

# TOOLING, ASSOCIATE IN SCIENCE DEGREE

Financial Aid Eligible  
Banner Code: 1\_AS\_MTTL  
Control Number: 08633

Earning the Tooling certificate upgrades the skills of the machinist to the point required for profitable employment as an entry-level tool maker, a die maker, or a mold maker. As well as other subjects that must be learned by the beginning tool maker, the Tooling certificate program includes courses in metallurgy, tool and cutter grinding, and welding tooling.

Complete the Tooling Certificate of Achievement and the Associate in Science graduation requirements as outlined in the Graduation Requirements section of the catalog.

## Program Outcome

1. Manufacture precision tooling for Dies, Molds, and Prototype tooling.

## Associate in Science Degree Requirements

1. **UNIT REQUIREMENT** - 60 UNITS, with at least a 2.0 grade point average. At least 12 of the units must be earned at OCC, with a minimum of one course taken for a letter grade. At least 3 units in an advanced course from the program must be completed at OCC. A student must be enrolled at the time of application for graduation. Units earned at an accredited college or university on a credit/no credit basis will be counted toward the degree requirements of the college, to a maximum of 15 units.
2. **MAJOR REQUIREMENT** - Complete the AA or AS major requirements as detailed in the Degree and Certificate section of this catalog.
3. **MATHEMATICS REQUIREMENT** - Demonstrate competence in mathematics by either obtaining a satisfactory grade (grade of "C" or better or "pass") in a mathematics course at or above the level of Intermediate Algebra as demonstrated by prior coursework, or by demonstrating competency that is comparable through the completion of a college-level math course that has Intermediate Algebra as a prerequisite: Psychology A160 or Math A100 or higher, with the exception of Math A220.
4. **GENERAL EDUCATION REQUIREMENT** - Students may choose to complete Option 1 (OCC AA GE) (<https://catalog.cccd.edu/orange-coast/general-education-patterns/associate-arts-general-education-option-1/>), Option 1 (OCC AS GE) (<https://catalog.cccd.edu/orange-coast/general-education-patterns/associate-science-general-education-option-1/>), Option 2 (CSU GE) (<https://catalog.cccd.edu/orange-coast/general-education-patterns/associate-degree-general-education-option-2/>), or Option 3 (IGETC (<https://catalog.cccd.edu/orange-coast/general-education-patterns/associate-degree-general-education-option-3/>)) (<https://catalog.cccd.edu/orange-coast/general-education-patterns/associate-degree-general-education-option-3/>)) to satisfy the general education requirement. See the General Education Patterns section of this catalog for more information.

Course	Title	Units
<b>Required Courses</b>		
MACH A100	Introduction to Machine Shop	3
MACH A105	Lathe	5
MACH A110	Milling Machine	5
MACH A115	Production Machining Techniques	2
MACH A120	Measurement and Blueprint Reading	3
MACH A121	Computations for Machinists	3
MACH A125	CNC Machine Operation 1	3
MACH A130	Introduction to CNC and Manual Programming	3
MACH A175	Dimensioning and Tolerancing	3
MACH A190	Elementary Metallurgy	2
MACH A200	Tooling	2.5
WELD A100	Arc & Oxy-acetylene Welding	3
<b>Total Units</b>		<b>37.5</b>

Requirement	Units
Program Major Units	37.5
AS General Education Option 1, 2, or 3	Varies
Transferable electives to satisfy unit requirement	Varies
<b>Total Degree Units</b>	<b>60</b>