Laboratory Tour & Information

M I N I M A N U F A C T U R I N G

101, 106—Material Joining (Welding) Students gain hands on experience in various manufacturing processes to join materials, such as electric arc welding, TIG and MIG welding, spot welding and brazing.

107, 109—Material Removal (Machining) This lab provides the space and tools for students to experience various manufacturing processes in which material is removed in controlled ways to shape a product. These processes include turning on a lathe, milling, and drilling. Each student produces all the parts required to build a small air motor which they get to take home at the end of the class.

108—Advanced CAD Lab This computer lab has the most common computer-aided design software packages used today in industry including Solidworks, ProEngineer/Creo and MasterCam.

110—Metrology This lab contains various precision instruments to measure manufactured parts to verify that their geometry and dimensions meet desired tolerance limits. It is temperature controlled because variations in temperature affect the accuracy of the measurements.

111—Advanced Machining Lab Advanced manufacturing courses take place in this lab space. It houses several computer Numerical Controlled (CNC) machines.

SEE MAP ABOVE FOR LAB LOCATIONS

ENGINEERING IV (BLDG. 192)

104, 105—Electronic Manufacturing Lab First year students and advanced students design and build electronic circuits to specifications. The lab has computers to design circuits and electronic manufacturing equipment to make them.

222—Undergraduate Student Lab Students work on projects, homework or club activities in this lab. It is open 24 hours and sometimes students just spend time here enjoying time together.

241—Gene Haas Laboratory for Robotics and Automation This space is used for courses in automation, robotics and machine vision. This lab contains state of the art equipment donated to Cal Poly by leading automation companies.

ENGINEERING III (BLDG. 41)

101, 102, 103, 106—Netshape Students experience “Netshape” manufacturing, which refers to processes to make things by melting materials and shaping them into a final form (or very close to it). These processes include casting, injection molding, and 3-D printing (additive manufacturing). In this lab, freshman students design products on a computer, process those designs to create molds, and produce unique parts by molding and casting.
Mission Statement

Educate students for successful and distinguished careers in manufacturing engineering and related fields using a learn-by-doing approach that stresses integrated processes, appropriate technologies, and enterprise competitive advantage.

Program Description

Manufacturing Engineering applies engineering analysis and methods to design and improve the production of all manufactured goods and related services. The manufacturing engineering plan develops, and optimizes the processes of production including methods of manufacture, and designs of tools and equipment for manufacturing. The emphasis is on both development and sustained operation of manufacturing systems, including computer-aided methods, automation, design for manufacture, production tooling, and material handling, as well as the processes and support systems of modern manufacturing. Manufacturing Engineering program accredited by the Engineering Accreditation Commission of ABET at http://www.abet.org.

Learn by Doing

Our main focus is to prepare graduates for practice in professional engineering. Thus, our "learn by doing" philosophy is emphasized in the curriculum by the large number of hands-on laboratories, integrating design throughout the curriculum, and the senior design project capstone design experience. In the required senior design project, which is completed in a two-quarter set of capstone courses, students demonstrate their understanding of engineering knowledge and their ability to apply that knowledge creatively to practical problems. Manufacturing laboratories are equipped with state-of-the-art equipment in a wide variety of processes, including: Computer-Aided Design, Computer-Aided Manufacturing, 3-D Printing, Automation, Robotics, Coordinate Measuring Machine, machine vision systems for inspection, various welding technologies, various casting technologies, injection molding, mills and lathes for machining, laser cutting and engraving machines, IEC-61131 Programmable Logic Controllers for automation, IEC-61131 multi-axis servo-motor controllers, and machine vision systems.

Career Paths

Graduates are prepared for job-entry at the professional level in the areas of CAD/CAM, process engineering, automation, quality assurance, and production engineering. They are well prepared for successful graduate study. Graduates choose from a wide range of career activities in numerous industries, such as: aerospace, automotive, biodefense, electronic, energy, food processing, industrial equipment and systems, including: Computer-Aided Design, Computer-Aided Manufacturing, 3-D Printing, Automation, Robotics, Coordinate Measuring Machine, machine vision systems for inspection, various welding technologies, various casting technologies, injection molding, mills and lathes for machining, laser cutting and engraving machines, IEC-61131 Programmable Logic Controllers for automation, IEC-61131 multi-axis servo-motor controllers, and machine vision systems.

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