

## **Innovative Rapid Prototype Program at Foothill College**

The Physical Sciences, Mathematics and Engineering (PSME) department at Foothill College is introducing a new 3D Printing and Rapid Prototyping certification program beginning in the fall of 2014. There is a growing demand for skilled designers and technical specialists adept in rapid prototyping practices, especially in California. Innovations in 3D printing have led to applications across a range of industries including aerospace, architecture, entertainment, medical, packaging and transportation.

Foothill's new engineering program includes a sequence of four courses designed to develop a cadre of skilled design professionals in rapid prototyping and model making. These courses (below) build on lecture, group discussion, guest speakers, company tours, hands on laboratory exercises along with enhanced experiential and project-based learning opportunities.

**Introduction to 3D Printing and Rapid Prototyping** (ENGR 62A), 4 units, will provide students with an overview of 3D printing technologies and an introduction to fundamental processes as well as career opportunities in 3D design and model making. Students will explore the role of 3D printing across a range of applications from prosthetics and housing to robotics and consumer electronics.

**3D Printing: Basic Model Making** (ENGR 62B), 5 units, will emphasize principles of 3D design and model making techniques. Students will further develop their drafting, visualization, communication and modeling making skills utilizing a variety of materials including plastic, metal, wood and adhesives.

**3D Printing: Advanced Model Making** (ENGR 62C), 5 units, will focus on more advanced 3D printing methods and model making design technologies including laser cutters, 3D scanners, CNC mills and lathes. Students will design and fabricate complex parts employing a variety of computer-aided design, coding and equipment applications.

**3D Rapid Model Making & Prototype Development** (ENGR 62D), 5 units, will focus on project development using advanced rapid-prototyping practices and technologies. Students will engage in an industrial-based practicum that builds on their specific interests and is aligned with their career goals.

This program will be expanded in the future by integrating modern advancements in 3D printing, rapid prototyping materials and interactive 3D modeling software.