LAKETECH

2012 - 2013

Master Plan of Instruction
Applied Welding Technologies

John Dahler, Instructor

MISSION: Lake Technical Center's mission is to meet the educational needs of the community by offering a variety of high quality career-technical training opportunities.

charting new directions

2001 Kurt Street, Eustis, FL 32726 - (352) 589-2250

www.laketech.org

LAKE TECHNICAL CENTER
APPLIED WELDING TECHNOLOGIES

INTRODUCTION

Applied Welding Technologies is an open-entry, open-exit, competency-based welding program with program entry four times each year.

In the program orientation, students learn shop safety regulations, tool crib procedures, record keeping, and the history of welding during the orientation. The students are then given a work sheet covering the first unit in basic welding. After all students have seen a demonstration of each unit, they practice all units in basic, advanced, oxyacetylene, heli arc, and micro wire welding. Upon completion of each block of work, students review all units until they can demonstrate at least 77% proficiency in the welding of all standard joints and in all standard positions. The display board in the welding shop is the standard.

Students will be evaluated by the instructor as to their skills, ability to work safely, and their work habits (e.g., appearance, dress, attendance and compliance with school and program policies and procedures).

After completion of all program competencies, students may elect to test for code certification on plate and pipe welding.

WELDING MISSION

The mission of the Applied Welding program is to prepare students for employment or advanced training in the welding industry. This program also provides supplemental training for persons previously or currently employed in these occupations.

PHILOSOPHY

We believe in assisting the student in the development of his/her ability to get along with others, show integrity, develop safe work habits both on and off the job, evidence personal and job cleanliness and to demonstrate the ability to become a better adjusted, more productive citizen.

TEST OF ADULT BASIC EDUCATION (TABE)

All applicants for Career and Technical Education programs 450 hours or more, with the exception of Law Enforcement Officer applicants, take a state mandated TABE prior to enrollment (documented A.A., A.S., A.A.S., B.A, and B.S. degreed persons are exempt from this requirement).

According to Florida Department of Education rules, students who fail all or parts of the TABE may only retest using a different TABE version after 60 documented hours of remediation in the Applied Academics for Adult Education (AAAE) lab or three months if not attending AAAE. Students may not retake the same test version for six months. We, therefore, strongly recommend that students test early, especially for licensure programs, in order to allow time for remediation and retesting should the need arise.

Students who do not meet the minimum TABE scores set by the Florida Department of Education for their program must begin attending remediation classes in the AAAE lab prior to or at the time of enrollment in a Career and Technical Education class for at least one block a day and make acceptable progress as determined by the AAAE instructor. Students should meet state mandated TABE requirements by the time they have completed 50% of their program. Students who do not meet state mandated TABE scores may not receive a certificate of completion as per Florida Department of Education rules.

Applicants transferring TABE or CPT scores from other testing centers must do so by having an official score report sent directly to the Admissions Office prior to enrollment. Scores brought in by hand will not be accepted.

TABE scores are good for two years and must be valid at the time of enrollment. TABE scores that expire during continuous enrollment remain valid until the end of such enrollment. Under continuous enrollment, students must be enrolled at least 50% of one semester per school year and may miss no more than one consecutive semester. Continuous enrollment applies to attendance in a single program.

The required TABE exit scores for this program are: Reading, 9; Math, 9; and Language, 9.

ADMISSION REQUIREMENTS

Applicants must be at least 16 years of age and should be academically, physically, and emotionally capable of meeting the demands of the chosen program. Applicants make initial application through the Admissions Office. A minimum skills evaluation is part of the admission process.

The Applied Welding Technologies program has the following minimum admissions requirements:

1. Complete an LTC online application
2. Take the TABE
3. Meet with a counselor
4. Confer with the program instructor or department chairperson prior to actual enrollment

ESSENTIAL TRAINING TASKS

Physical Requirements

Ability to:

1. Reach.
2. Exhibit a high degree of manual dexterity.
3. Stoop.
4. Crouch and/or bend.
5. Exhibit a high degree of finger dexterity.
6. See (near acuity).
7. Lift 50 pounds or less.
8. Communicate.

