply the gas metal arc welding (GMAW) process to selected projects. This course has been approved for open entry/open exit. This course may be taken as required for qualification by the American Welding Society D1.1, Section 4.1.3. (Instructor Authorization Required for Course Repetition.)

WT 39 - Welding Theory and Practice - Gas Tungsten Arc Welding
1.0-3.0 units
CSU

9 hours lab (R)
This is an elective welding course where students will apply the gas tungsten arc welding (GTAW) process to selected projects. This course has been approved for open entry/open exit. This course may be taken as required for qualification by the American Welding Society D1.1, Section 4.1.3. (Instructor Authorization Required for Course Repetition.)

WT 40 - Oxyacetylene Welding
3.0 units
CSU

9 hours lab
This is a beginning elective welding course designed to develop the manipulative skills, technical knowledge and application of the oxyacetylene welding and cutting process.

WT 42 - Intermediate Shielded Metal Arc Welding
3.0 units
CSU

9 hours lab (R)
This is the second in a three course series of fundamental elective classes dealing with the shielded metal arc welding process (SMAW). Filler rods will be selected and applied to joint designs which meet industrial specifications. Repeatable as required for qualification by the American Welding Society D1.1, Section 4.1.3. (Instructor Authorization Required for Course Repetition.)

WT 43 - Advanced Shielded Metal Arc Welding
3.0 units
CSU

9 hours lab (R)
This is the last in a three-course sequence of fundamental elective classes dealing with the shielded metal arc welding (SMAW) process. Specialized filler rods will be selected and applied to joint designs which meet industrial standards. Repeatable as required for qualification by the American Welding Society D1.1, Section 4.1.3. (Instructor Authorization Required for Course Repetition.)

WT 44 - Gas Metal Arc Welding
3.0 units
CSU

9 hours lab (R)
This course is designed as an elective class to develop the manipulative skills, technical knowledge and application of the gas metal arc welding (GMAW) spray transfer process and flux core arc welding with gas (FCAW-G). The processes will be applied to recognized joint designs on ferrous materials. GMAW will also be explored in welding nonferrous materials (aluminum). Repeatable as required for qualification by the American Welding Society (AWS) D1.1, Section 4.1.3. (Instructor Authorization Required for Course Repetition.)

WT 45 - Gas Tungsten Arc Welding
3.0 units
CSU

9 hours lab (R)
This is an elective course designed to develop the manipulative skill, technical knowledge and application of the gas tungsten arc welding (GTAW) process. The process will be applied to selected joint designs on ferrous and nonferrous materials. Repeatable as required for qualification by the American Welding Society D1.1, Section 4.1.3. (Instructor Authorization Required for Course Repetition.)

WT 49A - Introduction to Welding Technology Work Experience
1.0-8.0 units
CSU
Associate Degree Area E1

Recommended Preparation: Successful completion of ENGL105 or equivalent assessment placement.
5-40 hours lab (R)
This course enables students with educational or occupational goals in Welding Technology, who are working in the field of welding to build related job specific skills through individualized learning objectives, and increase transferable workplace skills by completing a workplace success module available online or through correspondence. This course is the first course in a two course sequence. Students intially enrolling in any Work Experience course enroll in an "Introduction to" Work Experience course in their chosen discipline. Subsequent

Work Experience enrollments are in the standard Work Expereince courses not designated as "Introduction to" courses. There are no concurrent enrollment requirements for this course. Students must attend a face-to-face orientation meeting. Enrollment in Work Experience courses is limited to a maximum of 16 units, including all Vocational, Occupational and General Work Experience enrollments. Title V specifies students will earn 1 unit of credit for each 75 hours paid work, and 1 unit of credit for each 60 hours volunteer work.

WT 49 - Welding Technology Work Experience
1.0-8.0 units
CSU

Recommended Preparation Successful completion of ENGL105 or equivalent assessment placement.
5-40 hours lab (R)
This course enables students with educational or occupational goals in welding technology, who are working in the field of welding technology, to build related job specific skills through individualized learning objectives. There are no concurrent enrollment requirements for this course. Enrollment in Work Experience courses is limited to a maximum of 16 units, including all Vocational, Occupational and General Work Experience enrollments. Units are awarded based upon achievement of approved learning objectives and documentation of work hours. Title V specifies students will earn 1 unit of credit for each 75 hours paid work, and 1 unit credit for each 60 hours volunteer work.

ART 50 – Welding for Artists (Design and Fabrication)
2.0 unit

Co-requisite: ART-50 Welding for Artists (History of Welded Sculpture)
102 hours lab (R)
Students will become proficient in the use of oxy-acetylene, arc/stick, TIG, and MIG welding techniques in addition to metal cutting tools found in a welding studio. Students will also become knowledgeable with stationary tools common to a welding shop such as: breaks, shears, bench grinders, hand grinders and drills. This class will focus on welding and metal fabrication as a fine art medium.

WORK EXPERIENCE

WE 1A - Introduction to General Work Experience
1.0-8.0 units
CSU
Associate Degree Area E1

Recommended Preparation: Successful completion of ENGL105 or equivalent assessment placement.
5-30 hours lab (R)
This course consists of a program of on-the-job learning experiences, designed to assist the student in developing effectiveness on the job. Employment need not be related to a vocational or occupational major. Students are encouraged to increase transferable workplace skills by completing a workplace success module available online or through correspondence. This course is the first course in a two course sequence. Students intially enrolling in any Work Experience course enroll in an "Introduction to" Work Experience course in their chosen discipline. Subsequent Work Experience enrollments are in the standard Work Expereince courses not designated as "Introduction to" courses. There are no concurrent enrollment requirements for this course. Students must attend a face-to-face orientation meeting. Enrollment in Work Experience courses is limited to a maximum of 16 units, including all Vocational, Occupational and General Work Experience enrollments. Title V specifies students will earn 1 unit of credit for each 75 hours paid work, and 1 unit of credit for each 60 hours volunteer work.

WE 1 - General Work Experience
1.0-8.0 units
CSU

Recommended Preparation: Successful completion of ENGL105 or equivalent assessment placement.
5-30 hours lab (R)
This course consists of a program of on-the-job learning experiences designed to assist the student in developing effectiveness on the job. Employment need not be related to a vocational or occupational major. Enrollment in this course shall not exceed six units. Enrollment in Work Experience courses is limited to a maximum of 16 units, including all Vocational, Occupational and General Work Experience enrollments. Title V specifies students will earn 1 unit of credit for each 75 hours paid work, and 1 unit of credit for each 60 hours volunteer work.

