SHIPFITTING AND STEEL FABRICATION PROGRAM

The Shipfitting and Steel Fabrication program, available at the Jacksonville campus only, prepares students for entry level positions as Shipfitters. The core of the program includes the content identified by the Gulf States Shipbuilders Consortium (GSSC) plus additional knowledge and skills to enhance the preparation of students to work for major ship builders as well as smaller ship yards that build fishing vessels and other commercial ships. The curriculum is divided into six courses which provide the student with fundamental skills in welding procedures, ship structural layout and fitup, structural drawings, and a practicum to practice and apply the skills and knowledge learned. Each phase course is 150 instructional hours and 6 weeks in length, for a total of 36 weeks, or 8 ½ months, and 33.0 Semester Credit Hours (SCH).

Upon successful completion of all components of this program, the graduate will receive a diploma and should possess the working knowledge and skills to qualify as an entry level Shipfitter. Students should be able to successfully perform essential tasks expected at this level, with minimal supervision.

SFF 101 Shipfitting Fundamentals
SFF 102 Applied Math and Measurement
SFF 103 Ship Fabrication Drawings
SFF 104 Shipfitting Welding
SFF 105 Shipfitting II
SFF 106 Shipfitting Practicum

SFF 101 Shipfitting Fundamentals (5.5 SCH)
The Fundamentals course contains several related topics designed to provide the essential foundation for the following courses. Students begin by reviewing expected standard for work ethics as well as techniques for presenting and maintaining a positive and professional image. They then learn the overall operation of a typical ship yard and the types of career professionals that work in the yard. Ship terminology, ship fitter tools, equipment, and processes are all related and are basic to performing tasks and building their knowledge in other courses. Students begin to learn the language of ship building which provides a means for important and accurate communications. Also, students learn the names, function, and operation of related tools and power equipment. In addition, they learn to apply these tools to specific processes that result in desired outcomes. Various methods of cutting, heating, and burning are applied to hand torches and processes as well as automated cutting, heating, and beveling processes. Safe operation procedures are emphasized as students learn to cut and shape steel plate and pipe. Next they will learn the types and techniques for using rigging equipment to place prefabricated structure components of the ship.

SFF 102 Applied Math and Measurement (6.0 SCH)
Students enter post-secondary schools with a wide range of math skills. Understanding the application of mathematics functions to ship building is critical to laying out, cutting, and shaping steel structural components of the ships frame, hull, and superstructure. A review of basic math functions to add, subtract, multiply, and divide whole numbers and fractions will be provided. With this understanding students will advance to basic algebraic functions to determine unknown numerical values. They will also learn basic geometric shapes and how to calculate and measure various angles. Students will learn to identify and properly use various types of measuring devices and to correctly identify measurements to the nearest sixteenth of an inch in the English Standard measurement system or 1 millimeter in the Metric system. Students will learn to differentiate between these two measurement systems and methods for converting from one system to the other. To facilitate and reinforce a review of both, basic math and technical math functions, students will apply these skills to basic fabrication techniques. Students will use their math skills to measure distances and calculate angles in learning basic structural fabrication.

SFF 103 Ship Fabrication Drawings (6.0 SCH)
Structural drawings are a way of communicating to the Ship Fitter how the frame, hull, and superstructure are to be constructed. Working structural drawings are primarily two dimensional representations of the ship with dimensions and technical specifications that the Ship Fitter must know in order to properly fabricate the shipp components. In this course, students will first learn the standard drawing practices used to construct drawings. Such drawing conventions as layout, line designation, title block information, dimensions, and specifications will be reviewed. With this knowledge as a foundation, students will first apply their knowledge to specific symbols which identify welding procedures to be used. They will be shown how to translate symbols into specific welding tasks. Students will then learn how and why ship frames, hull, and superstructures are designed as they are and the dynamics of stresses on the hull caused by oceanic conditions. Building on the language of the Ship Fitter, they will learn about ship stability, buoyancy, stabilizers, as well as decks, holds, and compartments. Students will review actual ship structural drawings to learn about the type of information that is provided on these drawings. Students will also be introduced to “Lean Thinking” and the ISO 9001 management system. In the process they will better understand the difference between value added and non-value added activities. They will learn about fundamental time and production “wastes”, how to manage them, and methods for improving the work area. A field visit to a working ship yard will reinforce with students the basic concepts, skills, and knowledge they have learned and provide a connection between the classroom and the ship yard.
SFF 104 Shipfitting Welding (5.0 SCH)
Once Ship Fitters have placed steel framing or sheet steel into place, they apply critical tack welding procedures to hold the pieces in place prior to finish welding. To do so, Ship Fitters need to understand and correctly apply SMAW or FCAW welding techniques, depending on the application. Students learn to tack weld steel components to correct standards so the marine welder can complete the weld with no additional preparation. This process ensures the pieces have been correctly placed and allows the welder to weld at production rates. This course introduces students Shielded Metal Arc Welding (SMAW) and Flux Core Arc Welding (FCAW) processes used to weld steel plate and pipe. Students first learn about welding equipment, settings, setup, and electrodes. Once students develop control of the electrode to the base metal, they will apply this technique to flat, vertical, and overhead positions. Using both processes, students will learn to apply the proper technique for tack welding steel components to meet code standards.

