AUTOMATED MANUFACTURING TECHNICIAN

Definition: An entry-level automated manufacturing technician applies basic technical and professional skills in support of the automated manufacturing facility.

A. BASIC TECHNICAL SKILLS

A.1 Read and interpret technical information; i.e., manuals, graphs, charts
A.2 Read and interpret blueprints and tolerances
A.3 Read and interpret schematics
A.4 Demonstrate machine shop techniques
A.5 Demonstrate an understanding of mechanics and materials
A.6 Read PLC's
A.7 Program PLC's
A.8 Develop a working knowledge of classic electrical and mechanical mechanisms
A.9 Develop a working knowledge of instrumentation hardware
A.10 Determine source of problems as electrical or mechanical
A.11 Demonstrate measuring skills including calibration
A.12 Demonstrate basic operation and set-up knowledge of robotics, vision systems, ASRS

B. BASIC PROFESSIONAL SKILLS

B.1 Communicate orally to both technical and nontechnical persons; i.e., technical presentations
B.2 Write reports and memorandums
B.3 Participate as a team member in work responsibilities
B.4 Analyze process with regard to problem prevention
B.5 Perform basic math computations and data recording
B.6 Apply reasoning skills to solution of problems
B.7 Develop an awareness of safety requirements in the workplace; i.e., OSHA, MSDS, EPA, lockout/tagout
B.8 Demonstrate general skills and knowledge as listed on last page of profile
B.9 Exhibit desired behavior/traits as listed on last page of profile

C. MANUFACTURING

C.1 Recognize basic concepts of the manufacturing process
C.2 Distinguish steps within the manufacturing process
C.3 Identify basic process equipment; e.g., robots, lathes, machining equipment, CNC
C.4 Develop awareness of manual operations; e.g., stand-alone drill press, hand soldering-cleaning, stamping machines
C.5 Demonstrate an understanding of automated computer integrated processes; e.g., result of CAD design \( \rightarrow \) CNC \( \rightarrow \) subassemblies; PLC's, ladder logic, MRP's
C.6 Develop an understanding of production control; i.e., JIT, scheduling
C.7 Demonstrate an understanding of roles and functions of business support personnel
C.8 Demonstrate an understanding of manufacturing cost controls
C.9 Demonstrate an understanding of assembly line requirements
C.10 Assure that through-put requirements of assembly line are met; i.e., set-up, required parts, maintenance, and stocking
C.11 Participate in the design of a basic manufacturing line
C.12 Recognize basic concepts of time study
C.13 Demonstrate awareness of state-of-the-art technology and automation

D. QUALITY

D.1 Develop an awareness of the impact of quality on manufacturing operations
D.2 Demonstrate an understanding of quality as a method of meeting customer (internal and external) requirements
D.3 Demonstrate an understanding of SPC and other quality techniques

E. COMPUTER LITERACY

E.1 Set-up and operate a PC
E.2 Operate word processing programs on PC
E.3 Use spreadsheets on PC
E.4 Locate and utilize information systems/data acquisition
E.5 Communicate between PC's and PLC's
E.6 Access database within PC
E.7 Demonstrate basic CNC control

GENERAL SKILLS AND KNOWLEDGE

Basic math skills
   Trigonometry
   Geometry
   Algebra
   Basic statistics
Basic physics
Basic chemistry
Basic writing
Keyboarding
Calculator skills
Scientific calculator skills
Listening skills
Problem solving

DESIRED BEHAVIORS/TRAILS

Organization skills
Self-motivation
Leadership
Cooperative
Flexible
Ethical
Honest
Open-minded
Professional
Committed
Responsible
Sense of ownership
Entrepreneur-spirit
Quality attitude

ACRONYMS

AGV - Automated Guided Vehicle
ASRS - Automated Storage & Retrieval System
CAD - Computer Aided Drafting/Design
CAM - Computer Aided Manufacturing
CIM - Computer Integrated Manufacturing
CNC - Computer Numerical Control
DCS - Distributed Control System
EPA - Environmental Protection Agency
IO - Input/Output
ISO9000 - International Standard
JIT - Just-in-Time
LAN - Local Area Network
MAP - Manufacturer's Automated Protocol
MRP - Materials Resource Planning
DACUM PANEL PARTICIPANTS

Panelists

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