

# ENGINEERING TECHNOLOGY CERTIFICATE

Division: Technology and Engineering

PROGRAM CODE: 2C41410

The **Engineering Technology Certificate** program is the study of technologies, sciences and management practices that provides a background in materials, advanced manufacturing processing (metals and plastics), automation (robotics and programmable controllers), mechanical design and development process, CAD/CAM, quality control/metrology, process planning, "lean" principles, and project management. The student is required to complete a total of 34-36 units. At least one half of the units toward the certificate must be completed at Fullerton College. A minimum grade of C or better is required for each course taken.

Code	Title	Units
<b>Required Courses (32 units):</b>		
DRAF 101 F	Blueprint Reading for Manufacturing (formerly DRAF 070 F)	2
DRAF 173 F	Geometric Dimensioning and Tolerancing	2
DRAF 944 F	Solidworks	3
DRAF 945 F	Advanced Solidworks	3
MACH 101 F	Introduction to Machine Tools (formerly MACH 091 F)	5
MACH 180 F	Introduction to Metrology	3
MATH 142 F	Trigonometry	4
METL 192 F	Fundamentals of Metallurgy	3
TECH 108 F	Manufacturing Processes	3
TECH 131 F	Basic Electricity and Basic Electronics	2
TECH 132 F	Basics of Electric Motor Controls	2
<b>Restricted Electives (2-4 units):</b>		<b>2-4</b>
ENGR 105 F	Engineering CAD	4
ENGR 110 F	Introduction to Engineering	3
TECH 127 F	Industrial Safety	2
TECH 135 F	Introduction to Programmable Logic Controllers	2
TECH 136 F	Computer Integrated Manufacturing and Advanced PLC	3
TECH 137 F	Electronic Instrumentation and Networking	2
TECH 138 F	Electronic Instrumentation and Networking II	2
<b>Total Units</b>		<b>34-36</b>

**Outcome 1:** Interpret and apply basic concepts of math and materials science such as strength of materials, structural properties, conductivity, and mechanical properties.

**Outcome 2:** Perform various non-destructive and destructive materials testing procedures.

**Outcome 3:** Analyze and apply electrical, electronics, and programming logic principles within various automated manufacturing environments and applications such as industrial robotics, programmable controls, and other such systems.

**Outcome 4:** Working individually and as a team, monitor and control lean manufacturing processes or other industrial systems.

**Outcome 5:** Select appropriate manufacturing processes for production applications such as forming, molding, subtractive and additive manufacturing, conditioning, joining, and finishing.

**Outcome 6:** Communicate mechanical ideas utilizing 2-D and 3-D computer-aided design systems to create designs and models for products, machines, jigs, fixtures, and other mechanical devices used in manufacturing environments.

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