SFF 105 Shipfitting II (5.5 SCH)
This course is designed to take the student to a more advanced level of ship fitting and fabrication. Students will apply all of the skills and knowledge previously learned to specific fabrication and fitting tasks. To introduce this course, students learn the various common shapes of structural steel, the characteristics of each, and how they are generally applied to construct structures. Students then learn the purpose or function of specific ship fitting aids, how to fabricate each, and how to apply them effectively. Once the use of each fitter aid is understood, students learn to apply specific alignment and fit-up techniques. In the process they learn to operate and apply various types of lifting and power hydraulic equipment to lift, align, fit, pre-heat, and tack weld a ship’s structural components. Once these operations are complete, students learn what to look for to inspect prior to final welding operations. Because aluminum has become popular in constructing a ship’s superstructure, students will spend the remainder of the course time learning to apply GTAW techniques to welding aluminum. They will learn to apply this process in the flat, vertical, and overhead positions.

SFF 106 Shipfitting Practicum (5.0 SCH)
This course is designed to allow students to apply all they have learned to a real or simulated ship fitting and fabrication experience. It reinforces all they have learned and provides an opportunity to increase production rates. Students will either fabricate or repair hull, frame, or bulkhead components on a ship simulator. It will require correctly reading and interpreting drawings, laying out and fabricating ship components, properly aligning and fitting up components, and tack welding all components in place. Instructors will supervise to ensure all safety procedures are followed and serve as advisors, but most of the activities will be implemented by students. At the conclusion of the exercise, students and instructors will inspect and evaluate the finished “product”.

ADMISSIONS POLICY- Revised
Applicants enrolling in the Pipefitting program are no longer required to take and pass an entrance exam. This is no longer a prerequisite that must be achieved prior to enrollment acceptance.

TUITION & CHARGES
The tuition and charges for the Shipfitting and Steel Fabrication program are as follows:

<table>
<thead>
<tr>
<th>Item</th>
<th>Amount</th>
</tr>
</thead>
<tbody>
<tr>
<td>Tuition</td>
<td>$15,025</td>
</tr>
<tr>
<td>Registration Fee</td>
<td>50</td>
</tr>
<tr>
<td>Lab Fees</td>
<td>715</td>
</tr>
<tr>
<td>Course Materials</td>
<td>460</td>
</tr>
<tr>
<td>Gear Package</td>
<td>342</td>
</tr>
<tr>
<td>Accident Insurance</td>
<td>252</td>
</tr>
<tr>
<td>Total Program Cost</td>
<td>$16,844</td>
</tr>
</tbody>
</table>

Military Tuition Pricing is available for the Shipfitting and Steel Fabrication. Please see page 16 of the School Catalog (page 13 of the electronic version) for more information. The price listed below does not include the additional fees as listed above and reflect tuition costs only.

$12,771 – Tuition Cost (Military) for Shipfitting and Steel Fabrication Program

UPDATED START & GRAD DATES
The start dates and graduation dates for the Shipfitting and Steel Fabrication program are listed below:

<table>
<thead>
<tr>
<th>Start Date</th>
<th>Shipfitting and Steel Fabrication</th>
</tr>
</thead>
<tbody>
<tr>
<td>2/18/2013</td>
<td>10/25/2013</td>
</tr>
<tr>
<td>4/1/2013</td>
<td>12/13/2013</td>
</tr>
<tr>
<td>5/13/2013</td>
<td>1/31/2014</td>
</tr>
<tr>
<td>6/24/2013</td>
<td>3/14/2014</td>
</tr>
<tr>
<td>8/5/2013</td>
<td>4/25/2014</td>
</tr>
<tr>
<td>9/16/2013</td>
<td>6/6/2014</td>
</tr>
<tr>
<td>10/28/2013</td>
<td>7/18/2014</td>
</tr>
<tr>
<td>12/16/2013</td>
<td>8/29/2014</td>
</tr>
</tbody>
</table>

TRIAL ENROLLMENT PERIOD-Revised
Beginning February 1, 2013, students who enroll and attend our school for the first time will be offered an opportunity to attend our programs for a relatively short period of time without incurring a financial obligation beyond the application fee. The school will ensure that students have the necessary books and other materials needed to succeed during this trial period. This trial period can play a valuable role by allowing a student to attend classes for a brief period before deciding to continue attending their educational program as a regular student, at which time the student would be responsible for program charges.

