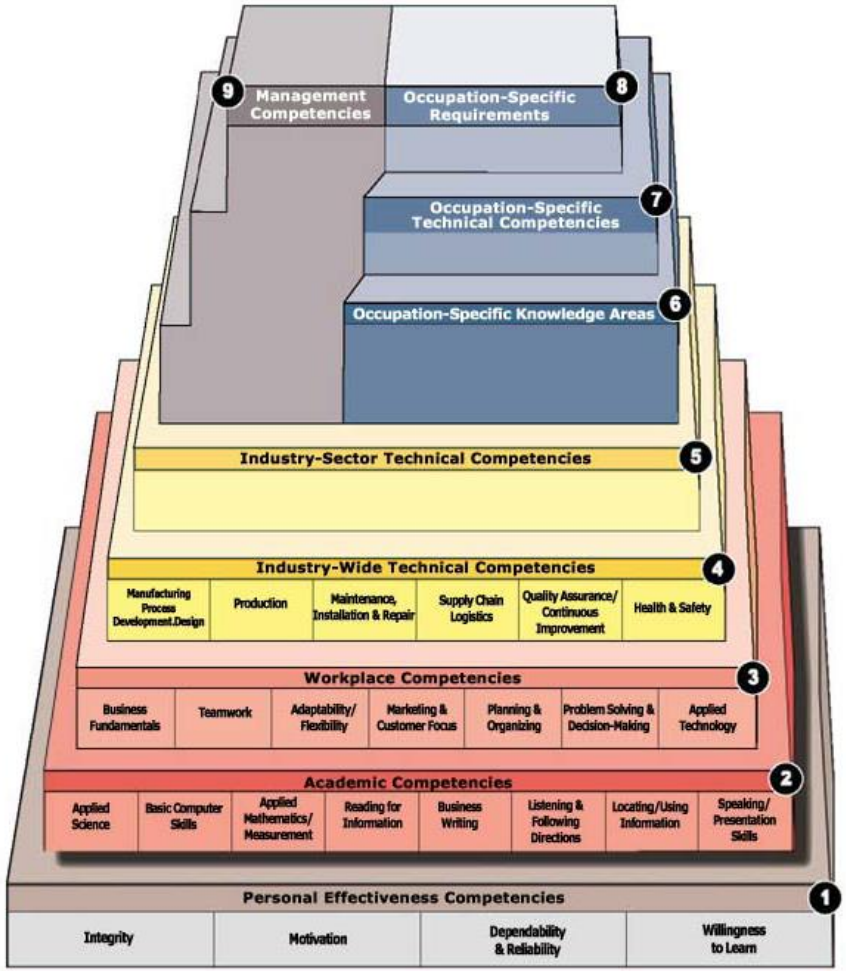
WAEM Workforce Training Framework

The WAEM Workforce Training Framework guided WIRED investments in community and junior college training systems as well as set the stage for post-WIRED regional activities. Per the original WAEM WIRED grant proposal, the WAEM WIRED Implementation Plan, and DOL guidelines, the WAEM Workforce Training Framework included the following: workforce credentials, regional approach to training, innovative training and access, and sustainability. The following is the approved conceptual framework.

1. Regional partnership: The eight participating community and junior colleges and The Montgomery Institute formed the "WAEM Alliance" and formally adopted governance and operating procedures. This alliance provides the regional platform to address and attend to community, workforce, and economic development activities set forth in the WIRED grant, initiated during WIRED implementation, and sustained beyond the WIRED grant timeframe.

2. Regional credentials: To meet the stated goal of credentialing and branding the regional workforce and to comply with the outcomes of the Governors' Summit, the WAEM Initiative focused on two credentials. The first was the already developed national standards based Career Readiness Certificate or **CRC**. The WAEM Alliance promotes **CRC** assessment and credentialing for all credit and non-credit career and technical training participants, unemployed, and under-employed people in the Region, and pursue such credentialing for all community and junior college students as well as high school students.



