

# Advanced Manufacturing Technology (2025)

## Advanced Manufacturing Technology

- 1 Conduct assigned tasks in a safe and workmanlike manner while working either independently or in small groups** 7103.D1.1

---

- 2 Identify basic manufacturing processes and major types of production systems.** 7103.D1.2

---

- 3 Define common properties of industrial materials, their application, testing and enhancement** 7103.D1.3

---

- 4 Describe the design, tooling, and production aspects of manufacturing.** 7103.D1.4

---

- 5 Demonstrate a general knowledge of non-traditional manufacturing processes and automation.** 7103.D1.5

---

- 6 Explain the basic concepts of electrical, hydraulic, and pneumatic power systems.** 7103.D1.6

---

- 7 Describe and solve for basic electrical quantities such as voltage, amperage, resistance, and power.** 7103.D1.7

---

- 8 Describe the types of basic fluid power systems used in manufacturing.** 7103.D1.8

---

- 9 Determine fluid system properties such as pressure, flow, viscosity, and pressure drop** 7103.D1.9

---

- 10 Identify the common types and operation of bearing, coupling, belt, and chain systems.** 7103.D1.10

---

- 11 Identify physical principles including force, torque, simple machines, and mechanical drives.** 7103.D1.11

---

- 12 Describe the basic concepts of machine control, machine automation, and electrical control.** 7103.D1.12

---

- 13 Communicate effectively using listening, speaking, reading, and writing skills.** 7103.D1.13

---

- 14 Use quantitative analytical skills to evaluate and process numerical data.** 7103.D1.14

- 
- 15 Solve problems using critical and creative thinking skills.** 7103.D1.15

---

  - 16 Utilize and apply software where appropriate to the course.** 7103.D1.16

---

  - 17 Attain readiness to take MSSC Production and Maintenance Awareness Certification exams.** 7103.D1.17

---

  - 18 Demonstrate ability to read and interpret technical documents.** 7103.D1.18

---

  - 19 Demonstrate the ability to use various types of software applicable to course.** 7103.D1.19
- 

## Electrical Power

- 1 Demonstrate proper safety precautions related to equipment.** 7103.D2.1

---

- 2 Define the following terms: voltage, resistance, current amperage, direct current, alternating current, and power supply.** 7103.D2.2

---

- 3 Identify electrical components and form a schematic diagram.** 7103.D2.3

---

- 4 Identify types of electrical mechanical switches (SPDT, DPDT, etc.)** 7103.D2.4

---

- 5 Calculate voltage, current, and resistance in series, parallel, and series-parallel circuits using Ohm's Law.** 7103.D2.5

---

- 6 Perform voltage, current, and resistance measurements using the proper measurement devices (both analog and digital meters).** 7103.D2.6

---

- 7 Create a schematic drawing and complete single phase AC electrical service connections including meter bases and service panels.** 7103.D2.7

---

- 8 Identify basic principles and characteristics of transformers, resistors, capacitors and diodes.** 7103.D2.8

---

- 9 Calculate values for AC and DC resistive, inductive, and capacitive components.** 7103.D2.9

---

- 10 Assemble and test laboratory exercises including building single phase AC switched circuits, and circuits using mechanical relays.** 7103.D2.10

---

- 11 Demonstrate ability to read and interpret technical documents.** 7103.D2.11

---

- 12 Demonstrate ability to use various types of software applicable to course.** 7103.D2.12

---

- 13 Recall fundamental content to meet/exceed the cut-score for the SACA (Smart Automation Certification Alliance) C-201 Electrical Systems I Certification exam - Silver Certification.** 7103.D2.13

---

- 14 Demonstrate skills to obtain the SACA C-201 Electrical Systems I Certification exam - Gold Certification at a 100% of skill standard.** 7103.D2.14

---

**1 Demonstrate understanding of the basic functions of PLC's** 7103.D3.1