

Outcome Assessment Plan for degrees or certificates

Advanced Manufacturing AAS 2023-24

1. Outcome	2. Criteria or Target	3. Measurement Tool		4. When/how and by who analysis of assessment will be accomplished	5. Results
		course	assignment		
Individuals who receive a degree/certificate of completion should be able to:					
1. Produce welds to AWS standard in fillet and grooves using GMAW, SMAW and GTAW processes.	Demonstrate welding skill via the community projects assembly.	MFG290	Capstone Portfolio	Self reflection and rubric analysis by MFG Faculty joint with Community Partner working with student on project. This should be captured within the portfolio and from also from outside feedback over the course of the term.	8/10 students demonstrated this outcome at above average levels. 2/10 demonstrating satisfactory completion of this outcome.
2. Demonstrate knowledge of basics CNC operations and G Code.	Show integration of advanced manufacturing concepts and how they help lean manufacturing process utilizing computer coding.	MFG290	Capstone Portfolio	Self reflection and rubric analysis by MFG Faculty joint with Community Partner working with student on project. This should be captured within the portfolio and from also from outside feedback over the course of the term.	5/10 students demonstrated above average application of advanced manufacturing concepts and lean manufacturing concepts as applied viable sample quantities. 3/10 demonstrated average or basic interpretations of these concepts. 2/10 were issued an incomplete as a manufacturing plan was not received for their related projects.
3. Generate product designs and blueprints using CAD software.	Get blueprints approved by partners, utilizing skillsets learned.	MFG290	Capstone Portfolio	Self reflection and rubric analysis by MFG Faculty joint with Community Partner working with student on project. This should be	8/10 demonstrated above average knowledge of ASME and AWS standardization for blueprint creation and Geometric Dimensioning and Tolerancing as it applies to CNC

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				captured within the portfolio and from also from outside feedback over the course of the term.	Manufacturing and AWS Fabrication practices. 2/10 Demonstrating fundamental or basic knowledge of GD&T, ASME, and AWS standards.
4. Manufacture multi-part assembly products from problem solving process to design and reality, including at quantity production run.	Correctly choose processes of manufacturing and demonstrate effective CAD design in creation of hard parts.	MFG290	Capstone Portfolio	Self reflection and rubric analysis by MFG Faculty joint with Community Partner working with student on project. This should be captured within the portfolio and from also from outside feedback over the course of the term.	7/10 Students demonstrated this outcome at above average levels. Their work showed a clear understanding of different manufacturing processes, material choices, and applicable methods of creation. 3/10 Students demonstrated this outcome at average levels. Choice of process, materials, and design changes needed reflected a fundamental understanding, and appropriate problem solving in order to finish a project.
5. Apply basic metallurgical concepts and basic materials science as they pertain to metals to create better production results in manufacturing processes.	Understand and choose correct materials for projects over the course of the term and demonstrate analysis of those choices in the portfolio.	MFG290	Capstone Portfolio	Self reflection and rubric analysis by MFG Faculty joint with Community Partner working with student on project. This should be captured within the portfolio and from also from outside feedback over the course of the term.	8/10 students demonstrated a high understanding of material choices and metallurgical concepts in order to guide their process of manufacture and design changes to account for metallurgical differences in the final products as well as noted efficiency changes. 2/10 demonstrated fundamental or basic understanding. The basic application showed understanding of the concept, with limited ability to analyze the efficiencies of alternate approaches.

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6. Demonstrate knowledge of necessary mathematical concepts as they apply to manufacturing.	Utilize math within the implementation of the project and demonstrate how it has simplified or sped up the manufacturing process used.	MFG290	Capstone Portfolio	Self reflection and rubric analysis by MFG Faculty joint with Community Partner working with student on project. This should be captured within the portfolio and from also from outside feedback over the course of the term.	9/10 Students demonstrated this outcome at an above average level. Taking calculations and simulations, and applying them to each revision of their manufacturing process. 1/10 Was able to carry out calculations, and explain their relevance, but was not fully successful at applying their findings to their projects.
7. Use critical thinking and problem-solving skills to create more efficient systems of manufacturing.	Demonstrate process improvements over the course of the comprehensive project.	MFG290	Capstone Portfolio	Self reflection and rubric analysis by MFG Faculty joint with Community Partner working with student on project. This should be captured within the portfolio and from also from outside feedback over the course of the term.	8/10 students demonstrated high levels of problem solving tactics and the ability to carry out process improvements, document efficiency changes and the strategies used to implement them. 2/10 students demonstrated fundamental or basic tactics to refine their processes and gather data.

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Assessment Completed by: Chris Dodson

Date: 11.07.2023
Date: 7/8/2024

Plans to be submitted to Academic Assessment Coordinator (kbooth@cgcc.edu) by Nov 15 of academic year being assessed
Results to be submitted to Academic Assessment Coordinator (kbooth@cgcc.edu) by June 30th of the following academic year being assessed