WE 2A - Occupational Work Experience
1.0-8.0 units
CSU
Associate Degree Area E1

Recommended Preparation: Successful completion of ENGL105 or equivalent assessment placement.
5-40 hours lab (R)
This course enables students with educational or occupational goals related to a transfer major at another institution who are working in a position related to their transfer major, to build related job specific skills through individualized learning objectives, and increase transferable workplace skills by completing a workplace success module available online or through correspondence. This course is the first course in a two course sequence. Students intially enrolling in any Work Experience course enroll in an "Introduction to" Work Experience course in their chosen discipline. Subsequent Work Experience enrollments are in the standard Work Expereince courses not designated as "Introduction to" courses. There are no concurrent enrollment requirements for this course. Students must attend a face-to-face orientation meeting. Enrollment in Work Experience courses is limited to a maximum of 16 units, including all Vocational, Occupational and General Work Experience enrollments. Title V specifies students will earn 1 unit of credit for each 75 hours paid work, and 1 unit of credit for each 60 hours volunteer work.

WE 2 - Occupational Work Experience
1.0-8.0 units
CSU

Recommended Preparation: Successful completion of ENGL105 or equivalent assessment placement.
5-40 hours lab (R)
This course enables students with educational or occupational goals related to a transfer major at another institution and who are working in a related position, to build related job specific skills through individualized learning objectives. There are no concurrent enrollment requirements for this course. Enrollment in Work Experience courses is limited to a maximum of 16 units, including all Vocational, Occupational and General Work Experience. Units are awarded based upon achievement of approved learning objectives and documentation of work hours. Title V specifies students will earn 1 unit of credit for each 75 hours paid work, and 1 unit of credit for each 60 hours volunteer work.

Appendix:

I

Advisory Board Committee Meeting and Minutes

Lassen Community College
Welding Advisory Board Meeting
July 14, 2014

Present: Robert Bengard, Greg Blevins, Dallas Longley, Fed Nagel, Jason Wade, Ross Stevenson, Marlon Hall, Kory Konkol, Fran Oberg

Called to Order: 12:05pm

1. **Introductions**
   Tour of the shop

2. **State of the Welding Program reviewed** (see attached report)
   a. Enrollments (Pages 3,4)
   b. Curriculum – Current and future offerings (Pages 5-11)
   c. Scheduling (Pages 12-15)
   d. Equipment (Pages 16,17)
   e. Expansion – History, present and future (Pages 18,19)
   f. Improvements – Completed (Pages 20,21)

3. **Advertising reviewed** (see attached report)
   a. Marketing (Pages 22-24)
   b. Recruiting/Outreach (Pages 25,26)

4. **Recommendations – Discussion**

- Possibility of offering an "Intro to Welding Shop" course as a pre-requisite. Students would learn proper use of shop equipment (grinders, cutter, etc.) Could be 0.5 unit class.
- Outreach for placing students & tracking where they go after LCC.
- LCC does not believe in getting the student a job. Teaching just enough skills so students can get a specific job (for example, at PG&E) is a disservice to the student. What happens when that job ends? LCC's program is well-rounded and broad, covering 8 processes and different materials. Students will be able to get a job anywhere. LCC refers students to Alliance for Workforce Development for assistance in job searching.
- Cost of renting bottles is high. A proposal was made to purchase Argon, CO2, O2 bottles, and by doing so, there would be a considerable savings on rental fees. Approximate cost is $4500. Suggestion made to put details on paper and show amortization schedule.
- CNC plasma cutter—identify manufacturing/production applications and needs. TorchMate in Reno could be a source to purchase the equipment. TorchMate offers curriculum to operate their equipment, which we can offer a future class/training around.

- Possibility of becoming an AWS testing facility was discussed. Currently we offer qualifications, not certification. AWS certifications are good in all of the US and in some other countries. It might translate into increased enrollment. We would have to bring in another Certified Welding Instructor. AWS requires a quality assurance program in place. Konkol has begun writing a Quality Assurance Manual. Because of his increased teaching load, the manual is coming along slowly. Konkol will be visiting Weber State College in the near future. They have recently become a testing facility. Konkol will ask about their experience and cost/benefit analysis.
- Robby Schmidt has been brought on to teach the Gunsmithing Welding classes.
- We do have high school students taking our classes. 3 units of LCC credit equates to 10 units of high school credit.
- Fred Nagle stressed the importance of students understanding structural strength, layout principles and blueprint reading. Currently, the pipe welding class does teach how to read blueprints as they relate to welds. IT-72 is the only class for "real world" projects, teaching welding in different positions, outside and off the ground. Curriculum would need to be developed to add the topics Nagle suggested. Possibly bump IT-22 to a 2 unit class to include new topics. Nagle to email Konkol with ideas for curriculum additions.
- We currently have IT-22 that covers safety (OSHA, EPA, lockout, tagout, eye safety, welding fumes, etc.) There is still a need for developing an "Intro to Welding Shop" as mentioned above.
- There is a limit to how far the shop can expand. The issue is the max out for the electrical source. A suggestion was to look at the Maintenance shop next door. If they are not using their electricity to capacity, it would be easy to move some underground to welding. In addition, it is possible to split down the Gunsmithing stations. The new facilities manager Greg Collins should be contacted for his input.
- A database is needed to track placement of welding students. Konkol has set up a Facebook account and has students friend the shop. Whatever database we decide to use, it should list where students are working and how much they make. It needs to be accurate.
- We need to use the Advisory Committee members to help employers reach out. Butte College has PG&E a partner/prospective employer.
- One of our biggest problems is that we can't find instructors. Another problem is that the state measures success rate by how many students complete a welding degree. We believe success is

having the students learn skills to be proficient enough to get a job. Many times, that does not mean completing a degree or certificate.

- Industry is de-emphasizing use of 5/32" SMAW electrodes. It is good for students to know, but industry is going to 1/8" and 3/32" electrodes. The proposal for new curriculum for WT-42 is to take out 5/32" and replace it with open root using Gas Tungsten Arc Welding (GTAW) in different positions.
- Is there still a need for WT-43? By changing WT-43 to GTAW open root on plate, we would provide exposure to real world applications and industry needs
- Discussion on how class progression works. Can requirements for the 1 year certificate be cut back or changed so that requirements are still met but students actually finish in 1 year?
- Wade noted that sales from stick are decreasing. More welding has gone to wire. Stick is still a necessity but not as prevalent.
- Weld quality for qualifications are the same as certifications, with the difference being, certifications are on file with AWS.
- Sierra Army Depot is interested in welding qualification tests on aluminum. Konkol states that a welding procedure specification (WPS) needs to be created prior to offering the test. Konkol says there's an option to subscribe to WPS America to obtain WPS needed. WPS's are also needed to become an AWS testing facility.