Mental and Emotional Requirements

Ability to:

1. Work with others.
2. Make decisions.
3. Cope with anger/hostility of others in a calm manner.
4. Cope with moderate to high levels of stress.
5. Cope with confrontation.
6. Cope with frustration.
7. Assist with problem resolution.
8. Demonstrate a high degree of patience.
9. Plan and organize daily activities.
10. Apply common sense understanding to carry out instructions furnished in both written and oral form.
11. Tolerate moderate noise level.
12. Measure accurately.
13. Work without close, direct supervision.
14. Work on multiple tasks and priorities.
15. Perform and complete tasks of relative complexity.
16. Perform basic mathematical operations.
17. Demonstrate mechanical skills.

GENERALPROGRAM INFORMATION

Program Hours

Full-time students attend class from 8:00 AM to 2:30 PM Monday through Friday with a 30 minute lunch period. This schedule provides 6 hours of instruction each day for a total of 30 hours per five-day week, excluding holidays and school breaks as outlined in the current school calendar.

Tuition

Tuition is charged for adult students at a reasonable rate that may vary slightly from year to year and is due prior to the first day of each semester. Current fee information is available from the Admissions Office. Tuition is

waived for eligible high school dual-enrolled students. A semester lab fee is charged to cover the cost of consumable supplies welding used in the shop. Failure to pay all fees due at the time class begins will result in the student not being able to attend class and/or clinicals.

Equipment and Supplies

Students are required to purchase the following equipment, supplies, and textbooks.

- Welding helmet
- Jacket, leather sleeves with bib
- Wire brush
- Burning goggles
- Grinding goggles
- Chipping hammer
- Tape
- Gloves
- Tip cleaner
- Flint lighter
- Pocket welding guide
- 100% cotton long-sleeved shirt
- 100% cotton pants

Textbooks

- Welding Technology Fundamentals Text
- Welding Technology Fundamentals Workbook
- Blueprint Reading For Welders

Laboratory Activities

Shop or laboratory activities are an integral part of this program and provide instruction in various processes and techniques of welding and fabrication skills, including thermal cutting, Shielded Metal Arc Welding (SMAW), Gas Metal Arc Welding (GMAW), Flux Cored Arc Welding (FCAW), Gas Tungsten Arc Welding (GTAW), Certification Test Preparation, and use of current industry standards, practices and techniques.

FINANCIAL AID

Policies and guidelines for the administration of all financial aid are established according to federal and state law by a financial aid committee and published in the Financial Aid Policies and Procedures Manual. Applicants complete an information form, Free Application for Federal Student Aid, and furnish documentation needed to verify eligibility. More information on the application process may be obtained in the Financial Aid Office.

The Financial Aid Office will assist students, where possible, with access to financial support offered by federal agencies (U.S. Department of Education – Pell Grants, Department of Veterans' Affairs), other state and local agencies and local organizations (scholarships).

Financial Aid personnel are available daily to assist students with financial aid needs and requests. The Financial Aid Coordinator is also the liaison for all local agencies.

ATTENDANCE POLICY

In an effort to develop appropriate work ethics, Lake Tech students are expected to attend all class sessions. As is expected in the workplace, when it is necessary to be absent due to illness or emergency situations, all students are to notify the instructor on or before the date of absence. The student attendance policy for each postsecondary program is consistent with industry standards.

Campus attendance is kept via a computerized system. It is the responsibility of the student to **log in** and **out** in order to receive credit for class time. This allows the school to keep accurate attendance records for the actual number of hours and minutes attended.

Absences

A student who is absent for six (6) consecutive class sessions will be withdrawn from enrollment in his/her program. A student withdrawn for absenteeism must petition administration to return. Students exhibiting a

pattern of consecutive absences less than six days will be subject to dismissal as determined by a School Intervention Team.

Students in non-licensure programs must have achieved a minimum of 80% attendance at the end of each quarter. Students not having met this requirement will sign an acknowledgement that they have been notified that continued absences will pose a threat to grades and program enrollment. School Intervention Team meetings will be held as necessary to attempt to alleviate issues resulting in excessive absences and to counsel the student of possible alternatives and consequences. Students who miss more than 20% of their program will not be allowed to re-enroll the next semester and must wait until the following enrollment period to re-register. Only regularly scheduled class hours will be reported for attendance.

