

Machining

Machining Degrees and Certificates

- 1
- Machining
- Manufacturing Certificate

Machining Classes

MACH 101: Introduction to Machining

An introductory course focusing on safe operation of machine tools and precision measurement. Students will learn benchwork skills using hand tools. Students will learn how to operate band saws and a drill press. The course will introduce off-hand grinding as well as manual lathe and manual mill machines.

Credits 5

Weekly Contact Hours 8.5

Meets Degree Requirements For

Not Intended for Transfer, Typically Numbered Below 100.

MACH 105: Machining Technology I

An introductory course focusing on the history, purpose and safe operations of machine tools, primarily the lathe, milling machine and associated tooling. Students will learn machine limits, modern and historic practices, as well as construct assigned projects. Emphasis on tool speeds, feeds, layout, shop math and proper material selection.

Credits 10

Weekly Contact Hours 14

Meets Degree Requirements For

Restricted Elective

MACH 115: Machining Technology II

An intermediate course focusing on the creation of machine tooling for both lathes and milling machines. The course focus will include: metallurgy, heat treatment, precision grinding, cutting geometry, bit sharpening and unique tooling. Students will also gain a working knowledge of GD&T.

Credits 10

Weekly Contact Hours 14

Meets Degree Requirements For

Restricted Elective

Prerequisites

[MACH 105](#)

MACH 125: Machining Technology III

Students will demonstrate and build proficiency in manual or conventional machining skills. Student and instructor will agree on a complex project that student will create. Course will also begin the exploration of G-Code programming and basic CNC operation.

Credits 10

Weekly Contact Hours 14

Meets Degree Requirements For

Restricted Elective

Prerequisites[MACH 115](#)

MACH 133: Machining Fundamentals and Manual Machines

A course focused on operation of manual machine tools utilizing modern machine theory. The course introduces metallurgy, heat treatment of materials, and material testing. The students will practice to competency standard operations on manual milling machines, lathes, and surface grinders. Power feeds, digital readouts, indexing equipment and trigonometry also utilized.

Credits 1-10**Weekly Contact Hours** 17.5**Meets Degree Requirements For**

Not Intended for Transfer, Typically Numbered Below 100.

Prerequisites[MACH 101](#) or High School Articulation or PLA or Instruction Permission

MACH 196: Cooperative Work Experience

Intended to provide authentic experiences in the world of work by applying knowledge and skills learned in the classroom to a working environment. Variable credit class.

Credits 1**Weekly Contact Hours** 25**Meets Degree Requirements For**

Restricted Elective

MACH 199: CNC Operation, Setup and Programming

CNC Operation, Setup and Programming

Credits 1-15**Weekly Contact Hours** 26**Meets Degree Requirements For**

Not Intended for Transfer, Typically Numbered Below 100.

Prerequisites[MACH 133](#) or Prior Learning Assessment or Instructor Permission

MACH 205: Machining Technology IV

Intermediate course that explores the basics of 2D CAM programming. The students will also longhand program complex parts and fixtures. CNC operation and offset adjustments will become more prevalent this quarter.

Credits 10**Weekly Contact Hours** 14**Meets Degree Requirements For**

Restricted Elective

Prerequisites[MACH 125](#)

MACH 215: Machining Technology V

Students will demonstrate and build proficiency in CNC machining skills. Students and instructor will agree on complicated project that student will create. Strong emphasis on intermediate CAM programming, in-depth machine setup, and independent operation of CNC machines.

Credits 10

Weekly Contact Hours 14

Meets Degree Requirements For

Restricted Elective

Prerequisites

[MACH 205](#)

MACH 225: Machining Technology VI

An advanced course that will explore 3D CAM programming in addition to showcasing the skills obtained in the previous five quarters. Students will discover potential job opportunities, create resume's, fill out applications and plan their career path.

Credits 10

Weekly Contact Hours 14

Meets Degree Requirements For

Restricted Elective

Prerequisites

[MACH 215](#)

MACH 266: CAM Programming and Introduction to Multiaxis

An advanced course focusing on Computer Assisted Manufacturing (CAM) and its use in creating parts of increasing complexity. Students will create parts, apply toolpaths, implement multiple work planes, and conduct analysis of machining processes within the CAM system. This course introduces students to complex 3-axis and 4-axis toolpaths.

Credits 1-15

Weekly Contact Hours 26

Meets Degree Requirements For

Not Intended for Transfer, Typically Numbered Below 100.

Prerequisites

[MACH 199](#)

MACH 288: Special Projects

This variable credit course allows students to pursue concepts beyond the scope of the first year machining courses. Students from industry can also enroll to study specific topics. Registration will require instructor approval of specific learning outcomes in order to determine applicable credit hours.

Credits 1-15

Weekly Contact Hours 260

Meets Degree Requirements For

Not Intended for Transfer, Typically Numbered Below 100.

MACH 296: Cooperative Work Experience

Intended to provide authentic experiences in the world of work by applying knowledge and skills learned in the classroom to a working environment.

Credits 3

Weekly Contact Hours 25
Meets Degree Requirements For
Restricted Elective