



## APPRENTICESHIP PROGRAM OUTLINE

# MANUFACTURING PRODUCTION TECHNICIAN WORK PROCESSES & SKILLS

The term of the apprenticeship will be based on the apprentice's completion and on-the-job demonstration of the professional competencies outlined in the work processes. Apprentices must demonstrate competency in a minimum of **87.5%** of the listed competencies prior to completing the program. If training employers identify specific competencies that cannot be tested on the job, the apprenticeship committee will approve and provide instruction and testing that ensures the competencies have been met. Registered Apprentices will perform work and are required to demonstrate competencies in the following skills:

### Work Processes & Skills

- Build prototypes from rough sketches or plans
- Design basic circuitry and draft sketches for clarification of details and design documentation using engineers' directions, using drafting instruments and computer aided design equipment
- Read blueprints, wiring diagrams, schematic drawings, and engineering instructions for assembling electronics units, applying knowledge of electronic theory and components
- Assemble electrical and electronic systems and prototypes according to engineering data and knowledge of electrical principles, using hand tools and measuring instruments
- Install and maintain electrical control systems and solid state equipment
- Assemble, test, and maintain circuitry or electronic components according to engineering instructions, technical manuals, and knowledge of electronics, using hand and power tools
- Identify and resolve equipment malfunctions, working with manufacturers and field representatives as necessary to procure replacement parts
- Test electronics units, using standards test equipment, analyze results to evaluate performance and determine need for adjustment
- Analyze and interpret test information to resolve design-related problems
- Modify electrical prototypes, parts, assemblies, and systems to correct functional deviations
- Maintain working knowledge of state-of-the-art tools, software, etc., through reading and/or attending conferences, workshops or other training
- Provide support and education, working with operators to identify needs, determine sources of problems and to provide information on function of processes
- Evaluate engineering proposals, shop drawing and design comments for sound electrical engineering practice and conformance with established safety and design criteria, and recommend approval or disapproval
- Provide technical assistance and resolution when electrical or engineering problems are encountered
- Review existing electrical engineering criteria to identify necessary revisions, deletions or amendments to outdated material
- Maintain system logs and manuals to document testing and operation of equipment
- Procure parts and maintain inventory and related documentation
- Provide user applications and engineering support and recommendations for new and existing equipment with regard to installation, upgrades and enhancement.
- Adjust and replace defective or improperly functioning circuitry and electronics components, using hand tools and soldering iron



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Apprentices must Complete Coursework Aligned with Manufacturing and/or Machining Technology, Production Technician, and/or Engineering Technology pathways. Through consultation with the Apprenticeship Committee, the Local Education Agency, and the indenturing employer, apprentices will select an applicable program of study/course track and complete a minimum of **144 hours** of related instruction per year of apprenticeship. Prior applicable education and training will be credited towards completion of related education requirements and apprentices will be offered tracks advancing their technical aptitude in the profession.

### Related Instruction Content May Include

AC ELECTRONICS	108 HOURS
ELECTRONIC DEVICES & CIRCUITS	90 HOURS
MULTISIM CAD AND PCB DESIGN	90 HOURS
DC ELECTRONICS	90 HOURS
DIGITAL TECHNIQUES	108 HOURS
TECHNICAL COMMUNICATIONS	54 HOURS
PROGRAMMABLE LOGIC CONTROLLERS	90 HOURS
COOPERATIVE WORK EXPERIENCE (1-16 UNITS)	

REGISTERED WITH:



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