MANUFACTURING (MFG)

MFG 110. Dimensional Metrology. (2 Credits)
Utilization of the principles of the science of measurement to first give the necessary laboratory experience to show linear calibration to 10 millionths of an inch with various measurement instruments. Secondly to demonstrate the necessity of metrology in regards to national and international manufacturing and trade. 2 credits (1 lecture hour, 3 laboratory hours), spring semester

MFG 206. CNC Machining. (3 Credits)
Students will be instructed about the capabilities and limitations of computer numerical control (CNC) 4-axis machining center and 2-axis turning center. Students will write programs using g-code for a FANUC controller and produce parts in the laboratory from their programs. Prerequisite: MECH 101 3 credits (2 lecture hours, 3 laboratory hours), fall semester

MFG 207. Quality Control. (2 Credits)
A fundamental, yet comprehensive coverage of the basic principles and applications of quality control. Topics covered include: statistical process control (SPC), data collection and analysis, control charts for variables and attributes, acceptance sampling, reliability, total quality management (TQM) and ISO systems. Prerequisite: MATH 102 2 credits (1 lecture hour, 3 laboratory hours), spring semester

MFG 208. CAM - Mastercam. (2 Credits)
Introduction to Computer-Aided Manufacturing (CAM) utilizing Mastercam Software and Computer Numerical Controlled (CNC) machinery. Students will generate 2D and 3D drawing files and use the software to program various 2 and 3 axis CNC machining toolpaths. These programs will then be used to machine projects on our 4-axis machining center Prerequisites: CAD 186 and MFG 206 2 credits (1 lecture hour, 3 laboratory hours), spring semester

MFG 221. Manufacturing Processes 1. (3 Credits)
Examination of materials and processes in the manufacturing environment - theoretically and in the laboratory. Prerequisites: MECH 101 and MECH 120 3 credit hours (2 lecture hours, 3 lab hours), fall semester

MFG 240. Design/Manufacture Capstone. (3 Credits)
This course is a project-based culmination of design and manufacturing studies applied to a formal product design challenge. Students will work in teams to conceptualize, plan, define, prototype, optimize, and manufacture their solution to a real-world design problem. Emphasis is placed on creativity, communication and documentation skills, time management and individual responsibility for project success. A final project portfolio will include both written and graphical documentation of the product design process. Prerequisites: DRFT 252, MFG 221 3 credits (1 lecture hour, 4 laboratory hours), spring semester