Meeting adjourned at 2:00 p.m.

Appendix:

J

FTE Data

Welding Technology Program FTES

	2010-11				2011-12				2012-13				2013-14				2014-15			
Course	Sumr	Fall	Sprg	Total	Sumr	Fall	Sprg	Total	Sumr	Fall	Sprg	Total	Sumr	Fall	Sprg	Total	Sumr	Fall	Sprg	Total
IT 22							0.1	0.1			0.2	0.2			0.2	0.2			0.3	0.3
IT 72	0.8	1.9	4.6	7.3	0.8	2.0	2.0	4.8			1.2	1.2			0.6	0.6			2.5	2.5
WT 20		2.8	4.0	6.8		2.3	3.7	6.1		4.0	2.3	6.3		4.0	0.7	4.7		4.0	2.1	6.1
WT 21		0.2	1.9	2.1		1.2	2.1	3.3		0.7	1.2	1.9		1.0	2.6	3.5		0.5	1.4	1.9
WT 22		0.2	0.5	0.7		0.7	0.5	1.2		0.5	0.2	0.7		0.7	0.2	0.9		1.9		1.9
WT 23		0.9		0.9			0.7	0.7		0.2	0.7	0.9		0.2	0.9	1.2			0.5	0.5
WT 31														2.9		2.9		5.4		5.4
WT 32															4.1	4.1			5.1	5.1
WT 36	0.1	1.1	2.7	3.9	0.1	1.5	0.7	2.4	0.2	0.5	0.3	1.1		0.9	0.9	1.8		1.2	0.9	2.1
WT 37		0.3	2.6	3.0	0.4	1.5	1.5	3.4	0.1	0.9	1.3	2.3		0.8	0.3	1.1		1.7	1.0	2.7
WT 38	0.3	0.5	1.1	1.8	0.7	2.1	1.9	4.7	0.6	0.7	1.3	2.6		0.5	1.0	1.5		0.6	1.3	1.9
WT 39		0.6	1.4	1.9	0.1	1.1	1.2	2.4	0.0	0.3	0.6	0.9		0.7	0.5	1.2		1.2	0.8	2.1
WT 40		1.8	1.2	3.0	0.3	0.6	2.2	3.1		0.1	0.0	0.1		0.1	0.2	0.3		0.1	0.1	0.2
WT 41	0.6	0.3		0.9																
WT 42	0.3	0.3		0.6	0.3	0.3	0.9	1.5		0.1	0.3	0.3		0.3	0.4	0.7		0.0	0.7	0.7
WT 43	0.3	0.3		0.6		0.3		0.3	0.0			0.0		0.1		0.1		0.5	0.4	0.8
WT 44	0.3	0.9	1.2	2.4		0.6	0.8	1.4	0.3	0.4	0.2	0.8		0.1	0.0	0.1		0.2	0.1	0.3
WT 45	0.6	1.2	2.1	3.9		0.9	0.6	1.5	0.3		0.4	0.7		0.0	0.4	0.4		0.2	0.5	0.6
Grand Total	**3.2**	**13.4**	**23.1**	**39.8**	**2.7**	**15.1**	**18.9**	**36.6**	**1.5**	**8.3**	**10.2**	**20.1**		**12.2**	**13.0**	**25.2**		**17.4**	**17.7**	**35.1**

Welding Technology Program FTES by Time of Day

Time of Day	Subject	2009-10				2010-11				2011-12				2012-13				2013-14			
		Sumr	Fall	Sprg	Total	Sumr	Fall	Sprg	Total	Sumr	Fall	Sprg	Total	Sumr	Fall	Sprg	Total	Sumr	Fall	Sprg	Total
Not Evening	IT 22							0.1	0.1			0.2	0.2			0.2	0.2			0.3	0.3
	IT 72	0.8	1.9	4.6	7.3		2.0	2.0	4.0			1.2	1.2			0.6	0.6			2.5	2.5
	WT 36	0.1	1.1	2.7	3.9	0.1	1.5	0.7	2.4	0.2	0.5	0.3	1.1		0.9	0.9	1.8		1.2	0.9	2.1
	WT 37		0.3	2.6	3.0	0.4	1.5	1.5	3.4	0.1	0.9	1.3	2.3		0.8	0.3	1.1		1.7	1.0	2.7
	WT 38	0.3	0.5	1.1	1.8	0.7	2.1	1.9	4.7	0.6	0.7	1.3	2.6		0.5	1.0	1.5		0.6	1.3	1.9
	WT 39		0.6	1.4	1.9	0.1	1.1	1.2	2.4	0.0	0.3	0.6	0.9		0.7	0.5	1.2		1.2	0.8	2.1
	WT 40					0.3		0.1	0.4		0.1	0.0	0.1		0.1	0.2	0.3		0.1	0.1	0.2
	WT 41	0.6			0.6																
	WT 42	0.3			0.3	0.3			0.3		0.1	0.3	0.3		0.3	0.4	0.7		0.0	0.7	0.7
	WT 43	0.3			0.3										0.1		0.1		0.5	0.4	0.8
	WT 44	0.3			0.3			0.2	0.2		0.4	0.2	0.5		0.1	0.0	0.1		0.2	0.1	0.3
	WT 45	0.6			0.6			0.0	0.0			0.4	0.4		0.0	0.4	0.4		0.2	0.5	0.6
	Total	3.2	4.4	12.3	20.0	1.9	8.2	7.7	17.8	1.0	3.0	5.8	9.7		3.4	4.5	8.0		5.7	8.6	14.3
Evening	IT 72					0.8			0.8												
	WT 20		2.8	4.0	6.8		2.3	3.7	6.1		4.0	2.3	6.3		4.0	0.7	4.7		4.0	2.1	6.1
	WT 21		0.2	1.9	2.1		1.2	2.1	3.3		0.7	1.2	1.9		1.0	2.6	3.5		0.5	1.4	1.9
	WT 22		0.2	0.5	0.7		0.7	0.5	1.2		0.5	0.2	0.7		0.7	0.2	0.9		1.9		1.9
	WT 23		0.9		0.9			0.7	0.7		0.2	0.7	0.9		0.2	0.9	1.2			0.5	0.5
	WT 31														2.9		2.9		5.4		5.4
	WT 32															4.1	4.1			5.1	5.1
	WT 40		1.8	1.2	3.0		0.6	2.1	2.7												
	WT 41		0.3		0.3																
	WT 42		0.3		0.3		0.3	0.9	1.2												
	WT 43		0.3		0.3		0.3		0.3	0.0			0.0								
	WT 44		0.9	1.2	2.1		0.6	0.6	1.2	0.3			0.3								
	WT 45		1.2	2.1	3.3		0.9	0.6	1.5	0.3			0.3								
	Total		9.0	10.8	19.8	0.8	6.9	11.2	18.9	0.6	5.4	4.4	10.4		8.7	8.5	17.2		11.7	9.1	20.8
Grand Total		**3.2**	**13.4**	**23.1**	**39.8**	**2.7**	**15.1**	**18.9**	**36.6**	**1.5**	**8.3**	**10.2**	**20.1**		**12.2**	**13.0**	**25.2**		**17.4**	**17.7**	**35.1**

