This deliverable contains East Mississippi Community Colleges revised CTE programs which facilitate a stackable credential career pathway model; embed NAM and local industry endorsed credentials, add contextualized learning, and better utilize technology in all programs. The revised CTE programs were 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 combines deliverables 16, 21, 23.

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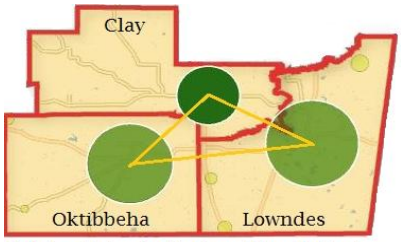
East Mississippi Community College
Golden Triangle Modern Manufacturing Project



Golden Triangle Modern Manufacturing

Revised CTE Programs- Action 2.1 Merge CTE and non-credit manufacturing programs into one sector-focused Modern Manufacturing Technology and Engineering (MMTE) administrative division, guided by the new Modern Manufacturing Sector Advisory Council, to facilitate a stackable credential career pathway model; embed NAM and local industry endorsed credentials into all programs.

Action 3.1 Contextualize all nine manufacturing CTE programs by training instructors (using expert instructors) to integrate blueprint reading, measurement, safety, and lean manufacturing training from the non-credit Modern Manufacturing Skills Certificate Program into their programs.

Action 4.1 Enhance modern manufacturing CTE instruction by providing special professional development workshops to instructors to fully utilize new and existing advanced online and technology-enabled systems.

Relevant Deliverables- Revised curricula for CTE programs – Automotive Technology, Electrical Technology, Electronics, Automation and Control, Welding, and Drafting and Design

East Mississippi Community College's Manufacturing Technology and Engineering Division in accordance with EMCC's Golden Triangle Modern Manufacturing Project through the U.S. Department of Labor, has revised its Career Technical Education programs 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 better utilize online and technology-enabled systems as instructional tools. The division also increased entry requirements to a 16 on the ACT and a silver Career Readiness Certificate based on the Workkeys.

On the following pages are curricula details. The charts included show improvements related to each Action. Each program complies with the Mississippi Community College Board's approved curriculum and conforms to Southern Association of Colleges and Schools Commission on Colleges (SACSCOC) guidelines.

Automation and Control Technology

Career Technical Education programs were revised 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 better utilize online and technology-enabled systems as instructional tools.

Automation and Control Technology is an instructional program that provides the student with the technical knowledge and skills necessary for gaining employment as an automated manufacturing systems technician in maintenance, diagnostics, engineering, or production in an automated manufacturing environment. The focus of this program is on electricity, electronics, industrial computer programming, pneumatics, hydraulics, robotics, programmable controls, interfacing techniques, instrumentation, and automated machine processes. Graduates of the program are qualified to seek entry-level jobs in technically progressive industries such as automotive manufacturing, electrical power, paper manufacturing, plastic molding, materials handling, and energy conservation systems for large buildings such as hospitals and office buildings. This program requires an ACT Score of 16 in the Composite and Math areas as well as a Silver Certificate on the Workkeys exam for admission.

The Automation and Control program will be implementing the Fanuc Robotics certification as its technical skills exit assessment beginning 2016-2017 school year. The certification will validate technical skills learning throughout the program.

The Automation and Control curriculum is located on p.86 in the EMCC Catalog and can be found by following the link: http://www.eastms.edu/students/Documents/catalog2015-16,v4-1,feb2016.pdf. The Mississippi Community College Board curriculum can be found at: http://sbcjcweb.sbcjc.cc.ms.us/oci/pdfs/ci/pathway/[P]_Automation_and_Control_Technology_[2011].pdf

Course Number	Course Name	Credentials	Technology	Notes
EET 1114 4 Hours	DC Circuits		Digital Multimeters, Oscilloscope, Bread Board Generators	1,2,3
EET 1334 4 hours	Solid State Devices & Circuits		Digital Multimeters, Amatrol	1,2,4
EET 1214 4 hours	Digital Electronics		Amatrol, Digital Multimeters	1,2,3,4
MFT 1112 2 hours	Introduction to Automation and Controls			1,2,3
IMM-1935 5 Hours	Manufacturing Skills Basic	OSHA 10-Hour CPR	Online technical content with assessment	1,2,3,4
EET 1123 3 Hours	AC Circuits		Digital Multimeters, Oscilloscope, Bread Board Generators	1,2,3

