

# APPLICATION STORY

## Local College Called Upon by Mayo Clinic in Time of Need

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— Pam Benson  
CAD Instructor,  
Rochester Community and Technical College



Rochester Community and Technical College (RCTC) is one of the nation's oldest community colleges. Founded in 1915, the college serves approximately 7,500 students. RCTC offers a Computer Aided Drafting Technology program. This track was created for students interested in turning concepts, ideas and rough sketches into designs using computer aided design tools and techniques. Students then take those designs and develop models that are turned into finished parts, which are used for functional and/or demonstrational purposes.

Each year, drafting students are assigned a project to test individual creativity and application of course material. Projects can range from creating machine design components, such as linkages and gears, to complete design prototypes. In developing particular models during the design process, students need the ability to efficiently test, evaluate and redesign the models developed in CAD.

One of the challenges many community colleges face is the constant battle for finances and larger budgets. In RCTC's case, the situation is no different. After budget cuts, the Rochester Community and Technical College closed the doors to its machine tool program where students created the models they designed by hand.

### **The Dimension Solution**

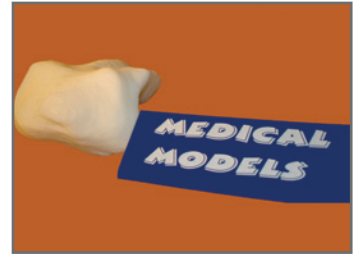
Having lost the means to create models, instructors sought a way to provide drafting students an alternative three-dimensional modeling source that would fit within the budget. "Our department needed a dependable, cost-effective alternative capable of producing 3D models," said Pam Benson, computer aided design instructor, Rochester Community and Technical College.

After careful consideration, RCTC chose to equip the CAD department with a Dimension 3D printer. Since then, the Dimension 3D printer has far exceeded RCTC's expectations.

Students at RCTC continue to find new, innovative ways to use the versatile Dimension 3D printer. "The students enjoy seeing 'hands-on' prototypes made within hours of their completed CAD designs," Benson said. "It has been a valuable addition to our college."

### Mayo Clinic Relies on 3D Printer in Conjoined Twins Case

In 2006, Pam Benson received a request from Mayo Clinic to print 3D models of conjoined twins' internal organs. Using CT scans received from the Mayo Clinic; Benson used the Dimension 3D printer to print models of the Carlsen twin's bile duct and liver. Mayo doctors used the 3D models to evaluate the Twins' medical condition and to determine the appropriate surgical procedures. A team of 18 doctors then successfully separated Abbigail and Isabelle Carlsen. Throughout the marathon eleven-hour procedure, the 3D models proved to be beneficial to the doctors who conducted the successful surgery. In addition, doctors used the 3D models to visually explain to the media how the procedure was conducted.



*Using CT scans received from the Mayo Clinic; Benson used the Dimension 3D printer to print models of the Carlsen twin's bile duct and liver (pictured above).*

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