



## MECHANICAL ENGINEERING TECHNOLOGY APPRENTICESHIP PROGRAM ON-THE-JOB LEARNING COMPETENCIES

This document outlines the competencies that will be evaluated by the employer as part of ASME's Mechanical Engineering Technology Registered Apprenticeship program. They have been deemed necessary by industry to develop a skilled and productive entry-level ME Technician.

Understands and utilizes proper workplace safety protocols.		
Competencies	Date Completed	Initial
Recognizes, avoids, abates, and prevents common workplace hazards.		
Able to select and use proper Personal Protective Equipment (PPE).		
Identifies location of exit routes, emergency action plans, and fire prevention plans.		
Demonstrates proper lock out/tag out procedures.		

Technical Writing & Ethics		
Competencies	Date Completed	Initial
Applies technical writing strategies for clear, concise direct wording.		
Presents results and recommendations for every type of audience.		
Selects illustrations that complement and clarify the text.		
Uses sound judgement.		
Maintains logs and documentation according to company standards		

**Commented [PS1]:** These are grouped well. Just suggest adding "maintains logs and documentation according to company standards."



Create graphical representations of mechanical equipment and systems.

Competencies	Date Completed	Initial
A. Prepare parts sketches and write work orders and purchase requests to be furnished by outside contractors.		
B. Draft detail drawing or sketch for drafting room completion or to request parts fabrication by machine, sheet or wood shops.		
C. Prepare specifications, designs, or sketches for machines, components, or systems related to the generation, transmission, or use of mechanical or fluid energy.		
D. Prepare layouts of machinery, tools, plants, or equipment.		

Explain engineering drawings, specifications, or other technical information.

Competencies	Date Completed	Initial
E. Interpret engineering sketches, specifications, or drawings.		

Review technical documents to plan work and evaluate designs and specifications to ensure quality.

Competencies	Date Completed	Initial
F. Review project instructions and blueprints to ascertain test specifications, procedures, and objectives, and test nature of technical problems such as redesign.		
G. Review project instructions and specifications to identify, modify and plan requirements fabrication, assembly and testing.		
H. Evaluate tool drawing designs by measuring drawing dimensions and comparing with original specifications for form and function using engineering skills.		



Monitor and review the productivity or efficiency of industrial operations.

Competencies	Date Completed	Initial
I. Read dials and meters to determine amperage, voltage, electrical output and input at specific operating temperature to analyze parts performance.		
J. Prepare equipment inspection schedules, reliability schedules, work plans, or other records.		

Design industrial equipment.

Competencies	Date Completed	Initial
K. Assist engineers to design, develop, test, or manufacture industrial machinery, consumer products, or other equipment.		
L. Design molds, tools, dies, jigs, or fixtures for use in manufacturing processes.		
M. Design specialized or customized equipment, machines, or structures.		

Assemble mechanical components or machine parts.

Competencies	Date Completed	Initial
N. Devise, fabricate, or assemble new or modified mechanical components for products such as industrial machinery or equipment, and measuring instruments.		
O. Assemble or disassemble complex mechanical systems.		

**Test and evaluate systems and materials.**

Competencies	Date Completed	Initial
A. Inspect and test mechanical equipment.		
B. Set up and conduct tests of complete units and components under operational conditions to investigate proposals for improving equipment performance.		
C. Assist engineers to design, develop, test, or manufacture industrial machinery, consumer products, or other equipment.		
D. Test machines, components, materials, or products to determine characteristics such as performance, strength, or response to stress		

Commented [PS2]: This should go first.

Commented [PS3]: This should go 2<sup>nd</sup>.

**Analyze test or validation data.**

Competencies	Date Completed	Initial
P. Analyze test results in relation to design or rated specifications and test objectives, and modify or adjust equipment to meet specifications.		

**Document design or operational test results and make recommendations to improve efficiency, quality, or performance.**

Competencies	Date Completed	Initial
Q. Set up prototype and test apparatus and operate test controlling equipment to observe and record prototype test results.		
R. Conduct failure analyses, document results, and recommend corrective actions.		
S. Record test procedures and results, numerical and graphical data, and recommendations for changes in product or test methods.		



Estimate technical or resource requirements for development or production projects.

Competencies	Date Completed	Initial
T. Calculate required capacities for equipment of proposed system to obtain specified performance and submit data to engineering personnel for approval.		
U. Conduct statistical studies to analyze or compare production costs for sustainable and nonsustainable designs.		

Collaborate with others for continuous improvement.

Competencies	Date Completed	Initial
V. Discuss changes in design, method of manufacture and assembly, or drafting techniques and procedures with staff and coordinate corrections.		
W. Provide technical support to other employees regarding mechanical design, fabrication, testing, or documentation.		