Appendix:

K

Welding Technology Program Class Schedules

Instructor Name: Kory Konkol –WELDING Semester: Spring 2015
OFFICE NUMBER TR203A

	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
8 am – 9 am						
9 am – 10 am	WT 36-39 WT 40-45 Lab 9:00 Konkol	IT-22 3/17 - 5/21 9:30-10:20 Konkol	WT 36-39 WT 40-45 Lab 9:00 Konkol	IT-22 3/17 - 5/21 9:30-10:20 Konkol		
10 am – 11 am	WT 36-39 WT 40-45 Lab	IT-22	WT 36-39 WT 40-45 Lab	IT-22		
11 am – 12 pm	WT 36-39 WT 40-45 Lab	IT-72 1/29 – 5-21 11:00-2:20 Konkol	WT 36-39 WT 40-45 Lab	IT-72 1/29 – 5-21 11:00-2:20 Konkol		
12 pm – 1 pm	WT 36-39 WT 40-45 Lab	IT-72	WT 36-39 WT 40-45 Lab	IT-72		
1 pm – 2 pm	WT 36-39 WT 40-45 Lab	IT-72	WT 36-39 WT 40-45 Lab	IT-72		
2 pm – 3 pm	WT 36-39 WT 40-45 Lab	IT-72	WT 36-39 WT 40-45 Lab	IT-72		
3 pm – 4 pm	WT 36-39 WT 40-45 Lab	Office 3:00-4:00 Konkol	WT 36-39 WT 40-45 Lab	Office 3:00-4:00 Konkol		
4 pm – 5 pm	WT 36-39 WT 40-45 Lab	WT 22 Lec 4:00-4:50 Konkol	WT 36-39 WT 40-45 Lab	WT 23 Lec 4:00-4:50 Konkol		
5 pm – 6 pm	WT 36-39 WT 40-45 Lab 5:20 Office 5:25-6:00 Konkol	WT 20 Lec 5:00-5:50 Konkol	WT 36-39 WT 40-45 Lab 5:20 Office 5:25-6:00 Konkol	WT 21 Lec 5:00-5:50 Konkol		
6 pm – 7 pm	WT 32 6:00-7:00 Lecture Schmidt	WT 20-23 Lab 6:00-8:50	WT 32 6:00-9:20 Lab Schmidt	WT 20-23 Lab 6:00-8:50		
7 pm – 8 pm	WT 32 Lab 7:00-9:20	WT 20-23 Lab	WT 32 Lab	WT 20-23 Lab		
8 pm – 9 pm	WT 32 Lab	WT 20-23 Lab 8:50	WT 32 Lab	WT 20-23 Lab 8:50		
9 pm – 10 pm	WT 32 Lab 9:20	Office 8:50-9:50 Konkol	WT 32 Lab 9:20	Office 8:50-9:50 Konkol		

Instructor Name: Kory Konkol –WELDING Semester: Fall 2015
OFFICE NUMBER TR203A

	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
8 am – 9 am						
9 am – 10 am	WT 36-39 WT 40-45 Lab 9:00-1:15 Konkol		WT 36-39 WT 40-45 Lab 9:00-1:15 Konkol			
10 am – 11 am	WT 36-39 WT 40-45 Lab		WT 36-39 WT 40-45 Lab			
11 am – 12 pm	WT 36-39 WT 40-45 Lab		WT 36-39 WT 40-45 Lab			
12 pm – 1 pm	WT 36-39 WT 40-45 Lab 1:15		WT 36-39 WT 40-45 Lab 1:15			
1 pm – 2 pm	WT 36-39 WT 40-45 Lab 1:30-5:45		WT 36-39 WT 40-45 Lab 1:30-5:45	WT-51 Blueprint Reading 1:30-3:20		
2 pm – 3 pm	WT 36-39 WT 40-45 Lab		WT 36-39 WT 40-45 Lab	WT-51 3:20		
3 pm – 4 pm	WT 36-39 WT 40-45 Lab	Office 3:00-4:00 Konkol	WT 36-39 WT 40-45 Lab	Office 3:20-4:00 Konkol		
4 pm – 5 pm	WT 36-39 WT 40-45 Lab	WT 22 Lec 4:00-4:50 Konkol	WT 36-39 WT 40-45 Lab	WT 23 Lec 4:00-4:50 Konkol		
5 pm – 6 pm	WT 36-39 WT 40-45 Lab 5:45 Office 5:45-6:45 Konkol	WT 20 Lec 5:00-5:50 Konkol	WT 36-39 WT 40-45 Lab 5:45 Office 5:45-6:45 Konkol	WT 21 Lec 5:00-5:50 Konkol		
6 pm – 7 pm	WT 31 6:00-7:00 Lecture Schmidt	WT 20-23 Lab 6:00-8:50	WT 31 6:00-9:20 Lab Schmidt	WT 20-23 Lab 6:00-8:50		
7 pm – 8 pm	WT 31 Lab 7:00-9:20	WT 20-23 Lab	WT 31 Lab	WT 20-23 Lab		
8 pm – 9 pm	WT 31 Lab	WT 20-23 Lab 8:50	WT 31 Lab	WT 20-23 Lab 8:50		
9 pm – 10 pm	WT 31 Lab 9:20	Office 8:50-9:50 Konkol	WT 31 Lab 9:20	Office 8:50-9:50 Konkol		

Appendix:

L

American Welding Society Accredited Testing Facility Checklist

Accredited Testing Facility (ATF) Program Information

(The enclosed documents provide information about the AWS Accredited Test Facility Program.)