ELT 1413 3 Hours	Motor Control Systems		Digital Multimeters	1,2,3,4
INT 1214 4 hours	Fluid Power		Amatrol	1,2,3,4
ELT 1123 3 hours	Commercial and Industrial Wiring		Cengage On-Line Coursemate, Digital Multimeters	1,2,3,4
ELT 2613 3 Hours	Programmable Logic Controllers		Digital Multimeters, Allen Bradley Software PLC Platforms, Amatrol	1,2,3,4
Total hours 35	**1-Year exit**	**Automation and Control**	**Vocational Certificate Option**	
INT 2114 4 Hours	Control Systems I	Fanuc Robotics Cert,	Digital Multimeters	1,2,3,4
3 Hours	Computer Related Elective			
9 hours	Technical electives		Digital Multimeters	1,2,3,4
3 Hours	Math/Science Elective			
ENG 1113 3 Hours	English Composition I			
3 hours	Humanities/Fine Arts Electives			
3 Hours	Social Behavioral Science Elective			
SPT 1113 3 hours	Public Speaking I			
Total hours 66	**2-Year exit**	**Automation and Control Technology AAS degree**		

Note 1 - Contextualized Safety: Instructors contextualized safety in INT classes by relating OSHA safety to the Automation and Control workplace.

Note 2 - Contextualized Measurement: Instructors contextualized measurement in INT classes by relating installation measurements, electrical measurement, and part placement measurements to the Automation and Control workplace.

Note 3 - Contextualized Print Reading: Instructors contextualized print reading in INT classes by relating part placement, structure tolerances, electrical measurement tolerances, and use of prints for troubleshooting and installing the Automation and Control systems.

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

AUTOMOTIVE TECHNOLOGY

Career Technical Education programs were revised 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 better utilize online and technology-enabled systems as instructional tools.

The Automotive Technology program provides the graduate with the basic skills and technical knowledge to properly diagnose and repair late model vehicles, along with problem solving techniques and computer diagnosis. Practical experience is given in the following automotive service and repair areas as recognized by ASE and NATEF: Engine repair, Automotive Transmissions, Manual drive trains and axles, Suspension and Steering, Brakes, Electrical/Electronic Systems, Heating and Air Conditioning Systems, and Engine Performance Systems. This program requires an ACT Score of 16 in the Composite and Math areas as well as a Silver Certificate on the Workkeys exam for admission. In addition to the general entry requirements students must also pass the Bennett Mechanical Comprehension Test, a manual dexterity test.

The ASE Student Certification has been identified as the technical exit assessment for the Automotive Technology program. The assessment validates technical skills learned during the program. See below for detailed information regarding the ASE Student Certification.

The Automotive curriculum is located on p.88 in the EMCC Catalog and can be found by following the link: http://www.eastms.edu/students/Documents/catalog2015-16,v4-1,feb2016.pdf. The Mississippi Community College Board curriculum can be found at: http://sbcjcweb.sbcjc.cc.ms.us/oci/pdfs/ci/pathway/Automotive%20Technology%20Curriculum%202014.pdf

Course Number	Course Name	Credentials	Technology	Notes
ATT 1124 4 hours	Electrical Systems	ASE/NATEF* Electrical and Electronic Systems	Mind TAP**, Scan tool diagnostics, Digital multimeters, Computer-based troubleshooting, ASE Testing	1,2,3
ATT 1214 4 hours	Brakes	ASE/NATEF* Brakes	Mind TAP**, ASE Testing	1,2
ATT 1314 4 hours	Manual Drive-Trains/Transaxles	ASE/NATEF* Manual Drive Trains and Axles	Mind TAP**, ASE Testing	1,2,3
ATT 1424 4 hours	Basic Engine Performance I		Mind TAP**, Computer-based troubleshooting	1,3
ATT 1811 1 hours	Introduction, Safety, and Employability Skills		Mind TAP**	1,4
ATT 1134 4 hours	Advanced Electrical Systems		Mind TAP**, Computer-based troubleshooting	1,3