The WAEM Alliance created a regional modern multi-

skill manufacturing credential that shows mastery of baseline manufacturing skills. These **M3** Credentials are offered at the basic production and advanced production levels to reflect demonstration of basic-intermediate-advanced technical skills. A WAEM Alliance committee consisting of community and junior college Career and Technical Deans and Workforce Directors collectively determines the national standards and assessments (such as those published by the Manufacturing Skill Standards Council) to be used to qualify recipients to receive credentials, as well as interact to improve cross-usage of equipment, instructors, and curriculum. **M3** Credentials are based "authentic assessment" meaning actual performance of skills must be observed by a qualified instructor.

3. Innovative training and access: The concept was to develop innovative training and access that educates to **CRC** standards, trains to **M3** standards, and provides each participant a skill ladder and lifelong learning opportunities. WIRED and other investments are being used by colleges to establish **M3** related innovative training systems and equipment (both must align with the national standards system adopted), enhance existing areas of excellence (or areas of competitive advantage) in **M3** related training, create and enhance access to training related to **CRC** and **M3** credentials, and to attract and retain talent to accomplish these objectives. Web-based, instructor-led training tools coupled with open labs for assessments are key innovative access components, both for college students and trainees as well as pre-college trainees and incumbent workers looking to improve employment status.

WAEM M3 Credential
PRODUCTION LEVEL I

Technical Subject	Topic	Anytime/Anywhere Training Module	Skills to Be Authentically Assessed
Blueprint Reading	Introduction to Multi-View Drawings	W-12216-AA-01	*** SKILL 1 Interpret Blueprint drawings when shown an object** *** SKILL 2 Identify views on a blueprint** *** SKILL 3 Identify line types given a blueprint drawing** *** SKILL 4 Select the front view of an object** *** SKILL 5 Interpret Linear dimension features on a blueprint** *** SKILL 6 Interpret circular dimension features on a blueprint** *** SKILL 7 Interpret angular dimension features on a blueprint** *** SKILL 8 Identify dimensions of an object by reading a technical drawing**
Computer Fundamentals	Email	N/A	*** SKILL 3 Attach a document to an email and submit to an instructor**
	Internet	N/A	*** SKILL 4 Search an internet site for technical information and submit to the instructor**
	Spreadsheets	N/A	*** SKILL 2 Open, input data, and save a spreadsheet document with simple summing and/or formula and submit to the instructor**
	Word Processing	N/A	*** SKILL 1 Create a MS-WORD document and save to submit to the instructor**
Fundamental Technical Applications	Basic Safety	WAEM101-04	*** SKILL 1 Inspect PPE to determine if it is safe to use (PPE should include safety goggles** *** SKILL 2 Properly don and remove personal protective equipment (safety goggles** *** SKILL 3 Demonstrate safe lifting procedures**

Technical Subject	Topic	Anytime/Anywhere Training Module	Skills to Be Authentically Assessed
Hand and Power Tools	Introduction to Hand **and Power** Tools	WAEM103-04	*** SKILL 1 Visually inspect the following tools to determine if they are safe to use: Hammers, Screwdrivers, Saws, Files, Wrenches, Pliers, Clamps, Air Driver, Impact Wrench.** *** SKILL 2 Safely and properly use the following tools: Hammers, Screwdrivers, Saws, Files, Wrenches, Pliers, Clamps, Air Driver, Impact Wrench.**
	Basic Measurement	W-VTB725-AB-01	*** SKILL 1 Use a Metric machinist's rule to measure an outside length of a part** *** SKILL 2 Use a decimal inch machinist's rule to measure a length** *** SKILL 3 Use a machinist's rule graduated in common fractions of an inch to measure a dimension** *** SKILL 4 Use a tape measure to measure a length**
Quality and Measurement	Control Chart Operation	W-11105-AA-05	*** SKILL 1 Classify types of given data** *** SKILL 2 Manually record process data on an**
	Introduction to SPC	W-11105-AA-04	*** SKILL 1 Identify the type of variation given a cause** *** SKILL 6 Open and view a historical data Set** *** SKILL 8 Analyze a histogram**
	Precision Measurement Tools	W-VTB725-AB-02	*** SKILL 1 Calibrate a dial caliper** *** SKILL 2 Use a caliper to measure an outside dimension of a part** *** SKILL 3 Use a caliper to measure an inside dimension of a part** *** SKILL 4 Use a digital caliper to measure an outside dimension of a part** *** SKILL 5 Use a digital caliper to measure an inside dimension of a part** ***SKILL 6 Use an outside micrometer graduated in English units to measure the outside dimension of a part** *** SKILL 7 Use an outside micrometer graduated in Metric units to measure**