Table of Contents

(Please scroll down to view all documents or click on the document name.)

Technical Documents

(These documents are available for downloading at the AWS website.
Please click on the document name and you will be redirected to the AWS Website.)

- **QC4-89, Standard for Accreditation of Test Facilities for AWS Certified Welder Program**
- **QC7-93, Standard for AWS Certified Welders**
  - **Supplement C- Welder Performance Qualification Sheet Metal Test Requirements**
  - **Supplement F- Chemical Plant and Petroleum Refinery Piping**
  - **Supplement G- AWS Performance Qualification Test**
- **B5.4-2005, Specification for the Qualification of Welder Test Facilities**

Steps to Becoming an ATF

1. Complete the following documents:
   - ATF Application
   - One uncontrolled copy of your facility's Quality Assurance Manual
   - QA Manual checklist*
   - On-Site Audit checklist*
   - Application Fee or P.O. Request

   Important Note: Be sure to read the requirements on the QA Manual Checklist and On-site Audit Checklist as they contain more detailed information on what is required for your QA Manual.

   Mail these completed documents to: American Welding Society Attn: Emil Pagoaga AWS Certification Department 550 N.W. LeJeune Road Miami, FL 33126

2. Following a satisfactory review of the facility's application, checklists and Quality Assurance Manual, an invoice for the applicable fees will be issued to the facility. Please click on the following link to view the current program fees: http://www.aws.org/certification/docs/schedules.html

3. Program fees, along with a copy of the invoice must be mailed to:

   American Welding Society Attn: Certification Department 550 N.W. LeJeune Road Miami, FL 33126

4. Once the program fees have been received, AWS will schedule an on-site audit of your facility by a third-party auditor.

5. When the audit is completed, the facility will receive notification of their results -- including any deficiencies requiring corrective action, and a final invoice will be issued to the facility for travel expenses incurred by the third-party auditor.

6. If the audit results are satisfactory, a certificate of conformance will be issued. The certificate allows your facility to operate in accordance with the AWS QC4-89, Standard for Accreditation of Test Facilities for the AWS Certified Welder Program.

Accredited Test Facility

Initial On-Site Audit Application

American Welding Society
550 NW LeJeune Road
Miami, FL 33126
(800 or 305)-443-9353, Ext 448
Fax (305) 443-6445

We hereby request the American Welding Society accredit the following facility as a participant in the AWS Certified Welder Program in accordance with the provisions of AWS QC4-89, *Standard for Accreditation of Test Facilities for AWS Certified Welder Program.*

APPLICANT INFORMATION

Name of Facility: _____

Facility Representative: _____

Test Supervisor(s): 1) _____ 2) _____

Corporate or Mailing Address:

Street Address: _____

City: _____ State: _____ Zip: _____

Country: _____

Testing Facility Address (If different from corporate address):

Street Address: _____

City: _____ State: _____ Zip: _____

Country: _____

Testing Facility's Contact Information:

Phone: ( ) _____ Ext: _____ Fax: ( ) _____

Email: _____

Website: _____

Accredited Test Facility

Initial On-Site Audit Application

ON-SITE AUDIT

Please allow 4-6 weeks for On-Site Audit scheduling.

Preferred Audit Dates: 1) _____ 2) _____

3) _____ 4) _____

APPLICATION FEES

☐ **Initial On-site Audit (North American Fee Schedule)*** **Fee: $2,300 USD****

**** Requires QAM and, a completed ATF Quality Manual & On-site Audit Checklists.***

***** Auditor's travel, lodging and meal expenses will be invoiced to the ATF after the audit.***

☐ **Initial On-site Audit (International Fee Schedule)*** **Fee: $1,300 USD****

**** Requires QAM and, a completed ATF Quality Manual & On-Site Audit Checklists.***

***** Auditor's fees and travel, lodging and meal expenses will be invoiced to the ATF after the audit.***

ENCLOSED MATERIALS

Quality Assurance Manual: Enclosed ☐

ATF Quality Manual & Audit Checklists: Enclosed ☐

List any past or present certifications: _____

Contact Name (Print): _____ **Date:** _____

Signature: _____ **Title:** _____

METHOD OF PAYMENT

☐ Check # _____ ☐ Bill P.O. **(Staple P.O. to front page of application)**

☐ Visa ☐ Master Card ☐ American Express ☐ Diners Club ☐ Discover

Credit Card #: | | | | | | | | | | | | | | | | Exp. Date: | | | | |

Signature: _____

AWS USE ONLY

Date Received:	Account #:	Amount: ☐ $2,300.00 (North American Fee Schedule) ☐ $1,300.00 (International Fee Schedule)

Accredited Test Facility

Initial On-Site Audit Application

Q. A. MANUAL CHECKLIST QUESTIONS 1 TO 18

(Important Note: Be sure to read the requirements on the Checklist as they contain more detailed information on what is required for your QA Manual.)

Instructions: Please answer questions 1 through 18 in the Q. A. M. Index section with the corresponding page or section number of your Quality Assurance Manual. Example:

Topic	Q.A.M. Index Section #	Auditor Review of the Manual: Sat. / Unsat.	Auditor Confirmation of Implementation: Sat. / Unsat.
17) What records are placed in the welder's file?	Section 8.1		

Topic	Q.A.M. Index Section #	Auditor Review of the Manual: Sat. / Unsat.	Auditor Confirmation of Implementation: Sat. / Unsat.
1) Does the QA Manual contain a policy statement that clearly asserts that the Test Facility will meet all requirements of codes, specifications or contract documents that they use in their activities?			
2) Specifically, are QC7 and QC4 listed?			
3) Is there an Organizational Chart that includes names of the individuals involved?			
4) Are the Facility Representative and the Test Supervisor specifically designated on the Organization Chart?			
5) Is the Test Supervisor (s) a current CWI? Is the CWI number listed?			
6) Is a single person (QA Manager, supervisor or other designee) assigned the responsibility to verify the Company policy is being complied with?			
7) Does the QA Manager have direct access to Executive Management?			
8) Are the operational and functional duties of the Facility Representative, Test Supervisor, and QA Manager clearly defined?			
9) Are general Quality Control procedures spelled out or incorporated by reference?			
10) Are written procedures and/or checklists available for specific tests or inspections?			
11) Are the written procedures spelled out or incorporated by reference?			
12) Are all required reference documents listed?			
13) Are there formal procedures for handling non-conformances?			
14) Are there procedures for dealing with technical complaints, comments and suggestions?			
15) Are subcontracting procedures defined and controlled?			
16) Are there procedures and/or checklists for documenting and reviewing test results?			
17) What records are placed in the welder's file?			
18) What records are sent to the AWS Certification Business Unit?			