Licensure program attendance policies are more rigid due to licensure requirements. See the individual program Master Plan of Instruction for specifics.

Tardiness
Students are expected to be in their seats promptly in the morning, after break, and after lunch. Students must notify the instructor before the start of class of any anticipated tardiness.

Leaving Campus During School Hours
Adult students should notify their instructor when leaving campus early. This is for the safety of students and to allow the instructor to best utilize instructional resources.

GRADING PROCEDURES

Grading Scale
The grading policy for this program is as follows:

90-100	Excellent
80- 89	Passing
< 80	Failing

Lake Technical Center is a postsecondary institution designed to provide trained individuals to industry. The grading scale for this program reflects industry standards. The approved postsecondary program grading requirements must be met if the student is to receive a certificate.

In order to successfully complete the Welding Program, the student must achieve a minimum 77% passing rate.

Grades will be based on three areas:
1. Skills - production (count for 33 1/3% of the grade)
2. Knowledge - exams, quizzes, class participation (count for 33 1/3% of the grade)
3. Attitude - behavior, cooperation (count for 33 1/3% of the grade)

ACCEPTABLE DRESS

Students who attend Lake Tech shall dress in a manner appropriate for the job in which they are receiving training, including any special protective gear and professional uniforms. All clothing must be neither distracting nor offensive and be clean, neat, modest, in good repair and appropriately sized. Please refer to the Master Plans of Instruction for individual program dress code policies.

The director or designee has the final authority for determining whether or not a student's apparel conforms to the dress code. When it is determined that it does not, students will be required to change into clothing which will conform to this code or leave campus. Students may return to campus when they have changed into appropriate clothing.

Minimum Program Dress Code
1. Pants shall be worn fastened and at the waist. Pants should be dark colored, straight legged or boot cut (jeans are acceptable). Baggy pants are not permitted in any program area. Baggy pants are considered to be more than one size larger than the individual's waist. Shorts are not permitted.
2. Shoes must meet safety/industry standards. Sandals are not permitted
3. Program logo school T-shirts are to be worn.

4. Clothing should be clean and in good repair.
5. For safety reasons, shorts, loose clothing, jewelry, and loose hair below the collar are not allowed.
6. Hats are only permitted in shop areas and must meet the instructor's specifications for safety and appropriateness.

PLAN OF INSTRUCTIONAL PRACTICES

Methods of Teaching

Teaching Methods	Associated Activities
Demonstrations	Manipulative Operations
Group Instruction	Manipulative Operations/Related technology
Shop Talk	Related Information/Safety and Motivation
Individual Instruction	Manipulative Operations/Remedial Work

Teaching Aids

- DVDs
- Charts
- Transparencies

Co-operative Education

Co-operative training is available for students and coordinated by the program instructor. Co-operative training is for students who have shown competence in program training, which indicates readiness for placement in an on-the-job program. High school students participating in the co-operative job placement program must be in at least the 12th grade.

Students who do not function satisfactorily on the job may be returned to the program for additional training or when the co-operative agreement is terminated at the request of the student, the parent, the employer, or the program instructor.

Additional information regarding co-op opportunities may be obtained from the program instructor.

Veterans will be accepted into the program in accordance with the Department of Veterans Affairs policies.

Job Shadowing

Job shadowing experiences or volunteer experiences are available to students who may benefit from the experience. These experiences are designed to give the student actual hands-on experience doing a variety of welding related tasks. Length and type of experiences will vary. The program instructor determines appropriateness of the experience. Additional information regarding job-shadowing experiences may be obtained from the program instructor.

Student Job System

1. Tool Room Foreman
   a. Checks out tools
   b. Issues welding supplies

2. Safety Foreman
   a. Checks fire extinguishers
   b. Keeps safety lanes painted

3. Shop Foreman
   a. In charge of cleanup and break time
   b. Helps with student problems

JOB DESCRIPTION

The welder constructs, erects, installs, and repairs all types of metal fabrication, machine frames, pipe lines, and pressure tanks. He/she used oxyacetylene, electric and, heli arc, micro wire, plasma arc cutter, and plasma arc welding machines.

He/she studies blueprints and sketches to determine the type of electrodes and metals to use in construction and measurements required.