ATT 2434 4 hours	Engine Performance II		Mind TAP**, Computer-based troubleshooting	1,3
ATT 1715 5 hours	Engine Repair	ASE/NATEF* Engine Repair	Mind TAP**, ASE Testing	1,2
ATT 2334 4 hours	Steering and Suspension Systems	ASE/NATEF* Steering and Suspension Systems	Mind TAP**, ASE Testing	1
3 hours	Computer Science Elective			
Total hours 37	**1-Year exit Option**	**Automotive Vocational Certificate**		
ATT 2325 5 hours	Automatic Transmissions/Transaxles	ASE/NATEF*Automatic Transmissions and Transaxles	Mind TAP**, ASE Testing	1
ATT 2614 4 hours	Heating and Air Conditioning	ASE/NATEF* Heating and Air Conditioning	Mind TAP**, ASE Testing	1,2
ATT 2444 4 hours	Engine Performance III	ASE/NATEF* Engine Performance	Mind TAP**, Computer-based troubleshooting, ASE Testing	1
Technical Elective 5 hours	Suggested IMM-1935-Manufacturing Skills Basic	OSHA 10-Hour, CPR	Online technical content with assessment	1,2,3,4
Total hours 55	**Three Semester exit Option**	**Automotive Technical Certificate**		
3 hours	Social/Behavioral Science Elective			
ENG 1113 3 hours	English Composition I			
3 hours	Math/Science Elective			
SPT 1113 3 hours	Public Speaking I			
3 hours	Humanities/Fine Arts Elective			
Total hours 70	**2-Year exit**	**Automotive Technology AAS degree**		

* The Automobile Service Excellence (ASE) Student Certification test series for the 2008 National Automotive Technicians Education Foundation (NATEF) Automobile Program Standards is comprised of eight examinations covering light vehicle diagnosis and repair: 1) Engine Repair; 2) Electrical and Electronic Systems; 3) Engine Performance; 4) Brakes, Steering and Suspension Systems; 5) Manual Drive Trains and Axles; 6) Automatic Transmissions and Transaxles; 7) Heating and 8) Air Conditioning.

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

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

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

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

**MindTap is an online resource that lets you highlight and take notes online, includes videos, power-point presentations, and practice tests/quizzes.

Drafting and Design Technology

Career Technical Education programs were revised 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 better utilize online and technology-enabled systems as instructional tools.

The Drafting and Design Technology curriculum prepares the student for employment in the field of technical graphical representation. The areas taught include architectural drafting, machine drafting, surveying, civil drafting, and computer-aided drafting. In order to meet industrial demands, computer aided drafting is the basis of all courses. Completion of the two-year program leads to an Associate's of Applied Science degree. As part of this degree program, students will also be able to take the Autodesk Certified User Exam. This program requires an ACT Score of 16 in the Composite and Math areas as well as a Silver Certificate on the Workkeys exam for admission. The Drafting and Design curriculum is located on p.99 in the EMCC Catalog and can be found by following the link: http://www.eastms.edu/students/Documents/catalog2015-16,v4-1,feb2016.pdf. . The Mississippi Community College Board curriculum can be found at: http://sbcjcweb.sbcjc.cc.ms.us/oci/pdfs/ci/pathway/Drafting%20and%20Design%202016%20Final%20Copy.pdf

A nationally recognized technical exit assessment has not yet been identified for the Drafting and Design Technology program. Potential option is the Autodesk Certified User Certification.

