

This deliverable contains East Mississippi Community Colleges Welding/Fabricator Technician Career and Technical Education program which facilitates a stackable credential career pathway model that embeds NAM endorsed and local industry recognized credentials, adds contextualized learning, and better utilizes technology in all programs. The Welding/Fabricator Technician program was developed through the Trade Adjustment Assistance Community College and Career Training (TAACCCT) Grant Program Round 3 Grant Golden Triangle Modern Manufacturing Project TC-25149-13-60-A-28.

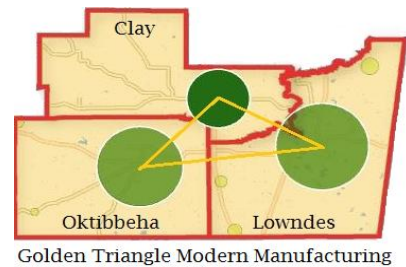
This document contains deliverable #8: Welding/Fabricator Technician program.

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East Mississippi Community College Golden Triangle Modern Manufacturing Project

Technician Programs – Strategy 1: Build programs that meet industry needs. **Action 1.2** Develop new 30-hour certificate and 60-hour certificate/AAS degree programs tied to NAM-endorsed certificates for electro-mechanical craft technicians, Mechatronics technicians, and welder/fabricator technicians.

Relevant Deliverable – Welder/Fabricator Technician Curriculum



Welder/Fabricator Technician

The Welder/Fabricator Technician Career and Technical Education program was developed to embed National Association of Manufacturers (NAM) –endorsed and industry-recognized credentials; to contextualize safety, lean, measurement and blueprint reading into each program; and to utilize online and technology-enabled systems as instructional tools.

The Welder/Fabricator Technician program prepares graduates to enter the job market in many different areas. Welding is utilized in manufacturing, structural construction, custom job shops, and as an integral part of many businesses.

The Welder/Fabricator Technician Program offers a curriculum that leads to an associates of applied science degree and the opportunity to acquire the American Welding Society (AWS) Schools Excelling through National Skill Standards Education (SENSE) Level I and Level II certification, National Center for Construction Education and Research (NCCER) Core, Level I Welding, Level II Welding, Level I Pipe Fitting and Level II Pipefitting, OSHA 10-hour, First Aid/CPR and advanced manufacturing topics.

Students will be provided instruction in the correct methods of Shielded Metal Arc Welding (SMAW), Gas Metal Arc Welding (GMAW), Flux Cored Arc Welding (FCAW), and Gas Tungsten Arc Welding (GTAW), Advanced Pipe Welding, Welding Metallurgy, Welding Code, Computer-Aided Design and other components of manufacturing along with special emphasis on safety in the work place, relations with others in the work place, and the importance of regular and timely attendance will also be covered.

This program requires an ACT Score of 18 in the Composite and Math areas as well as a Silver Certificate on the Workkeys exam. Please see the program advisor or a counselor for additional information regarding testing times, locations. Students completing all requirements of the one-year Welding and Industrial Fabrication certificate, and who meet the general admission requirements of the College for the associate of applied science degree, will be eligible to enter the second year of the program.

The Welder/Fabricator Technician curriculum is located on p.114 in the EMCC Catalog and can be found by following the link: <http://www.eastms.edu/students/Documents/catalog,2016-17v1-2,5-19-16.pdf>.

The Mississippi Community College Board curriculum can be found at: <http://sbcjweb.sbcjc.cc.ms.us/oci/pdfs/ci/pathway/Welding%20Technology.pdf>

NCCER Core, Welding Level I and Electrical Level II have been identified as the Welder/Fabricator Technician technical exit assessments. The assessment validates technical skills learned during the program. See below for detailed information regarding the NCCER certification.