He/she prepares layouts using tapes, square, and straight edge and marks cutting and assembly lines on material using pencil, soapstone, and metal markers.

The work of the welder is active and sometimes strenuous, but exceptional physical strength is not required. Prolonged standing as well as climbing and squatting is often necessary. Good physical condition, eyesight, and the ability to communicate are important.

The welder works both inside and outside in heat and cold and is subject to extreme temperature changes. The work may be performed under wet or humid conditions. Job conditions may be noisy.

Welders risk injury from slips and falls, contact with sharp metal, burns, spark radiation from the arc fumes, electric shock, and grinding machines.

Welders should always have good ventilation and stay as dry as possible.

GENERAL SCHOOL INFORMATION

Campus Safety
Basic safety standards, which will include fire drills, weather drills, lockdowns, equipment usage, and traffic regulations, will be covered in the program orientation and within the program as applicable. These basic safety standards will be reinforced throughout the program enrollment. Students should immediately report any safety concerns to an instructor or administrator. Please refer to the school catalog for more campus safety information.

Competency-based Instruction
Any student who enters a LTC program with previous experience or educational background that would enable the student to successfully complete a test of competence in any area may, with the permission of the instructor, complete a test to measure that competence.

Food and Drink in Program Areas
Food and drinks other than water are not allowed in classroom and laboratory areas. Water is permitted in these areas provided it is in a closed, covered container that will not spill if the container is tipped. This is to protect the equipment and furnishings in the classroom and laboratory areas.

Leaving Campus During School Hours
All students who leave campus due to sickness or personal reasons during the scheduled class time are required to inform their program instructor.

Lunch
Food services are provided on the main campus by the Culinary Institute and are available during breaks and lunch. Adult students may leave the LTC campus during the scheduled 30-minute lunch break as long as they return to the program on time. High school students may not leave the LTC campus during the lunch break.

Parking Regulations
Students may park only in the south parking lot in spaces not designated as staff or customer service parking. For safety, loitering in or around vehicles once the vehicle is parked is not allowed and a 10 mph speed limit is enforced. In consideration of the neighbors and classes in session, loud music in vehicles on campus is prohibited.

Smoking
Smoking is only allowed in the designated smoking area. Please dispose of smoking materials in the designated containers.

PROGRAM OBJECTIVES

See the attached Florida State Department of Education Curriculum Framework for program objectives and desired competencies.

Florida Department of Education
Curriculum Framework

Program Title: **Applied Welding Technologies**
Program Type: **Career Preparatory**
Career Cluster: **Manufacturing**

	Secondary	PSAV
Program Number	8754500	I480500
CIP Number	0648050802	0648050802
Grade Level	9-12, 30, 31	30, 31
Standard Length	8 Credits	1170 Hours
Teacher Certification	WELDING @7 G METAL WORK @7 G	WELDING @7 G METAL WORK @7 G
CTSO	SkillsUSA	SkillsUSA
SOC Codes (all applicable)	51-9198, 51-4121	51-9198, 51-4121
Facility Code	245 http://www.fldoe.org/edfacil/sref.asp (State Requirements for Educational Facilities)	
Targeted Occupation List	http://www.labormarketinfo.com/wec/TargetOccupationList.htm	
Perkins Technical Skill Attainment Inventory	http://www.fldoe.org/workforce/perkins/perkins_resources.asp	
Industry Certifications	http://www.fldoe.org/workforce/fcpea/default.asp	
Statewide Articulation	http://www.fldoe.org/workforce/dwdframe/artic_frame.asp	
Basic Skills Level	N/A	Mathematics: 9 Language: 9 Reading: 9

Purpose

This program offers a sequence of courses that provides coherent and rigorous content aligned with challenging academic standards and relevant technical knowledge and skills needed to prepare for further education and careers in the manufacturing career cluster; provides technical skill proficiency, and includes competency-based applied learning that contributes to the academic knowledge, higher-order reasoning and problem-solving skills, work attitudes, general employability skills, technical skills, and occupation-specific skills, and knowledge of all aspects of the manufacturing career cluster. This program offers a broad foundation of knowledge and skills to prepare students for employment in applied welding positions.

The content includes but is not limited to planning, management, finance, technical and product skills, underlying principles of technology, labor issues, community issues and health, safety, and environmental issues.