Any student who officially or unofficially withdraws from school prior to attending one week of scheduled classes after the official start date of the program will not be considered to have started school, no credits will be earned, and their tuition...
obligation and cost of course materials will be waived. In any event, any student still attending school after completing one week of scheduled classes after the official start date of the program will be considered to have confirmed their intention to continue the program as a regular student and thus will be classified as a start.

To be officially accepted as a regular student, a student must meet the below requirements before the end of the conditional admittance period:

- Satisfy the attendance requirements as stated in the institution’s catalog and addenda;
- Satisfy all remaining admissions requirements as stated in the institution’s catalog and addenda; and
- Complete the financial aid process and submit all of the required documentation.

Any student who attends the trial period and who wishes to receive federal student aid funds after becoming a regular student must meet the other student eligibility criteria as provided in the federal regulations. Once determined to be a regular student, an otherwise eligible student becomes eligible for federal student aid funds back to the beginning of the enrollment period, as applicable, which includes the trial period.

Please note that this policy does not pertain to reentry or 2nd and/or subsequent academic year continuing students.

**ATTENDANCE POLICY-Revised**

Attendance is essential to benefit from lecture and laboratory instruction. Excellent attendance contributes to good grades. Employers are particularly interested in both a graduate’s attendance and technical ability. A phase course within our programs can only be passed if a student earns a passing grade. Each day a student is absent, two (2) points will be deducted from the overall phase grade.

Students who leave 15 minutes to 2 ½ hours early, or are 15 minutes to 2 ½ hours late, will have one (1) point deducted from their final grade for each day this occurs. Students who leave 2 ½ hours or more before the end of class, or are 2 ½ hours or more late, will have two (2) points deducted from their final grade for each day this occurs.

Laboratory makeup sessions are available for students in our welding-related programs and are usually scheduled on Saturdays to assist students. Makeup or practice Saturdays typically occur on the first and second Saturday of a three week welding course. No makeup is available for lecture sessions. Calculations will take place at the end of the course. Any makeup time a student attended during that course will be taken into account when calculations are made. If the makeup time is equal to or greater than the time missed, no points will be deducted from the final grade. However, if the makeup time is less than the time missed, there will still be a point deduction based on the total amount of time missed. There will not be any additional points awarded for additional time attended during the makeup or practice sessions.

VA students are required to maintain 85% attendance. If a VA student’s attendance at the end of any attempted phase course is less than 85%, that student shall be placed on Attendance Alert and will be counseled.

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**CREDIT HOUR DEFINITION CHANGES**

Academic credit hours awarded by TWS are referred to as semester credit hours and are awarded as prescribed by our accrediting agency (ACCSC). ACCSC has recently changed its definition of a credit hour as follows:

One semester credit hour equals 45 units comprised of the following academic activities:

- One clock hour of lecture = 2 units
- One clock hour of lab = 1.5 units
- One hour of out-of-class work = 0.5 unit

A clock hour is defined as supervised instruction of not less than 50 minutes in length within a 60-minute period.

Due to the new credit hour definition provided, the semester credit hours have changed for the following programs. This change does not affect the credential awarded upon program completion; however it does result in changes to the total semester credit hours awarded.

The changes are outlined as follows:

<table>
<thead>
<tr>
<th>Program</th>
<th>Old Semester Credit Hours</th>
<th>New Semester Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>Professional Welder</td>
<td>30.0</td>
<td>25.0</td>
</tr>
<tr>
<td>Pipefitting</td>
<td>34.0</td>
<td>25.0</td>
</tr>
<tr>
<td>Electro-Mechanical</td>
<td>45.5</td>
<td>35.0</td>
</tr>
<tr>
<td>Technologies</td>
<td></td>
<td></td>
</tr>
<tr>
<td>AOS in Welding Technology</td>
<td>64</td>
<td>60.5</td>
</tr>
</tbody>
</table>

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**NONDISCRIMINATION POLICY**

Tulsa Welding School prohibits discrimination on the basis of race, color, religion, creed, sex, age, marital status, national origin, mental or physical disability, political belief or affiliation, veteran status, sexual orientation, genetic information, and any other class of individuals protected from discrimination under state or federal law in any aspect of the access to, admission, or treatment of students in its programs and activities, or in employment and application for employment. Furthermore, our school’s policy includes prohibitions of harassment of students and employees, i.e., racial harassment, sexual harassment, and retaliation for filing complaints of discrimination.

