



Manufacturing/Machine Technology

Degrees

Industrial Technology, Manufacturing Technology Option,
Associate of Science

Certificates

Manufacturing Technology, Certificate of Achievement

Basic Machine Tool Operations-Lathe, Mill, Job Skills Certificate
Computer Numerical Control Programming, Job Skills Certificate

Industrial Technology, Manufacturing Technology Option, Associate of Science Degree

This program teaches students the spectrum of tools utilized in the manufacturing industry: manual machining, computer-controlled machining (CNC), welding, computer aided design, and mathematics. General education courses may be selected to prepare for career advancement or to help meet transfer requirements for the California State University system.

To Achieve the Associate in Science

Upon completion of the following courses with at least a 'C' grade in each course, the student will be awarded an Industrial Technology, Manufacturing Technology Option Associate in Science degree.

To Transfer Coursework

A minimum of 24 semester units in the major with a grade of 'C' or better while maintaining a minimum grade point average of at least 2.0 in all California State University transferable coursework.

Program Learning Outcomes

Upon successful completion, the student will:

- demonstrate proficiency in technical skills and safety principles required for employment in the manufacturing industry.
- demonstrate problem solving skills used in manufacturing design and product development.
- demonstrate a deep understanding of the core material required for transfer to a four year university program or for certification in the manufacturing program.

Career Opportunities: Machinist, CNC Operator, CNC Programmer, and drafter/designer.

Total Units: 24

Required Core Courses

Course #	Name	Units
MFGT B1AB	Machine Tool Processes	3.0
MFGT B2	CNC Lathe Programming & Operation	3.0
MFGT B3	CNC Mill Programming	3.0
INDR B12	Introduction to Drafting and CAD	2.0
TECM B52	Industrial Math and Quality Control or equivalent	3.0
WELD B1A	Introduction to Oxygen Acetylene Welding and Cutting	2.0
WELD B1B	Introduction to the Welding Processes	2.0
WELD B54A	Blueprint Reading for Welders and Machinists	3.0

Electives - Select at least 3 units from the following:

INDR B20A	Computer Aided Drafting and Design (CAD)	3.0
INDR B40	Parametric Modeling Fundamentals	3.0
INDT B273	Special Problems in Tool Metal Working	2-3.0
WELD B53AB	Shielded Metal Arc Welding	4.0
WELD B74A	Introduction to GMAW (Gas Metal Arc) and FCAW (Flux Core Arc Welding)	2.0
WELD B74B	Introduction to Gas Tungsten Arc Welding	2.0

Manufacturing Technology Certificate of Achievement

This program teaches students the spectrum of tools utilized in the manufacturing industry: manual machining, computer-controlled machining (CNC), welding, computer aided design, and basic math.

To Achieve the Certificate of Achievement

Upon completion of the following courses with at least a 'C' grade in each course, the student will be awarded a Manufacturing Technology Certificate of Achievement.

Program Learning Outcomes

Upon successful completion, the student will:

- demonstrate proficiency in technical skills and safety principles required for employment in the manufacturing industry.
- demonstrate problem solving skills used in manufacturing design and product development.
- demonstrate a deep understanding of the core material required for transfer to a four year university program or for certification in the manufacturing program.

Total Units: 31-33

Required Core Courses

Course #	Name	Units
MFGT B1AB	Machine Tool Processes	3.0
MFGT B2	CNC Lathe Programming & Operation	3.0
MFGT B3	CNC Mill Programming	3.0
INDR B12	Introduction to Drafting and CAD	2.0
TECM B52	Industrial Math and Quality Control or	3.0
MATH B60	Beginning Algebra or equivalent	5.0
INDT B10	Occupational Readiness or equivalent	3.0
WELD B1A	Introduction to Oxygen Acetylene Welding and Cutting	2.0
WELD B1B	Introduction to the Welding Processes	2.0
WELD B54A	Blueprint Reading for Welders and Machinists	3.0

Electives - Select at least 7 units from the following:

INDR B20A	Computer Aided Drafting and Design (CAD)	3.0
INDR B40	Parametric Modeling Fundamentals	3.0
INDT B273	Special Problems in Tool Metal Working	2-3.0
WELD B74A	Introduction to GMAW (Gas Metal Arc) and FCAW (Flux Core Arc Welding)	2.0
WELD B74B	Introduction to Gas Tungsten Arc Welding	2.0

Basic Machine Tool Operations Lathe, Mill - Job Skills Certificate

This certificate covers the principles of machine tool technology to include the use of precision measuring, drilling machines, saws, lathes and milling machines. Career opportunities include machinist.

To Achieve the Job Skills Certificate

Upon completion of the following courses with at least a 'C' grade in each course, the student will be awarded a Basic Machine Tool Operations - Lathe, Mill Job Skills Certificate.

Program Learning Outcomes

Upon successful completion, the student will:

- demonstrate proficiency in technical skills and safety principles required for industrial employment.
- demonstrate problem solving skills used in industrial design and product development.
- demonstrate a deep understanding of the core material required for transfer to a four year university program or for certification in the department programs.

Total Units: 3

Required Core Courses

Course #	Name	Units
MFGT B1AB	Machine Tool Processes	3.0

Computer Numerical Control Programming, Job Skills Certificate

This certificate covers the principles of set-up, operation and programming of computer numerical control (CNC) lathes and milling machines. Career opportunities include CNC Machinist CNC Programmer and CNC Operator.

To Achieve the Job Skills Certificate

Upon completion of the following courses with at least a 'C' grade in each course, the student will be awarded a Computer Numerical Control Programming Job Skills Certificate.

Program Learning Outcomes

Upon successful completion, the student will:

- demonstrate proficiency in technical skills and safety principles required for industrial employment.
- demonstrate problem solving skills used in industrial design and product development.
- demonstrate a deep understanding of the core material required for transfer to a four year university program or for certification in the department programs.

Total Units: 6

Required Core Courses

Course #	Name	Units
MFGT B2	CNC Lathe Programming & Operation	3.0
MFGT B3	CNC Mill Programming	3.0