Course Number	Course Name	Credentials	Technology	Notes
DDT 1113 3 hours	Fundamentals of Drafting		Online technical content with assessment	1,2,3,4
DDT 1313 3 hours	Principles of CAD		AutoCAD Software, Online technical content with assessment	2,3,4
DDT 1133 3 hours	Machine Drafting I		Autodesk Inventor Software, and 3D Printer Technology	1,2,3,4
DDT 1213 3 hours	Construction Materials		Online technical content with assessment	1,2,3,4
DDT 1323 3 hours	Intermediate CAD	*Autodesk Certified User Certification	AutoCAD Software, Online technical content with assessment, plotting equipment	2,3,4
DDT 1613 3 hours	Architectural Design I		AutoCAD Software, Online technical content with assessment, Scanning and plotting equipment	1,2,3,4
DDT 2243 3 hours	Cost Estimating		Specification Writing Software, AutoCAD Software, Online technical content with assessment	1,2,3,4

DDT 2343 3 hours	Advanced CAD		AutoCAD Software, Online technical content with assessment, Scanning and plotting equipment, 3D printer technology	2,3,4
DDT 1413 3 hours	Elementary Surveying		Total Station and Data Collecting Instruments	1,2,3,4
DDT 2623 3 hours	Architectural Design II		AutoCAD Software, Online technical content with assessment, Scanning and plotting equipment	1,2,3,4
DDT 2253 3 hours	Statics and Strength of Materials		Online technical content with assessment	1,2,3,4
DDT 2213 3 hours	Structural Drafting		AutoCAD Software, Online technical content with assessment, Scanning and plotting equipment	1,2,3,4
DDT 2913 3 hours	Special Projects in Design		Autodesk REVIT Software, Online technical content with assessment, Scanning and plotting equipment	2,3,4
DDT 2423 3 hours	Mapping and Topography		Total Station and Data Collecting Instruments, Autodesk Civil 3D software, Scanning and Plotting Equipment	1,2,3,4
LLS 1711 1 hour	Job Search Skills			
3 hours	Social/Behavioral Science Elective			
CPT 1113 3 hours	Microcomputer Applications			
ENG 1113 3 hours	English Composition I			
MAT 1313 3 hours	College Algebra			
MAT 1323 3 hours	Trigonometry			
SPT 1113 3 hours	Public Speaking I			
PHY 2244 4 hours	Physical Science I			
Total hours 68	**2-Year exit**	**Drafting and Design Technology AAS degree**		

* The AutoCAD Certified User exam includes both academic and industry requirements designed to confirm that AutoCAD users have the skills necessary to continue their design careers.

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

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

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

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

Electrical Technology

Career Technical Education programs were revised 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 better utilize online and technology-enabled systems as instructional tools.

The Electrical Technology program prepares students with the knowledge and skills necessary to plan, install, maintain, and troubleshoot various electrical systems. Students will study such topics as blueprint reading, residential/commercial/industrial wiring, job cost estimation, electrical power, and programmable logic controllers. The Electrical program embeds opportunities to acquire multiple credentials through the National Center for Construction Education and Research (NCCER). This program requires an ACT Score of 16 in the Composite and Math areas as well as a Silver Certificate on the Workkeys exam for admission. The Electrical Technology curriculum is located on p.100 in the EMCC Catalog and can be found by following the link: http://www.eastms.edu/students/Documents/catalog2015-16,v4-1,feb2016.pdf. The Mississippi Community College Board curriculum can be found at: http://sbcjcweb.sbcjc.cc.ms.us/oci/pdfs/ci/pathway/Electrical%20Technology%202014.pdf

The NCCER Electrical Level 1 and 2 Certifications have been identified as the technical exit assessment for the Electrical Technology program. 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
ELT 1144 4 hours	AC/DC Circuits	NCCER* Electrical Level 1	Digital Multimeters, Oscilloscope, Bread Board Generators	1,2,3
ELT 1193 3 hours	Fundamentals of Electricity	NCCER* Electrical Level 1 Electrical Level 2	Digital Multimeters, Amatrol	1,2,4
ELT 1113 3 hours	Residential Wiring	NCCER* Electrical Level 1 Electrical Level 2	Cengage On-Line Coursemate, Digital Multimeters	1,2,3,4
ELT 1263 3 hours	Electrical Drawings and Schematics	NCCER* Electrical Level 1 Electrical Level 2		1,2,3
CTE 1143 3 hours	Fundamentals of Construction and Manufacturing			1,3,4
ELT 1213 3 hours	Electrical Power	NCCER* Electrical Level 1 Electrical Level 2		1,2,3
ELT 1123 3 hours	Commercial Wiring	NCCER* Electrical Level 1 Electrical Level 2	Cengage On-Line Coursemate, Digital Multimeters	1,2,3,4