Program Structure

This program is a planned sequence of instruction consisting of six OCP's.

When offered at the post secondary level, this program is comprised of courses which have been assigned course numbers in the SCNS (Statewide Course Numbering System) in accordance with Section 1007.24 (1), F.S. Career and Technical credit shall be awarded to the student on a transcript in accordance with Section 1001.44 (3)(b), F.S.

The following table illustrates the **PSAV** program structure:

OCP	Course Number	Course Title	Course Length	SOC Code
A	PMT0011	Welder Helper	250	51-9198
B	PMT0012	Welder, Shielded Metal Arc	250	51-4121
C	PMT0013	Welder, Gas-Metal Arc	125	51-4121
D	PMT0014	Welder, Flux Cored Arc	100	51-4121
E	PMT0015	Welder, Gas-Tungsten Arc	175	51-4121
F	PMT0016	Welder, Pipe	270	51-4121

The following table illustrates the **Secondary** program structure:

OCP	Course Number	Course Title	Length	SOC Code	Level
	8754510	Welding Technologies 1	1 credit		2
A	8754520	Welding Technologies 2	1 credit	51-9198	2
	8754530	Welding Technologies 3	1 credit		2
B	8754540	Welding Technologies 4	1 credit	51-4121	2
C	8754550	Welding Technologies 5	1 credit	51-4121	2
D	8754560	Welding Technologies 6	1 credit	51-4121	2
E	8754570	Welding Technologies 7	1 credit	51-4121	2
F	8754580	Welding Technologies 8	1 credit	51-4121	2

Laboratory Activities

Laboratory activities are an integral part of this program. These activities include instruction in the use of safety procedures, tools, equipment, materials, and processes related to these occupations. Equipment and supplies should be provided to enhance hands-on experiences for students.

Special Notes

Career and Technical Student Organization (CTSO)

SkillsUSA is the appropriate career and technical student organization for providing leadership training and reinforcing specific career and technical skills. Career and Technical Student Organizations provide activities for students as an integral part of the instruction offered. The activities of such organizations are defined as part of the curriculum in accordance with Rule 6A-6.065, F.A.C.

Cooperative Training – OJT

On-the-job training is appropriate but not required for this program. Whenever offered, the rules, guidelines, and requirements specified in the OJT framework apply.

Essential Skills

Essential skills identified by the Division of Career and Adult Education have been integrated into the standards and benchmarks of this program. These skills represent the general knowledge and skills considered by industry to be essential for success in careers across all career clusters. Students preparing for a career served by this program at any level should be able to demonstrate these skills in the context of this program. A complete list of Essential Skills and links to instructional resources in support of these Essential Skills are published on the CTE Essential Skills page of the FL-DOE website (http://www.fldoe.org/workforce/dwdframe/essential_skills.asp).

Basic Skills

In PSAV programs offered for 450 hours or more, in accordance with Rule 6A-10.040, F.A.C., the minimum basic skills grade levels required for postsecondary adult career and technical students to complete this program are: Mathematics 9, Language9, and Reading 9. These grade level numbers correspond to a grade equivalent score obtained on a state designated basic skills examination.

Adult students with disabilities, as defined in Section 1004.02(7), Florida Statutes, may be exempted from meeting the Basic Skills requirements (Rule 6A-10.040). Students served in exceptional student education (except gifted) as defined in s. 1003.01(3)(a), F.S., may also be exempted from meeting the Basic Skills requirement. Each school district and Florida College must adopt a policy addressing procedures for exempting eligible students with disabilities from the Basic Skills requirement as permitted in Section 1004.91(3), F.S.

Students who possess a college degree at the Associate of Applied Science level or higher; who have completed or are exempt from the college entry-level examination; or who have passed a state, national, or industry licensure exam are exempt from meeting the Basic Skills requirement (Rule 6A-10.040, F.A.C.) Exemptions from state, national or industry licensure are limited to the certifications listed at http://www.fldoe.org/workforce/dwdframe/rtf/basicskills-License-exempt.rtf.