Technical Subject	Topic	Anytime/Anywhere Training Module	Skills to Be Authentically Assessed
			the outside dimension of a part *** SKILL 8 Use a micrometer to measure the outside diameter of a cylindrical part**

WAEM M3 Credential
PRODUCTION LEVEL II SKILLS

Technical Subject	Topic	Anytime/Anywhere Training Module	Skills to Be Authentically Assessed
Fundamental Technical Applications	Basic Electrical Circuits	W-VTB707-AC-01	*** SKILL 1 Safely use an AC tester to check a wall outlet for electricity** *** SKILL 2 Safely operate a power supply**
	Introduction to Levers	W-VTB728-XB-01	*** SKILL 3 Use a spring scale to measure the weight of an object** *** SKILL 4 Use a spring scale to measure a force on an object**
	Linear Motion Hydraulic Systems	W-B831-XA-01	*** SKILL 1 Read a hydraulic pressure gauge** *** SKILL 2 Read the liquid level and temperature in the reservoir** *** SKILL 3 Operate a hydraulic power unit** *** SKILL 4 Connect and disconnect a hydraulic hose that uses quick-connect fittings** *** SKILL 5 Use a tee to connect two circuit branches together**
	Pneumatic System Construction	W-B894-XA-01	*** SKILL 1 Install a rubber hose onto a push-on type fitting** *** SKILL 10 Identify the shape, type and size of tubing connectors**

Technical Subject	Topic	Anytime/Anywhere Training Module	Skills to Be Authentically Assessed
			*** SKILL 11 Install and replace a DCV on its subplate** *** SKILL 12 Size, select, and install the fittings and tubing for an application** *** SKILL 2 Install and seal tapered pipe fittings using teflon sealing tape** *** SKILL 3 Identify the nominal pipe size of a fitting given an example** *** SKILL 4 Install a reducing bushing to connect an oversized port** *** SKILL 5 Install and seal a straight thread fitting** *** SKILL 6 Connect polyurethane ether tubing to a barbed fitting** *** SKILL 7 Connect tubing using a ferrule type fitting** *** SKILL 8 Connect tubing using a push-on type fitting** *** SKILL 9 Install a bulkhead fitting**
	Pneumatic Power Systems	W-VTB780-AA-01	*** SKILL 1 Read a pneumatic pressure gauge** *** SKILL 2 Connect and adjust a pressure regulator** *** SKILL 3 Drain a pneumatic filter** *** SKILL 4 Connect a pneumatic hose that uses quick-connect fittings** *** SKILL 5 Use a tee to connect two circuit branches together**
	Introduction to Mechanical Drive Systems	W-B502-XC-01	*** SKILL 1 Perform a lockout/tagout** *** SKILL 3 Select a fastener size and type for a motor mount** *** SKILL 6 Use a digital tachometer to measure motor speed**
	Automation Operations	72001 – Lap 1	*** SKILL 1 Identify control system component types** *** SKILL 2 Perform a lockout/tagout on an electrical system** *** SKILL 3 Perform a lockout/tagout on a pneumatic system** *** SKILL 4 Power up an automated machine**
Hand and Power Tools	Introduction to the Drill Press	W-VTB701-XA-02	*** SKILL 1 Use basic layout techniques to mark the center points of holes on a workpiece** *** SKILL 2 Use the prick punch, center punch, and ball-peen hammer to prepare holes for drilling** *** SKILL 3 Determine the size of a drill** *** SKILL 4 Select and change the spindle speeds of the floor drill press**

Technical Subject	Topic	Anytime/Anywhere Training Module	Skills to Be Authentically Assessed
	Band Saw Operation	W-VTB701-XA-01	*** SKILL 5 Install a twist drill into a drill chuck** *** SKILL 6 Drill holes using cutting fluid** *** SKILL 7 Mount a workpiece in a drill press vise** *** SKILL 1 Determine the size of three common metal stock shapes: sheet, flat, round** *** SKILL 2 Select stock size and type given a part drawing** *** SKILL 3 Use a horizontal band saw to cut stock to a specified length** *** SKILL 4 Use a vertical band saw to cut stock to a specified length**