ELT 1413 3 hours	Motor Control Systems	NCCER* Electrical Level 1 Electrical Level 2	Digital Multimeters	1,2,3,4
ELT 1253 3 hours	Branch Circuits and Service Entrance Calculations	NCCER* Electrical Level 1 Electrical Level 2	Amatrol	1,2
ELT 2613 3 Hours	Programmable Logic Controllers	NCCER* Electrical Level 1 Electrical Level 2	Digital Multimeters, Allen Bradley Software PLC Platforms, Amatrol	1,2,3,4
IMM 1935 5 Hours	Manufacturing Skills Basic	OSHA 10-Hour CPR	Online technical content with assessment	1,2,3,4
Total hours 36 1-Year exit Industrial Electricity Vocational Certificate Option				
ELT-2113 3 Hours	Equipment Maintenance, Troubleshooting and Repair	NCCER* Electrical Level 1 Electrical Level 2	Digital Multimeters	1,2,3,4
ELT-2424 4 hours	Solid State Motor Control	NCCER* Electrical Level 1 Electrical Level 2	Digital Multimeters	1,2,3,4
Electives 9 Hours		NCCER* Electrical Level 1 Electrical Level 2	Digital Multimeters, Honeywell Security and Fire Alarm Software and Systems, Allen Bradley Software, Amatrol	1,2,3,4
Total hours 52 45 Credit Hour Electrical Technology Certificate Option				
ENG 1113 3 Hours	English Composition I			
3 hours	Math/Science Elective			
3 hours	Humanities/Fine Arts Electives			
3 Hours	Social Behavioral Science Elective			
SPT 1113 3 hours	Public Speaking I			
Total hours 67 2-Year exit Electrical Technology AAS degree				

*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. 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 ELT classes by relating OSHA safety to the electrical workplace.

Note 2 - Contextualized Measurement: Instructors contextualized measurement in ELT classes by relating National Electric Code installation measurements, electrical measurement, and part placement measurements to the electrical workplace.

Note 3 - Contextualized Print Reading: Instructors contextualized print reading in ELT classes by relating part placement, structure tolerances, electrical measurement tolerances, and use of prints for troubleshooting and installing the electrical systems.

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

WELDING TECHNOLOGY

Career Technical Education programs were revised 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 better utilize online and technology-enabled systems as instructional tools.

The Welding Technology 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 Welding Technology Program offers two options of study: a) a nine-month curriculum that leads to a certificate 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. 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). Other components of metal fabrication 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 16 in the Composite and Math areas as well as a Silver Certificate on the Workkeys exam for admission. The Welding Technology curriculum is located on p.118 in the EMCC Catalog and can be found by following the link: http://www.eastms.edu/students/Documents/catalog2015-16,v4-1,feb2016.pdf. The Mississippi Community College Board curriculum can be found at: http://sbcjcweb.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 Welding Technology 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 1115 5 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 1225 5 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 1313 3 hours	Cutting Processes	NCCER Welding Level 1 and AWS SENSE Level 1	CNC Plasma and Programmable Gage systems	1,2,3,4
WLT 1173 3 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 1154 4 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 3-6 Hours	Drawing and Weld Symbol Interpretation Technical Elective	NCCER Welding Level 2 and AWS SENSE Level 1		1,2,3,4
Total hours 38-41 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
3-6 hours	Technical Elective			
3 hours	Social/Behavioral Science Elective			
ENG 1113 3 hours	English Composition I			
3 hours	Math/Science Elective			
SPT 1113 3 hours	Public Speaking I			
3 hours 3 Hours	Humanities/Fine Arts Elective Computer Science Elective			
Total hours 68-74 2-Year exit Welding Technology 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.