

ADVANCED MANUFACTURING

Contact Information

Division

Business and Technology

Dean

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Gain hands-on skills to design, build and manufacture in the Computer Numeric Control (CNC) machining courses held in our state-of-the-art machining center. This program is affiliated with Gene Haas Foundation of Haas Automation, the largest CNC machine tool builder in the western world.

Learn the latest technologies and get exposure to the entire spectrum of manufacturing. Delve into computer modeling and creation. Design for technology applications on our brand-new Haas machines.

ADVM 0062. Introduction to 2D CAD/CAM

Units: 2.5

Hours: 81 (27 lecture, 54 laboratory)

Introduction to use and operation of a CAD/CAM software system. Developing part geometry with Computer Aided Design (CAD), importing files, planning cutting and machine operations, and developing machine tool paths using Computer-Aided Machining (CAM). (not transferable)

ADVM 0063. Design Using Fusion 360

Units: 2

Hours: 72 (18 lecture, 54 laboratory)

Integration of Computer-Aided-Design (CAD) and Computer-Aided-Manufacturing (CAM) using the Autodesk Fusion 360 software platform. This includes parametric solid model designing, and the presentation of those designs using built in model rendering. Also covered is the use of CAM tools for control of CNC machines. (not transferable)

ADVM 0064. Computer-Aided 2D Design

Units: 3

Formerly known as WELD 64

Hours: 90 (36 lecture, 54 laboratory)

Study of Computer Numerically Controlled (CNC) cutting systems in the 2D world using industry standard hardware and development software. Topics include design principles, copyright, selection of materials, billing of materials and job estimating, basic G and M code commands, use of consumables, cut quality evaluation, and trouble-shooting techniques. (not transferable)

ADVM 0066. CNC Mill 3D Manufacturing

Units: 3

Formerly known as WELD 66

Advisory: Completion of ADVM 63 or ADVM 64 with grade of "C" or better

Hours: 90 (36 lecture, 54 laboratory)

Principles and operative skills to setup, program, and operate Computer Numerical Control (CNC) milling machines, designed to impart basic manufacturing knowledge and skills. Instruction of Geometrics, Computer-Aided Manufacturing (CAM), beginning CNC operations and manual programming skills, and measurement. (not transferable)

ADVM 0067. CNC Three Axis and Multi-Axis Milling

Units: 3

Formerly known as WELD 67

Prerequisite: Completion of ADVM 66 with grade of "C" or better

Hours: 90 (36 lecture, 54 laboratory)

Applications using multi-axis CNC machining. Developing complicated part geometry with Computer Aided Design (CAD), importing files, planning machine operations, and developing machine codes by Computer-Aided Machining (CAM) with multi-axis focus. Includes simulation modeling used to proof the assigned laboratory exercises and set-up for 3+2 and 4th and 5th axis operation of CNC machining centers. (not transferable)

ADVM 0068. Advanced Mill 4th and 5th Axis

Units: 3

Prerequisite: Completion of ADVM 67 with grade of "C" or better

Hours: 90 (36 lecture, 54 laboratory)

Advanced CNC machining 4th and 5th axis Mill work. Developing complicated part geometry with Computer Aided Design (CAD), Post process CAM tool path development, planning machine operations, and developing machine codes and techniques for cost effectiveness. CNC Lathe operations. Statistical Process control. (CSU)

- Create and analyze basic cad drawing files for use in mechanical systems
- Evaluate an industrial process based on principles of Computer Integrated Manufacturing
- Identify necessary tools and describe tool offsets and part offsets for machining designed parts
- Design programing using cam and basic G code to machine parts on a CNC turning center and CNC milling center that meet the part specification
- Describe and evaluate Geometric Dimensioning and tolerancing of parts from design