Accommodations

Federal and state legislation requires the provision of accommodations for students with disabilities as identified on the secondary student's IEP or 504 plan or postsecondary student's accommodations' plan to meet individual needs and ensure equal access. Postsecondary students with disabilities must self-identify, present documentation, request accommodations if needed, and develop a plan with their counselor and/or instructors. Accommodations received in postsecondary education may differ from those received in secondary education. Accommodations change the way the student is instructed. Students with disabilities may need accommodations in such areas as instructional methods and materials, assignments and assessments, time demands and schedules, learning environment, assistive technology and special communication systems. Documentation of the accommodations requested and provided should be maintained in a confidential file.

In addition to accommodations, some secondary students with disabilities (students with an Individual Educational Plan (IEP) served in Exceptional Student Education or ESE) will need modifications to meet their needs. Modifications change the outcomes or what the student

is expected to learn, e.g., modifying the curriculum of a secondary career and technical education course. Note postsecondary curriculum cannot be modified.

Some secondary students with disabilities (ESE) may need additional time (i.e., longer than the regular school year), to master the student performance standards associated with a regular Occupational Completion Point (OCP) or a Modified Occupational Completion Point (MOCP). If needed, a student may enroll in the same career and technical course more than once. Documentation should be included in the IEP that clearly indicates that it is anticipated that the student may need an additional year to complete an OCP/MOCP. The student should work on different competencies and new applications of competencies each year toward completion of the OCP/MOCP. After achieving the competencies identified for the year, the student earns credit for the course. It is important to ensure that credits earned by students are reported accurately. The district's information system must be designed to accept multiple credits for the same course number (for eligible students with disabilities).

Articulation

The PSAV component of this program has no statewide articulation agreement approved by the Florida State Board of Education. However, this does not preclude the awarding of credits by any college through local agreements.

For details on statewide articulation agreements which correlate to programs and industry certifications, refer to http://www.fldoe.org/workforce/dwdframe/artic_frame.asp.

Bright Futures/Gold Seal Scholarship

Course substitutions as defined in the Comprehensive Course Table for this program area may be used to qualify a student for Florida's Gold Seal Vocational Scholarship, providing all other eligibility requirements are met. Eligibility requirements are available online at https://www.osfaffelp.org/bfiehs/fnbpcm02_CCTMain.aspx.

Fine Arts/Practical Arts Credit

Many courses in CTE programs meet the Fine Arts/Practical Arts credit for high school graduation. For additional information refer to http://www.fldoe.org/schools/pdf/ListPracticalArtsCourses.pdf.

Standards

After successfully completing this program, the student will be able to perform the following:

01.0 Apply basic shop skills.
02.0 Apply basic oxyfuel gas cutting principles and practices.
03.0 Apply basic shielded metal arc welding (SMAW) skills.
04.0 Apply intermediate oxyfuel gas cutting principles and practices
05.0 Demonstrate mathematics knowledge and skills.
06.0 Demonstrate science knowledge and skills
07.0 Use oral and written communication skills in creating, expressing and interpreting information and ideas.
08.0 Apply intermediate shielded metal arc welding (SMAW) skills.
09.0 Apply visual examination skills.
10.0 Apply drawing and welding symbol interpretation skill.
11.0 Identify metals.
12.0 Demonstrate arc cutting principles and practices.
13.0 Demonstrate language arts knowledge and skills
14.0 Solve problems using critical thinking skills, creativity and innovation.
15.0 Demonstrate the importance of health, safety, and environmental management systems in organizations and their importance to organizational performance and regulatory compliance.
16.0 Apply basic gas metal arc welding (GMAW) skills.
17.0 Apply intermediate gas metal arc welding (GMAW) skills.
18.0 Use information technology tools
19.0 Describe the importance of professional ethics and legal responsibilities.
20.0 Demonstrate personal money-management concepts, procedures, and strategies
21.0 Apply flux-cored arc welding (FCAW) skills.
22.0 Describe the roles within teams, work units, departments, organizations, inter-organizational systems, and the larger environment
23.0 Demonstrate leadership and teamwork skills needed to accomplish team goals and objectives
24.0 Explain the importance of employability and entrepreneurship skills
25.0 Apply basic gas tungsten arc welding (GTAW) skills.
26.0 Apply intermediate gas tungsten arc welding (GTAW) skills.
27.0 Fabricate and weld carbon steel pipe joints.
28.0 Perform fabrication using welding skills.