Accredited Test Facility

Initial On-Site Audit Application

On-Site Audit Checklist Questions Part I to XII

(Important Note: Be sure to read the requirements on the Checklist as they contain more detailed information on what is required for your QA Manual.)

Instructions: Please answer questions 1 through 18 in the Q. A. M. Index section with the corresponding page or section number of your Quality Assurance Manual. Example:

Part II – Personnel Questions 1 to 10	Y	N	Q. A. M. Index Section #
1) Are the inspection and testing services of the Test Facility under the authority of a technical manager?			Section # 14.3

Part I – Procedures Questions 1 to 3	Y	N	Q. A. M. Index Section #
1) Procedure for procurement of materials including filler metals.			
a) Is there a written procedure?			
b) Does it include a sample purchase order?			
c) Does the P.O. require material test reports on base metal and certificates conformance on filler metals?			
d) Is the material and certifications checked on receipt?			
e) Are the mill test reports and certificates of conformance on file?			
2) Initial discussions with candidate for the certified welders Program.			
a) Is a sample application available?			
b) Is it filled out so that it may be used as a sample?			
c) Is the welder advised of the testing procedures including safety rules, fit up tolerances, and testing requirements?			
3) Please describe in a separate sheet of paper the procedure for traceability of materials. Begin with use of certified materials through welding of test coupons and visual examination, mechanical or radiographic testing, and recording of results.			
a) Is the candidate welder assigned an identification code?			
b) Is the identification code recorded on the coupon and the paper work?			
c) Does the Test Supervisor verify that certified materials are used?			
d) Is the test materials identification recorded on the test records?			
e) Is the welder identification code transferred to the bend specimens?			
f) Is the welder identification code shown on the x-ray film when radiography is used?			
Part II – Personnel Questions 1 to 10	**Y**	**N**	**Q. A. M. Index Section #**
1) Are the inspection and testing services of the Test Facility under the authority of a technical manager?			
2) Does the technical manager have at least 5 years technical experience in inspection and testing of metals or welding?			
3) Who is the Facility Representative?			
4) Are the Test Supervisors employees or contractors?			
5) Are they currently certified as CWIs under AWS QC 1?			
a) List the Test Supervisors and their Certificate numbers:			
6) If radiography is used, are the NDE personnel employees or contractors?			
7) Is ASNT Recommended Practice SNT-TC-1A followed in the qualification of NDE personnel?			
8) Are NDE results interpreted by a certified technician?			
9) Are job descriptions or job duties available for the positions described in QC4 and the organizational chart?			
10) Who performs function of "Quality Assurance Manager"?			

Accredited Test Facility

Initial On-Site Audit Application

Part III – Operations Questions 1 to10	Y	N	Q. A. M. Index Section #
1) Are written instructions and sketches available for the candidate to use in fitting the test assembly?			
2) Is the fit up inspected prior to welding? How is it documented?			
3) Are the Welding Procedures available for use by the candidate?			
4) Are written procedures or checklists available for preparation and inspection of bend specimens?			
5) Are written procedures or checklists available for testing and evaluation of bend specimens?			
6) Are radiographic acceptance criteria available to the radiographic interpreter?			
7) Are the results of the bend test or film interpretation recorded on the test records?			
8) Does the welders file consist of:			
a) The welders initial application?			
b) The welder test checklist?			
c) The bend test report or the radiographic and the radiographers report?			
d) The Performance Qualification Test Record?			
9) If welders are to be tested off site, is it covered in the QA manual?			
10) How are outside testing activities controlled?			
Part IV - Reference Documents Questions 1 to 3	**Y**	**N**	Q. A. M. Index Section #
1) Does the Test Facility maintain a library?			
2) Are there current copies of applicable Welder Qualification Codes and Standards?			
3) Does the library contain the following mandatory documents?			
a) Cert-CW-Certified Welder Application			
b) ATF WPQR Blank Form			
c) Cert-Maintenance of Welder Certification			
Qualification and Certification	**Y**	**N**	Q. A. M. Index Section #
AWS QC 1 Standard for Certification of Inspectors			
AWS QC 4 Standard for Accreditation of Test Facilities for AWS Certified Welder Program			
AWS QC 7 Standard for AWS Certified Welders (and applicable supplements)			
AWS Supplement G, AWS Performance Qualification Test			
Welding Procedure Specifications (WPS*)	**Y**	**N**	Q. A. M. Index Section #
1) Does the Test Facility maintain a list of WPSs/PQRs used for the testing of welders?			
2) Are there copies of the applicable WQTR or WPQR in the Welder's record?			
3) Are the WQTR or WPQR properly filled out?			
4) Does the library contain copies of all the WPSs/PQRs?			
5) Does the Welding Supervisor (CWI) understand these documents?			

Specification Key:

WPS= Welding Procedure Specifications
PQR= Procedure Qualification Record
WQTR= Welding Qualification Test Record
WPQR= Welding Performance Qualification Record

Accredited Test Facility

Initial On-Site Audit Application

Safety and Health	Y	N	Q. A. M. Index Section #
ASC Z49 Safety In Welding and Cutting			
Other(s) (Specify):			

Part V- General Questions 1-2	Y	N	Q. A. M. Index Section #
Are there training programs to maintain and improve skills?			
Does management review QA Program on a routine basis?			
If yes, how often?			
Who is responsible for the review?	Title:		

Part VI - Welding Tests Questions 1-6	Y	N	Q. A. M. Index Section #
1) Does the Test Supervisor have a checklist for the set-up and administration of the welding test?			
2) How is the WPS available to the candidate in the test station?			
3) Is safety equipment verified?			
4) Is material checked?			
5) Is fit-up verified?			
6) How do you verify that the test plates are not repositioned without approval?			

