



CURRICULUM GUIDE 2021-2022

SMART MANUFACTURING TECHNOLOGY

Associate in Science in Smart Manufacturing Technology

INTEREST AREA: SCIENCE, TECHNOLOGY, ENGINEERING, AND MATHEMATICS (STEM)

The Associate in Science in Smart Manufacturing Technology at Ohlone provides entry-level manufacturing technicians with the relevant knowledge and skills for Smart Manufacturing in the 21st century. Students will have the opportunity to gain relevant knowledge and skills in Industry 4.0 standards, Industrial Internet of Things (IIoT), additive manufacturing, manufacturing processes, Safety in Industry, PLCs, electronic troubleshooting, and fabrication techniques. After successful completion of the Associate in Science in Smart Manufacturing Technology students can pursue a career as a Smart Factory Technician, Industry Standard 4.0 Technician, Robotic Technician, Mechatronics Technician, Industrial Technician, Manufacturing Technician, Electromechanical Technician, Process Technician, Maintenance Technician, or a Quality Control Technician.

Requirements for Associate in Science Degree

- Complete Major Field and Supporting Courses with a grade of C or better.
- Complete Ohlone College (Plan A) General Education Requirements. These requirements are specified in the Ohlone College catalog.
- Complete at least 60 degree-applicable units with a 2.0 grade point average.
- Complete at least 12 units at Ohlone College.

Student Learning Outcomes

- Operate relevant fabrication and manufacturing equipment such as CNC machines, mills, lathes, laser cutters, smart factories, 3D printers, etc.
- Demonstrate understanding of Smart Advanced Manufacturing Processes including, but not limited, to Industrial Internet of Things (IIoT)/Industry Standard 4.0.
- Apply basic scientific and engineering principles to solve problems in the manufacturing industry.
- Demonstrate ability to work in a team on a project.

MAJOR FIELD

CAOT-150	Excel for the Sciences	.5
CAOT-151	Mathematical Computation and Communication	.5
COMM-111	Introduction to Public Speaking OR	3
ENGL-156	Introduction to Report and Technical Writing	(3)
ENGI-101	Introduction to Engineering	3
ENGI-115	Engineering Graphics and Design	4
ENGI-130	Electric Circuit Analysis OR	4
ETEC-106	Electronics for Technology	(3)

ENGI-135	Introduction to Robotics and Automated Systems	4
ENGI-140	Materials Engineering OR	4
ETEC-107	Properties of Materials	(1.5)
ETEC-110	Additive Manufacturing	2
ETEC-112	Manufacturing Processes	2
ETEC-113	Safety in Industry	1
ETEC-116	Computer Assisted Machining Programming	2
ETEC-117	Fabrication Techniques	.5
ETEC-121	Work-Based Project	3
ETEC-124	Introduction to Internet of Things	1.5
ETEC-126	Industrial Internet of Things-Industry Standard 4.0	3
MATH-186	Pre-Calculus I	4
MATH-187	Pre-Calculus II OR	4
PHYS-108	Survey of Physics	(3)

41.5-46

SUPPORTING COURSES

Complete one course from the following courses:

CNET-105	IT Essentials (CompTIA A+)	4
CNET-170	Network Security (Security+)	4
CNET-175	Cloud Security Fundamentals	4
ENGI-114	How Technology Works	<u>4</u>
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Total Required Units: 45.5-50