PROFICIENCY OR TRANSFER CREDIT INTO TWS PROGRAMS – Revised

Based upon a student’s prior education or job related experience, a student may request credit for a phase or more contained within a TWS program. The Director of Training determines the quantity of advance standing credit a student may receive. The decision is based upon documented prior education and/or demonstrated technical proficiency in the lab. Phases receiving credit are noted with a letter grade of “K” and are not considered as earned credit which affects the cumulative grade point average (CGPA). Students may normally receive up to four phases of credit in a program. Tuition and lab fees shall be reduced on a pro-rata basis for the number of phases receiving credit. Phase credit must be determined prior to a student starting a program.

For students enrolled in our Pipefitting program, according to NCCER guidelines students can test out of as many phases as they can provide proof of prior education and/or experience for; however, graduation from Tulsa Welding School requires that all students complete more than 50% of their education with our institution. Once eligibility has been determined by the Director of Training, a student testing out of courses in the Pipefitting program must pass the proficiency testing with a 70% or better on an end of course written test relative to the subject matter in order to meet NCCER standards. Also, students must pass a hands-on performance evaluation demonstrating proficiency in tasks relevant to the specific course they are testing out of. The grading for performance evaluations will be assigned as a pass/fail, which will be determined by the instructor performing the evaluation per NCCER guidelines. If the student fails either portion of the evaluation process (written or hands-on), then the student is required to participate in the regular classes for that course. Only one proficiency test will be allowed per course.

Additionally, Tulsa Welding School recognizes prior NCCER Training relative to the specific courses within our Pipefitting Program. Any student with previous NCCER Training comparable to that of our Pipefitting curriculum will be allowed to apply for advanced standing for courses in which they can provide proof of prior education and/or experience for; the Director of Training will review prior training documentation to determine which courses, if any, are eligible for proficiency testing and credit assessment.

PIPEFITTING RE-TEST POLICY

All training sponsored by Tulsa Welding School must include verification of previous training or a testing process that will demonstrate successful completion of the training. The details of this process must be provided to both instructors and trainees at the beginning of instruction and prior to the administration of the first test.

NCCER Curriculum training will consist of a closed-book written test with an achieved score of 70 percent or higher and a performance (hands-on) test successfully completed to the satisfaction of the instructor using the criteria provided by NCCER in making his/her evaluation (this is a pass/fail test.). Any trainee who scores less than 70 percent will not receive NCCER credit for the written test but may continue through the course respectively according to Tulsa Welding School’s grading policy.

Should the trainee fail the written test, he/she may retake the written test after a minimum waiting period of forty-eight (48) hours. Performance test retakes will be given at the discretion of the Craft Instructor/Performance Evaluator whether immediately or at a later time is designated by the Craft Instructor/Performance Evaluator.

All students that fail their initial written test or performance evaluation will have their original grade for that test posted as their official Tulsa Welding School grade for that particular course, regardless of the score. No additional credit will be given for higher grades on the re-test.

If a student fails either a written test or a performance test a second time, additional training in that specific course will be administered before another re-test is given.

PROGRAM MODIFICATION

The Associate of Occupational Studies in Welding Technologies Program has been modified in that it now includes two additional courses that have been added to the 2nd academic year of the program.

This program now totals 66 weeks in length. The first academic year of this program is the Professional Welder Program which is 30 weeks long. The second academic year is directed toward course material for job entry as a Welding Quality Assurance/Quality Control Inspector (WQA/QCI) and is now 36 weeks in length with the addition of these two courses listed below:

Basic Math

This course presents the fundamental concepts of a pre-algebra course. Students will be introduced to whole numbers, fractions and decimals, integers, order of operations, percents, signed numbers, measurements, geometry, probability, and basic algebra concepts. Semester Credit Hours = 3.0

Introduction to Microsoft Office Suite

This course provides an overview of the popular components of Microsoft office suite. Students will be introduced to the rudiments of PowerPoint, Microsoft Office, Excel and Access. Semester Credit Hours = 3.0

MAXIMUM CLASS AND LAB SIZE

The maximum lecture class size for our welding and Shipfitting and Steel Fabrication programs is 30 students. The maximum laboratory class size per instructional staff member for our welding and Shipfitting and Steel Fabrication programs is 20 students. The maximum lecture and laboratory class size per instructor for our Electro-Mechanical Technologies program is 38 students.

GED PREPARATION COURSE

TWS now offers a GED Preparation Course with no cost and no obligation. The GED Preparation Course does not fall under the purview of the standards of accreditation, therefore this course is not accredited as accreditation is not required.