Part VII - Welded Test Assembly Handling Questions 1-7	Y	N	Q. A. M. Index Section #
1) Are written procedures or other methods available to define the visual inspection criteria to be applied to test assemblies?			
2) Are written procedures or other methods available to define the steps and examinations to be performed to comply with the Supplements?			
3) Are nondestructive test methods controlled by written procedures?			
4) Are contracted nondestructive testing methods properly defined in purchase orders to assure accurate testing and the application of the proper acceptance standards?			
5) Are sketches, drawings, etc. used to define the steps in performing the cutting and preparation for destructive testing (bends, nick-breaks, etc.?)			
6) Is there proper documentation as to the disposal of test specimens?			
7) Are internal nondestructive technicians trained, tested, and certified to SNT-TC-1A?			

Part VIII - Final Disposition Questions 1 to 2	Y	N	Q. A. M. Index Section #
1) What records are placed in the welders file?			
2) What records are forwarded to AWS Certification Department?			

Part IX - Welding Equipment and Controls Questions 1 to 6	Y	N	Q. A. M. Index Section #
1) SMAW			
a. Number of Units			
b. Number of AC			
c. Number of DC			
d. Number of AC/DC			
2) GMAW			
a. Number of Units			

Accredited Test Facility

Initial On-Site Audit Application

Part IX - Welding Equipment and Controls Questions 1 to 6 (Cont'd)	Y	N	Q. A. M. Index Section #
3) GTAW			
a. Number of Units			
b. Number of AC HF			
c. Number of DC			
d. Number of AC/DC			
4) FCAW			
a. Number of Units			
5) SAW			
a. Number of Units			
6) Other processes - (list each)			
Part X - Cutting Equipment Questions 1 to 4	**Y**	**N**	**Q. A. M. Index Section #**
1) OFC			
a. Number of Stations			
b. Type fuel gas utilized			
2) CAC			
a. Number of Units			
3) PAC			
a. Number of Units			
4) Mechanical cutting			
a. Mechanical			
b. Milling Machines			
c. Angle grinder			
d. Lathe			
e. Other equipment (list each)			
Part XI - Measuring & Testing Equipment Questions 1 to 6	**Y**	**N**	**Q. A. M. Index Section #**
1) Measuring/Testing Item - (For each item of equipment used in welder qualification, the following information shall be provided)			
a. Is a maintenance procedure or schedule established?			
b. Is maintenance log up to date?			
c. Does equipment appear abused?			
d. Are proper equipment records maintained?			
i. Is equipment identified?			
ii. Does it have calibration tag (if required)?			
iii. Are operating manuals available?			
e. Are calibration methods defined?			

Accredited Test Facility

Initial On-Site Audit Application

Part XI - Measuring & Testing Equipment Questions 1 to 6 (Cont'd)	Y	N	Q. A. M. Index Section #
2) Bend Testing Equipment			
a. Wrap-around fixture?			
b. Die & plunger fixture?			
c. Adjustable radius fixture?			
3) Other Testing Equipment			
a. Fillet break/nick break fixture?			
b. Tensile test machine?			
c. Impact Testing Machine?			
d. Other Testing Equipment?			
4) Other measuring equipment available: (Check all available)			
a. Tapelines			
b. Micrometers			
c. Calipers			
d. Scales			
e. Optical aids			
f. Fillet weld gauge			
g. Weld reinforcement gauge			
h. Hi-Low gauge			
I. Under-cut gauge			
5) Does facility perform any chemical tests?			
a. Mass spectrometer analysis			
b. Wet chemical method			
c. Macro Tech			
d. Are written procedures available?			
6) If the above tests are performed, are the applicable standards from AWS, ASME and ASTM available for control of procedures?			

Part XII - Records and Test Reports Questions 1 to 3	Y	N	Q. A. M. Index Section #
1) Are written procedures on file for record retention?			
2) Are records retained for the 5-year requirement per AWS QC-4-89?			
3) Are records secured?			

*** If more space is needed to answer any of the Checklist questions, please feel free to attach additional answers or relevant information to the back of this checklist.**

Accredited Test Facility

Initial On-Site Audit Application

Reviewer's Comments: (Use additional sheet for comments if needed.)

Auditor's recommendations (To be completed by Auditor):

_____ **Approve for Certification**

_____ **Submit Corrections to Auditor**

_____ **Re-Audit**

Auditor: _____ **Date** _____

A copy of this complete report shall be provided to the facility representative by the auditor.

Accredited Test Facility (ATF) Fees*

North American Fee Schedule

Initial Audit Fees	AWS Fee	Auditor Fee Paid by AWS?
Document review	$600	
Initial On-site Audit**	$1,700	Yes
Total	**$2,300**	
Additional Facilities		
Document review	$500	
Initial On-site Audit**	$1,500	Yes
Total	**$2,000**	
Yearly Renewals		
Annual 1st Year	$300	NA
Annual 2nd Year	$300	NA
Re-accreditation Audit Fee		
Document review	$500	
On-site Audit**	$1,500	Yes
Total	**$2,000**	

International Fee Schedule

Initial Audit Fees	AWS Fee	Auditor Fee Paid by AWS?
Document review	$600	
Initial On-site Audit**	$700	No***
Total	**$1,300**	
Additional Facilities		
Document review	$500	
Initial On-site Audit**	$500	No***
Total	**$1,000**	
Yearly Renewals		
Annual 1st Year	$400	NA
Annual 2nd Year	$400	NA
Re-accreditation Audit Fee		
Document review	$500	
On-site Audit**	$500	No***
Total	**$1,000**	

Fees are subject to change due to individual circumstances for each facility.

***Applicants are directly responsible for the auditor's travel expenses.*

****Auditor fees for international ATFs are as follows:*

Each Travel Day	$400
On-site Audit Fee	$800
Total Fee	(dependent on # of audit and travel days required)

Appendix:

M

Flex Activities
2013-2015

2013-14 LCCD Flex Activities Contract-Form A

Please record your completed and/or intended flex activities in detail and return to **Colleen Baker** for initial approval by **October 4, 2013.**

Name: Kory Konka

Part I. District Sponsored Activities ON Campus:

