

# MANUFACTURING TECHNOLOGY ASSOCIATE IN SCIENCE DEGREE

PROGRAM CODE: 2S03842

The **Manufacturing Technology Associate in Science Degree** incorporates courses from a number of departments within the Technology and Engineering Division. This degree typically leads to intermediate to advanced level technical careers as a machinist, toolmaker, CNC operator, CNC programmer, manufacturing engineer, process engineer, maintenance technician, field service technician, fabrication technician, machine builder, welders, designers, design engineers, CAD/CAM engineer as well as a number of other manufacturing, engineering, and service positions. A student pursuing the Manufacturing Technology major must take the required courses in addition to a concentration in one or more of the major areas. The areas of concentration are Drafting, Machine Technology, and Welding. This degree requires 30-34 units in the major in addition to other graduation requirements. At least one-half of the units towards the major must be completed at Fullerton College.

Code	Title	Units
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## Required Courses (15 units):

DRAF 171 F	Fundamentals of Drafting	2
METL 192 F	Fundamentals of Metallurgy	3
MACH 116 F	Machine Tools	2
TECH 108 F	Manufacturing Processes	3
TECH 127 F	Industrial Safety	2
WELD 100 F	Introduction to Welding (formerly WELD 121AF)	3

**Restricted Electives - Select 15-19 units from one of the areas below (select all courses from the same area for a concentration in DRAF, MACH or WELD):** **15-19**

## Drafting Technology (15-19 units)

DRAF 101 F	Blueprint Reading for Manufacturing (formerly DRAF 070 F)	2
DRAF 140 F	AutoCAD for Industry	3
DRAF 141 F	Advanced CAD for Industry	3
DRAF 143 F	3D Applications Using AutoCAD	3
DRAF 173 F	Geometric Dimensioning and Tolerancing	2
DRAF 944 F	Solidworks	3
DRAF 945 F	Advanced Solidworks	3

OR

## Machine Technology (15-19 units)

MACH 101 F	Introduction to Machine Tools (formerly MACH 091 F)	5
MACH 102 F	Intermediate Machine Tools (formerly MACH 092 F)	5
MACH 103 F	Advanced Machine Tools (formerly MACH 093 F)	5
MACH 104 F	Advanced Topics in Machine Technology	5
MACH 110 F	CNC Machine Set-Up and Operation (formerly MACH 086 F)	3

MACH 115 F	CNC Parts Programming (formerly MACH 087 F)	3
MACH 120 F	Advanced CNC Machining (formerly MACH 088 F)	3
MACH 130 F	Multiple Axis CNC Set and Operation (formerly MACH 090 F)	3
MACH 140 F	Basic CNC Swiss Style Lathe Set-Up and Operation	3
MACH 142 F	Advanced CNC Swiss Style Lathe Set-Up and Operation	3
MACH 145 F	Basic CNC Swiss Style Lathe Programming and Applications	3
MACH 150 F	CNC Programming Using Mastercam (formerly MACH 050 F)	3
MACH 152 F	Advanced CNC Programming Using Mastercam (formerly MACH 052 F)	3
MACH 154 F	CNC Programming Using Surfcam (formerly MACH 060 F)	3
MACH 156 F	Advanced CNC Programming Using Surfcam (formerly MACH 062 F)	3
MACH 180 F	Introduction to Metrology	3
MACH 182 F	Introduction to CMM Inspection and Romer Arms	3
MACH 184 F	Advanced CMM and Romer Arm Inspection	3
MACH 185 F	CMM and Romer Arm Applications	2

OR

## Welding (15-19 units)

WELD 091AF	Industrial Welding Fundamentals	5
WELD 091BF	Semi-Automatic Welding Applications	5
WELD 091CF	Manual Arc Welding Fundamentals	5
WELD 096 F	Welding Inspection Technology	5
WELD 098 F	Welding Fabrication Technology	2
WELD 091DF	Structural Welding Certification	5
WELD 120 F	Gas Shielded Arc Welding	3

**Total Units** **30-34**

**Outcome 1:** Demonstrate the ability to read, interpret, evaluate, and/or generate drawings to manufacture components and metal sub-assemblies per drawing specifications.

**Outcome 2:** Design, develop, produce or inspect components and metal sub-assemblies to drawing specifications.

**Outcome 3:** Demonstrate the ability to function professionally in a manufacturing team-based environment as either a team leader or a team member.

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