N.E.I.T. / SAMI
WELDING TRAINING PROGRAM

COURSE SYLLABUS

(260 HOURS)

Classroom:

- Introduction to Welding program, Orientation and outline of training.....1.0 hr.
- Welding basics. "What is Welding" Fundamentals and Theory.....4.0 hrs.
- Welding and Cutting Safety. In accordance with AWS / ANSI Z- 49.1.....4.0 hrs.
- Introduction to the SMAW (shielded metal arc welding) process.....1.0 hr.
- Introduction to the GMAW (gas metal arc welding) process.....1.0 hr.
- Introduction to the FCAW (flux core arc welding) process.....1.0 hr.
- Introduction to the GTAW (gas tungsten arc welding) Process.....1.0 hr.
- Introduction to the OFC (oxy fuel cutting) Process.....1.0 hr.
- Safety in handling fuel gases and high pressure cylinders.....1.0 hr.

PLASMA ARC. CUTTING

Shop:

- Hands on demonstration...SMAW, (basic carbon steel).....1.0 hr.
- Safety in the shop – hand tools.....1.0 hr.
- Welding machine basics .....2.0 hrs.
- Passing out of PPE for welding (personal protective equipment).....30 min.
- Student welding practice .....10 hrs.
- Discussion and questions .....1.0 hr.
- Demonstration of OFC burning (cutting) .....1.0 hr.
- Student practice with the OFC process .....3.0 hrs.

Classroom and Shop:

- Weld joint configuration .....3.0 hrs.
- Welding positions (flat, horz., vert., O.H.) .....2.0 hrs.
- Demonstration of "out of position" welding .....2.0 hrs.
- Demonstration of welding lap and tee joints .....2.0 hrs.
- Student welding practice of lap and tee joints .....10.0 hrs.
- Discussion and questions .....1.0 hr.
- Introduction to Groove welds .....2.0 hrs.
- Demonstration welding of groove weld joint .....2.0 hrs.
- Student welding practice of groove welds .....10.0 hrs.
- Discussion and Questions .....1.0 hr.
- Student welding practice "out of position" welds.....10.0 hrs.
- Taking first written course quiz.....2.0 hrs.

Classroom:

- Introduction to Shipbuilding requirements .....2.0 hrs.
- Overview of Electric Boat, Quonset Point, R.I. .....1.0 hr.
- Overview of Senesco Marine, N. Kingstown, R.I. .....1.0 hr.
- Overview of Blount Boats, Warren, R.I. .....1.0 hr.
- Materials used in shipbuilding and their weldability .....2.0 hrs.

Shop:

- Gas Metal Arc Welding – Standard CV and Pulse process.....4.0 hrs.
- Demonstration of GMAW (basic carbon steel) .....1.0 hr.
- Student welding practice. .....10.0 hrs.
- Discussion and questions .....1.0 hr.
- Flux Cored Arc Welding basics .....2.0 hr.
- Demonstration of FCAW (basic carbon steel) .....1.0 hr.
- Student welding practice .....10.0 hrs.
- Welding of different joint types in shipbuilding (SMAW, GMAW, FCAW)....20.0 hrs.
- Demonstration of welder qualification test .....2.0 hrs.
- Student qualification test practice .....20.0 hrs.
- Discussion and questions .....1.0 hr.

Classroom and Shop:

- Taking second written course quiz .....3.0 hrs.
- Introduction to basic welding metallurgy .....3.0 hrs.
- Electrodes and their AWS classifications .....2.0 hrs.
- Introduction to NDE (non destructive examination) .....2.0 hrs.
- Welding machine advanced set-up .....3.0 hrs.
- Student welding practice .....10.0 hrs.
- Understanding distortion and effects of welding heat to base metals, (joules), and how to use preheat correctly (when and why) .....6.0 hrs.
- Introduction to pipe welding .....2.0 hrs.
- Different metals used in pipe fabrication .....1.5 hrs.
- Gas Tungsten Arc Welding – pipe applications (demonstration).....2.0 hrs.
- Student welding practice, GTAW (plate and pipe) .....8.0 hrs.
- Introduction to Blueprint Reading and Welding Symbols .....8.0 hrs.
- Student welding project .....15.0 hrs.
- Taking third written course quiz .....4.0 hrs.
- Grading and inspection of student projects .....4.0 hrs.
- Final welding practice session (preparation for employment) .....20.0 hrs.
- Final overview, discussion, question and answer time and handing out of certificates of completion. .....5.0 hrs.