Date of Activity	Time	Title and Description	Hours	Total Hours Attended or Intended
August 15	9-10 AM	New Employee Orientation	1	
	10-11 AM	IPR/NIPR Status, Assignments, and Deadlines	1	
	3-4 PM	FERPA Regulations Made Easy	1	
	4-5 PM	Classroom Technology Training	1	
	5:30-7 PM	Adjunct and New Faculty Orientation	1.5	
	7-8 PM	Web Advisor, Report Server, Weave	1	
August 16	9-10:30 AM	Learning Styles	1.5	
	11 AM-Noon	Library Services	1	
	1-3 PM	Working Effectively with Special Needs & Difficult Students	2	
	3-4 PM	Child Abuse Prevention	1	
	4-5 PM	Adult Protective Services	1	
November 27	9 AM-4 PM	Online Training - choose from list of available topics below: **[claim 1 hour per training taken]**		
		FERPA: Confidentiality of Records	.5	
		Child Abuse: Identification & Intervention	1	
		Sexual Harassment Prevention	.5	
		Students at Risk	1	
		Veterans on Campus	1	
January 9	9-10 AM	New Employee Orientation	1	
	5:30-7 PM	Adjunct and New Faculty Orientation	1.5	
	7-8 PM	Web Advisor, Report Server, Weave	1	
January 10	8 AM-Noon	CPR	4	
	1-3 PM	Active Learning Strategies	2	
February 18 & 19	9 AM-4 PM	2 Day On Course Workshop [7 hours per day]	14	
		Part I Total Hours:		Ø

Part II. On-Campus Workshops Conducted: (Claim presentation hours x 2 for preparation.)
Example: For a 1 hour workshop, you would receive 3 hours of flex credit. [(1 hr. x 2) for prep + 1 hr. for presentation]

Add/Delete Row	Date	Workshop Title	Presentation Hours	Total Hours
+ -				Ø

Part II Total Hours:	Ø

Part III. BP4010-AP4010 work you did ON campus during Flex Days/Holidays/Spring Break/Summer:

Add/Delete Row	Date	Activity	Hours
+ -			
		Part III Total Hours:	Ø

Part IV. Individual OFF-Campus Activities: (Complete Form B for <u>each</u> OFF-campus activity.)

Add/Delete Row	Date	Title and Description	Hours
+ -	8/5/13	Weld-Ed., Welding Metallurgy, 40 hr. Class.	40
		Part IV Total Hours:	40

2013-14 LCCD Flex Activities Contract-Form A

Print Form | E-mail Form

Flex Activities **APPROVAL** Form
Please sign and return to **Colleen Baker** for approval by **October 4, 2013.**

Name: Kory Konkol

I certify that I will complete the above plan within the time line specified and that all changes will be submitted on a revised Flex Activities Contract form as an addendum to this agreement.

Total Hours Required: 35 **Total Contracted Hours:** 40

Faculty Member	Kory Konkol	**Date**	9/24/13
Flex Chair		**Date**	
EVP of Academic Services		**Date**	

2013-14 LCCD Flex Activities Contract-Form B

Print Form | E-mail Form

Individual Flex Activities **OFF** Campus

Complete, sign and return to **Colleen Baker** by **October 4, 2013.**

Use a separate form for **each** off-campus (Part IV) flex activity.

Name: Kory Konkol **Date of Activity:** 8/5-8/9/13 **Hours Claimed for This Activity:** 40

1. Describe in detail the activity to be undertaken. Include dates, location, hours involved.

Attended a week long class on welding metallurgy, the class was 40 hrs in length. Held at yuba College from 8/5-8/9/13 ~~The course is sponsored by the National Science Foundation~~.

2. Cite the specific section of Board Policy that qualifies your activity for Flex (see AP 4010).

Board Policy # 6255 "E" (Conferences, workshops, & institutional Research)

3. Specify how your activity qualifies under the above section of Board Policy.

Educational workshop on welding metallurgy that will be implemented in the classroom and labs.

I submit the above activity for approval of partial fulfillment of my 35-hour flex obligation. I understand that denial will be accompanied by a full explanation from Academic Services no later than December 13, 2013.

Faculty Member	Kory Konkol	**Date**	9/24/13
Flex Chair		**Date**	
EVP of Academic Services		**Date**	

○ Approved ○ Denied for the following reason:

2013-14 LCCD Flex Activities Contract-Form C

Print Form | E-mail Form

Flex Activities **COMPLETION** Form
Please sign and return to **Colleen Baker** at conclusion of contract, no later than **May 1, 2014.**

Name: Kory Konkol

I certify that I have completed my hourly commitment greater than or equal to the **35 hour** flex requirement.

Faculty Member	Kory Konkol	**Date**	9/24/13
Flex Chair		**Date**	
EVP of Academic Services		**Date**	

2014-15 LCCD Flex Activities Contract-Form B

Print Form | E-mail Form

Individual Flex Activities **OFF** Campus

Complete, sign and return to **Colleen Baker** by **November 5, 2014.**

Use a separate form for **each** off-campus (Part IV) flex activity.

Name: Kory Konkol **Date of Activity:** 7/28-8/1/14 **Hours Claimed for This Activity:** 40

1. Describe in detail the activity to be undertaken. Include dates, location, hours involved.

Attend Weld-Ed. Training (Design, Assembly and Robotic Welding) 7/28-8/1/14 @ Weber State University in Ogden Utah

2. Cite the specific section of Board Policy that qualifies your activity for Flex (see AP 4010).

Board policy #6255 "E" (conferences, workshops, & institutional research)

3. Specify how your activity qualifies under the above section of Board Policy.

Educational workshop on the design & assembly of welded assemblies

I submit the above activity for approval of partial fulfillment of my 35-hour flex obligation. My signature confirms that this activity will not be completed during teaching hours, office hours or counseling hours.
I understand that denial will be accompanied by a full explanation from Academic Services no later than December 10, 2014.

Faculty Member	Kory Konkol	**Date**	10/23/14
Flex Chair		**Date**	
EVP of Academic Services		**Date**	

○ Approved ○ Denied for the following reason:

2014-15 LCCD Flex Activities Contract-Form C

Print Form | E-mail Form

Flex Activities **COMPLETION** Form
Please sign and return to **Colleen Baker** at conclusion of contract, no later than **May 1, 2015.**

Name: Kory Konkol

I certify that I have completed my hourly commitment greater than or equal to the *35 hour* flex requirement. My signature confirms that this activity was not completed during teaching hours, office hours or counseling hours.

Faculty Member	Kory Konkol	**Date**	10/23/14
Flex Chair		**Date**	
EVP of Academic Services		**Date**	

Weld-Ed

National Center for Welding Education and Training

Educator's Training

Design, Assembly, and Robotic Welding

40 Professional Development Hours
4 Continuing Education Units

Certificate of Completion

PRESENTED TO

Kory Konkol

This Certificate is presented on behalf of the National Center for Welding Education and Training in recognition of your course completion on August 1st, 2014.

Duncan Estep, Center Director
Weld-Ed National Center