Course Number	Course Name	Credentials	Technology	Notes
WLT 1114 4 hours	Shielded Metal Arc Welding 1	NCCER Welding Level 1 and AWS SENSE Level 1	Multi-process Power units with programmable welding parameters	1,2,3,4
WLT 1224 4 hours	Shielded Metal Arc Welding 2	NCCER Welding Level 1 and AWS SENSE Level 1	Multi-process Power units with programmable welding parameters	1,2,3,4
WLT 1312 2 hours	Cutting Processes	NCCER Welding Level 1 and AWS SENSE Level 1	CNC Plasma and Programmable Gage systems	1,2,3,4
WLT 1172 2 hours	Introduction to Welding and Safety	NCCER Core and Welding Level 1 and AWS SENSE Level 1	Online technical content with assessment	1,4
IMM 1935 5 hours	Manufacturing Skills Basics	OSHA 10-Hour CPR	Online technical content with assessment	1,2,3,4
WLT 1123 3 hours	Gas Metal Arc Welding (GMAW)	NCCER Welding Level 2 and AWS SENSE Level 1	Multi-process Power units with programmable welding parameters	1,2,3,4
WLT 1134 4 hours	Gas Tungsten Arc Welding (GTAW)	NCCER Welding Level 2 and AWS SENSE Level 1	Multi-process Power units with programmable welding parameters	1,2,3,4
WLT 1142 2 hours	Flux Cored Arc Welding	NCCER Welding Level 2 and AWS SENSE Level 1	Multi-process Power units with programmable welding parameters	1,2,3,4
WLT 1155 5 hours	Pipe Welding	NCCER Welding Level 2 and AWS SENSE Level 1	Multi-process Power units with programmable welding parameters	1,2,3,4
WLT 1231 1 Hour	Drawing and Weld Symbol Interpretation	NCCER Welding Level 2 and AWS SENSE Level 1		1,2,3,4
WLT 1426 6 hours	Basic Fabrication for Pipe Fitting			1,2,3,4
Total hours 38 1-Year exit Welding and Industrial Fabrication Vocational Certificate Option				
WLT 2813 3 hours	WLT 2813 Welding Metallurgy	NCCER Welding Level 2 and AWS SENSE Level 2	Ultrasonic Testing Equipment, Hardness Testing Equipment	
WLT 1253 3 hours	WLT 1253 Advanced Pipe Welding	NCCER Welding Level 2 and AWS SENSE Level 2	Multi-process Power units with programmable welding parameters	1,2,3,4

WLT 2913 3 hours	WLT 2913 Weld Code & Certification	NCCER Welding Level 2 and AWS SENSE Level 2		1,2,3,4
WLT 1913 3 hours	Special Problems in Welding			
3 hours	Social/Behavioral Science Elective			
ENG 1113 3 hours	English Composition I			
MAT 1323	Trigonometry			
SPT 1113 3 hours	Public Speaking I			
3 hours	Humanities/Fine Arts Elective			
3 Hours	Computer Science Elective			
PHY 2414/CHE 1214 4 hours	General Physics or Chemistry			
Total hours 69 2-Year exit Welder/Fabricator Technician AAS degree				

* AWS SENSE –Schools Excelling through National Skills Education is a set of specifications and guidelines meant to assist schools in training welders. The program guidelines were originally published in 1995 and 1996 through grants received from the U.S. Department of Education and Department of Labor. Based on a survey of the welding industry, the SENSE guidelines define two levels of knowledge and skills required in the welding workplace. Individuals trained in training organizations aligned to the SENSE guidelines may implement SENSE Level I: Entry Welder and/ or SENSE Level II: Advanced Welder. These credentials are tracked through AWS’s registry that allows organizations and companies to track the qualifications of their welding professionals and/or check the qualifications of possible new hires. AWS’s registry also assists welding professionals by maintaining their records in a secure database.

*NCCER- The National Center for Construction Education and Research was developed with the support of more than 125 construction CEOs and various association and academic leaders who united to revolutionize training for the construction industry. Sharing the common goal of developing a safe and productive workforce, these companies created a standardized training and credentialing program for the industry. This progressive program has evolved into curricula for more than 70 craft areas and a complete series of more than 70 assessments offered in over 4,000 NCCER-accredited training and assessment locations across the United States. NCCER develops standardized construction and maintenance curriculum and assessments with portable credentials. These credentials are tracked

through NCCER's registry that allows organizations and companies to track the qualifications of their craft professionals and/or check the qualifications of possible new hires. NCCER's registry also assists craft professionals by maintaining their records in a secure database.

Note 1 - Contextualized Safety: Instructors contextualized safety in WLT classes by relating OSHA safety to the welding workplace.

Note 2 - Contextualized Measurement: Instructors contextualized measurement in WLT classes by relating pressure/vacuum measurement, electrical measurement, alignment measurement and part measurement to the welding workplace.

Note 3 - Contextualized Print Reading: Instructors contextualized print reading in WLT classes by relating part tolerances, pressure/vacuum tolerances, electrical measurement tolerances, alignment tolerances and use of prints for troubleshooting to the welding workplace.

Note 4- Contextualized Lean Concepts: Instructors contextualized lean concepts in WLT classes by relating organization, maintaining of tools, maintaining work place and maintaining materials/supplies/waste products to the welding workplace.